

## Research on Big Data Analysis Method Based on Ai Technology

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**Abstract:** under the Background of Information Development, Big Data is an Important Asset of Industrial Development. the Knowledge and Value Contained in Big Data Has Huge Economic and Social Benefits, Which Can Promote China's Economic Development to a Higher Quality and Higher Level, and Realize the Transformation and Upgrading of Industrial Economic Structure. Therefore, Based on Ai Technology, This Paper Explores the Big Data Analysis Method, According to the Development and Application of Domestic Artificial Intelligence, and Explores the Big Data Analysis Method Based on Ai Technology. on This Basis, It Clarifies the Research Direction of Big Data Analysis of Ai Technology in the Future, So as to Realize the Innovation of Chinese Industry and Build Chinese Brands with International Competitiveness.

### 1. Introduction

In recent years, with the rapid development of artificial intelligence industry, there are more and more fields of application of artificial intelligence. Therefore, the discussion about whether artificial intelligence can replace some types of work is also on the rise. In this situation, the integration degree of artificial intelligence and data is deepening, which greatly promotes the integration and innovation development of information technology and modern industrial economy, thus the national economic development officially enters the era of big data. However, in order to truly cultivate the growth point of economic development, we should scientifically collect the big data of economic development, and obtain the online synchronous massive data. With the help of effective big data analysis methods, we can extract the key information, so as to apply the high standard data to various fields of production and life. Therefore, this paper explores big data analysis methods based on AI technology, combined with the current development of AI technology, according to the development and application of artificial intelligence in China, explores big data analysis methods based on AI technology, and on this basis, clarifies the research direction of big data analysis of AI technology in the future.

### 2. Big Data Analysis of Ai Technology

#### 2.1 Advantages and Disadvantages of Ai Technology

AI technology is what we usually call artificial intelligence technology. The advantages of artificial intelligence technology are very obvious. For example, it has super memory, super learning ability and can work for a long time In addition, artificial intelligence can replace human beings to do some work they don't want to do or can't complete. Because artificial intelligence can continue to work, it also largely ensures that the work efficiency has been in an ideal state At the same time, for the cost of work, the use of artificial intelligence can also greatly save it.

The shortcomings of AI technology the interpersonal role of AI is not mature In order to reach the ideal level, the production cost is high, the trace of "imitation" cannot be got rid of, and the audience awareness is low Today's AI is mainly a narrow sense of intelligence, that is to say, only the ability to achieve some small goals, such as playing chess or driving, its performance is sometimes better than that of human beings. In the face of objective things, a person always ripples in his heart, or loves or hates, or is gentle or manic, that is to say, there are always different attitudes and experiences This attitude and experience are highly subjective. Even in the same life, good people and bad people feel that life is different. When you are in a bad mood and are stimulated by

negative emotions, your ability to feel emotions will decline Obviously, artificial intelligence will not have this kind of sensitivity, its performance perception is often fixed, and the perception of things will not change with the change of environment and objects.

## 2.2 Development of Domestic Ai Technology

The 21st century is an era of rapid development of science and technology. From Internet + big data, cloud computing to the current artificial intelligence, the continuous updating of technology and the continuous creation of resources push us to the wave of technological revolution and innovation. Under the catalysis of artificial intelligence, the maturity and popularization of voice recognition, machine translation, driverless and other technologies have subverted people's understanding of science and technology. In recent years, the development of artificial intelligence robot is very rapid, and it has great advantages in many fields. Alpha go beat world go champion Li Shishi and wrote a revenue report in two minutes. Xuebajun launched AIDAM, an intelligent educational robot, Tesla's robot production line, and Emily, a virtual robot engaged in customer service by the Bank of Scandinavia The application of these robots shows that artificial intelligence has been involved in various fields, and the trend of artificial intelligence being replaced by automatic robots is faster and faster. KPMG is the center of introducing new digital solutions using Microsoft azure intelligent cloud services and artificial intelligence technology, and many such companies are trying to use robots to quickly digest a large number of real-time data, automatically repeat and standardize work, and find effective models. Humans can't work effectively.

According to the maturity of AI technology development, the promotion and application of AI technology have also changed a lot. Its application and popularization are divided into different stages, including laboratory stage, pilot stage, promotion stage and popularization stage, as shown in Table 1.

Table 1 Ai Technology Application Stage

Application stage	Resource form	Application field
Laboratory stage	Resource organization	Only at the level of algorithm research
Pilot phase	Cloud resource construction	Pilot application
Promotion stage	Cloud resource sharing, cloud centralized computing	Artificial alternative applications begin to appear in specific industries
Popularization stage	Large, medium and small enterprises and other scientific research institutions, etc.	Popularize to specific scenario applications

Note: data from prospective research institute

In terms of the development of provinces and cities, Beijing leads the country in terms of both the number of enterprises and the scale of financing, and its AI enterprise financing scale accounts for more than 50% of the national total. It is worth noting that although the number of enterprises in Shanghai accounts for 15.17% of the total number of enterprises in China, the proportion of financing scale is only 5.57%. Compared with Beijing and Guangdong, the average scale of each financing in Shanghai is not large. The average single financing in Beijing and Guangdong is more than US \$10 million, while that in Shanghai is only US \$4 million. Under the background of big data development, the construction of artificial intelligence ecological pattern, no matter in which field, its basic architecture is to gradually build the product architecture according to the “bottom middle top” mode, as shown in Figure 1.

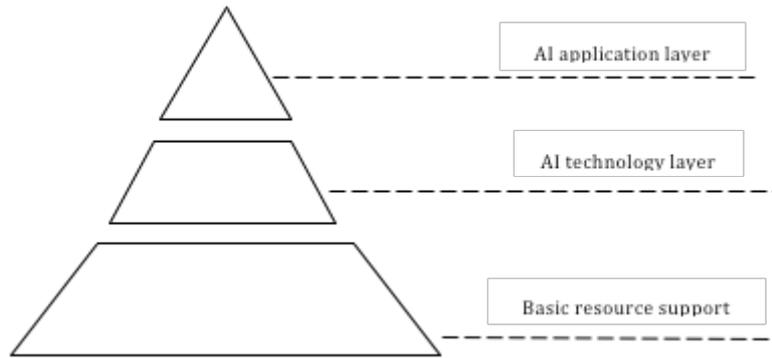


Fig.1 Ecological Structure of Ai Technology Industry

As shown in the figure above, in each level of product architecture, the participants are diverse. However, no matter which participant, it must take AI technology as the core to form a high-quality, high-standard product and service ecosystem.

### 2.3 Big Data Analysis Method of Ai Technology

Big data analysis is based on a large number of data and information, which is a scientific and reasonable analysis method, including five basic elements, such as visual analysis, data mining algorithm, predictive analysis ability, semantic engine, data quality and data management. The basic processing flow of big data analysis can be summarized as shown in Figure 2.

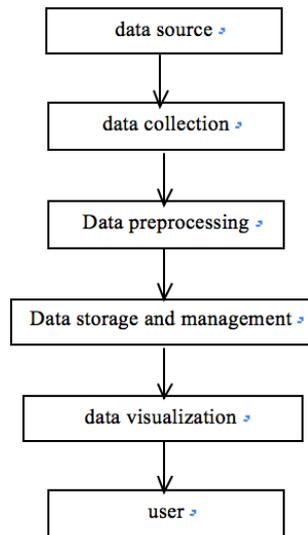


Fig.2 Basic Processing Flow of Big Data Analysis Method

Among them, data collection is the basic level. With the value of big data being recognized by more and more people, the difficulty of data collection is also increasing. It is particularly important to choose the right data collection tools, which are applied to the distributed big data collection system to obtain accurate and efficient data and information. Data preprocessing is to improve the quality of data through data sorting, integration, transformation and reduction. In addition, data analysis is the key link. According to the different data application scenarios, choose the appropriate data analysis tools, such as Hadoop, stonn, Google Dremel, rapid miner, etc. However, in order to ensure the accuracy of data analysis, with the help of AI technology, especially deep learning research technology, large-scale neural network can be constructed, thus the corresponding big data analysis has obvious advantages.

### **3. Challenge and Optimization Strategy of Big Data Analysis Based on Ai Technology**

#### **3.1 Challenge of Big Data Analysis Based on Ai Technology**

##### **3.1.1 Time Cost of Algorithm**

Based on the processing characteristics of big data analysis method, we can see that its distributed computing is the basis of algorithm processing. Currently, it is widely used in distributed computing platforms, such as MapReduce, spark, etc. In-depth learning, Google MapReduce will conduct parallel induction processing in the process of practice, and draw parallel and model strategies. Data parallel mainly refers to the segmentation of data collection process, while data model refers to the corresponding segmentation of the model, which is distributed in key nodes, so as to achieve collaborative operation. In the process of big data processing, the time cost of algorithm is a big challenge, and its influencing factors are not only the choice of distributed computing platform, but also the choice of deep learning strategy to effectively reduce the time cost of algorithm.

##### **3.1.2 Improvement of Algorithm Performance**

In the process of big data analysis based on AI technology, in addition to reducing the time cost of the algorithm, there is also a key goal, which is to improve the performance of the algorithm and balance the relationship between time and performance. The factors that affect the algorithm performance of big data analysis method are closely related to the algorithm itself. Through targeted improvement and optimization of the algorithm, such as algorithm parameters, algorithm model, etc., it can enter into new computational intelligence algorithm, so as to effectively improve the algorithm performance.

#### **3.2 Optimization Strategy of Big Data Analysis Method Based on Ai Technology**

##### **3.2.1 Optimize Parameters of Deep Learning Algorithm**

The big data analysis method based on AI technology will continue to advance with its in-depth learning, and the scale of data parameters involved will continue to expand. Therefore, in order to improve the performance of its algorithm, it is necessary to take effective measures to optimize the parameters of in-depth learning algorithm. On this basis, with the help of Spark's distributed computing platform, it can effectively improve the progress of deep learning, and further optimize the parameters of deep learning algorithm through the intelligent algorithm optimized by AI technology, so as to improve the operation efficiency and the performance of deep learning algorithm.

##### **3.2.2 Improved Algorithm Model**

In order to meet the data processing needs of big data analysis under AI technology to the greatest extent, it is necessary to improve the algorithm model effectively, so as to reduce the time cost of the algorithm. However, in the process of big data analysis and application, there are still many problems to be solved, such as the time cost of the algorithm, the improvement of algorithm performance and so on. By improving the distributed algorithm model and optimizing the deep learning algorithm, the accuracy of the deep learning algorithm model can be effectively improved, and the initialization error value of the algorithm can be corrected, so as to promote the deep learning network process.

##### **3.2.3 Establish Advanced and Perfect Big Data Platform**

At present, AI technology has developed to the stage of popularization and application. In this stage, distributed computing has been realized, which can be popularized to specific subdivision scenario applications. However, it is worth noting that the implementation path of the basic support layer of the construction of the ecological pattern of artificial intelligence technology is mainly composed of algorithm platform and data factory. Therefore, in order to improve the performance of the algorithm and reduce the time cost of the algorithm, it is very important to establish an advanced

and perfect big data platform. In order to improve the operation platform, we should deploy the corresponding parallel computing platform to solve the problem of data operation and processing required by AI technology applied in big data analysis method as much as possible, and collect a large number of data information to the data factory to provide basic guarantee for AI technology applied in big data analysis method. The perfection of data factory can further enrich its knowledge base and information base, which is the entry threshold of AI technology applied in big data analysis.

### **3.2.4 Optimize Distributed Algorithm Environment**

AI technology is used in big data analysis, its application of iterative calculation method is very common, but some algorithm frameworks do not support iterative calculation method. Therefore, in order to improve the performance of the algorithm and reduce the time cost of the algorithm, it is also very important to optimize the distributed algorithm environment. For example, changing the number of nodes in the distributed algorithm, optimizing the algorithm programming, so as to improve its iterative computing performance, thus improving the algorithm performance, is also one of the main directions of AI technology applied in big data analysis in the future.

## **4. Conclusion**

In conclusion, combined with the analysis of the current research status of big data analysis method of AI technology, it can be seen that its application and development are not mature, and there are still many challenges and key problems in its development process, which need to be solved by effective measures. Therefore, this paper puts forward the corresponding strategies of big data analysis of AI technology, including optimizing the parameters of deep learning algorithm, improving the algorithm model, building an advanced and perfect big data platform and optimizing the distributed algorithm environment, so as to further tap the application potential of AI technology in big data analysis.

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