

Development and Using of Artificial Intelligence Chips based on Big Data Analysis

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Abstract

At present, artificial intelligence chips are developing in parallel with multiple technique paths, and international giants represented by Nvidia, Intel, and Google are accelerating their layout to initially seize the first-mover advantage. Artificial intelligence chips are an important part of artificial intelligence technique, the hardware foundation for the realization of artificial intelligence algorithms, and the strategic commanding heights of the artificial intelligence era. This paper analyzes the types, characteristics, technical routes and market conditions of existing artificial intelligence chips, expounds the opportunities and challenges faced by current artificial intelligence chips, and looks forward to the future growing trend of chip growing under the current big data parse technique. It is urgent to give full play to the market-driven advantages, strengthen key technique research, promote industrial coordination and linkage, and effectively promote the innovation and growing of the artificial intelligence chip industry.

Keywords

Big Data; Artificial Intelligence; Chip Growing; Using.

1. Introduction

Among the three driving factors for the growing of artificial intelligence, big data is the most important driving force. Big data provides huge training resources for artificial intelligence technique. With the substantial progress of data resources and computing power, deep studying algorithms, speech recognition, image recognition and other technologies have accelerated breakthroughs. The level of intelligent technique represented by image recognition and speech recognition has been greatly improved and its using has started, setting off a new round of artificial intelligence research and growing and using upsurge, and the demand for the computing power of the underlying chip has shown explosive growth. At the same time, with the continuous maturity and using of AI chip technique, the proportion of AI chips in the overall AI market scale is increasing year by year. According to CITICS, it is expected to increase from 8% in 2017 to 12% in 2021. At this stage, the using of artificial intelligence is in the using starting stage. Upstream and downstream enterprises of the industrial chain have joined the layout of the chip field in combination with their own advantages, trying to seize the market growing opportunity. The competition around the field of artificial intelligence chips has kicked off [1].

Artificial intelligence can quickly apply common knowledge in the real world. Deep studying no longer adopts the same idea as symbolism. Machines are directly based on data studying instead of the way of building rules through human programming instructions. It analyzes data through algorithms, learns rules from data and builds models, and predicts and assists decision-making based on the trained models [2]. From a certain level, the similarity between artificial intelligence and human intelligence is that they both need to acquire knowledge and sufficient experience to learn. For machines, there should be a lot of data behind these knowledge and experience as "background". Essentially, the machine can't understand human language. It digitizes information through binary

coding, inputs it into the computer, and then forms words, pictures, videos and so on in the computer. In the whole process of machine simulation of human intelligence, it must be completed based on digitalization, including image recognition, natural language processing and so on.

2. Big Data and Artificial Intelligence

2.1 Big Data Parse Methods

Big data parse is to analyze a large amount of information data in the process of the growing of science and technique. An parse process to obtain great value from information content, as shown in Figure 1. Big data parse is of great value to national growing and social progress, and plays an important role in the growing of all walks of life today. In the using of big data parse methods, the first step is to aggregate big data, collect massive data into the database of the same data cluster algorithm, and then use these data to realize the next steps of identification, classification, and screening through various algorithms. There are two main technologies used in the aggregation of big data today, namely the Map Reduce algorithm and the K-means algorithm, both of which have certain using effects in practical usings. The using of the above two algorithms in the aggregation process of big data makes data cluster more convenient and fast, and the big data parse has taken the first step [3].

In addition, there is also a kind of data visualization in big data parse method, which is to change the presentation of data from a simple digital form to a visual and intuitive presentation of visual charts or graphics, three-dimensional patterns, etc. when reading visual charts or observing visual data patterns, people can clearly feel the differences between the data and quickly locate the content needed in the data, Understand the data content in the process of intuitive parse and realize the function of rapid using. The visualization of data includes not only the symbolic expression technique of data information, but also the visualization and interaction technique of data, data visualization model technique, etc. These visualization technologies become the image infrastructure technique of data representation [4].

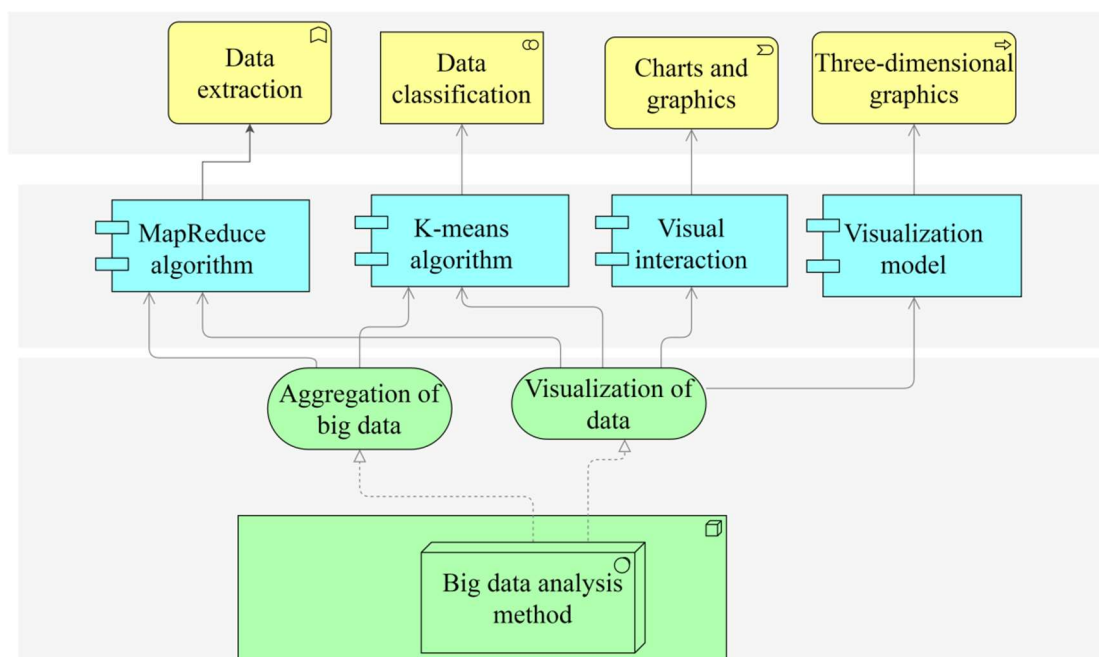


Figure 1. Big data parse method

2.2 Artificial Intelligence under Big Data Parse Technique

Big data can promote the growing of artificial intelligence from perception and cognition. First, big data can improve intelligent perception. Big data technique can collect enough sensory data as much as possible to better restore the real world. For example, in an intelligent transportation system, the

data acquisition system needs to perceive the vehicle status, road conditions, surrounding static and dynamic environment in real time, and communicate with the management control terminal at any time. Without the cluster of these data, the intelligent transportation system will not be able to play its role. Second, big data can improve the cognitive level of intelligent systems [5]. The essence of deep studying is to learn more useful features by building a machine studying model with many hidden layers and massive training data. As the amount of data increases, the accuracy of machine classification or prediction will also increase, as shown in Figure 2.

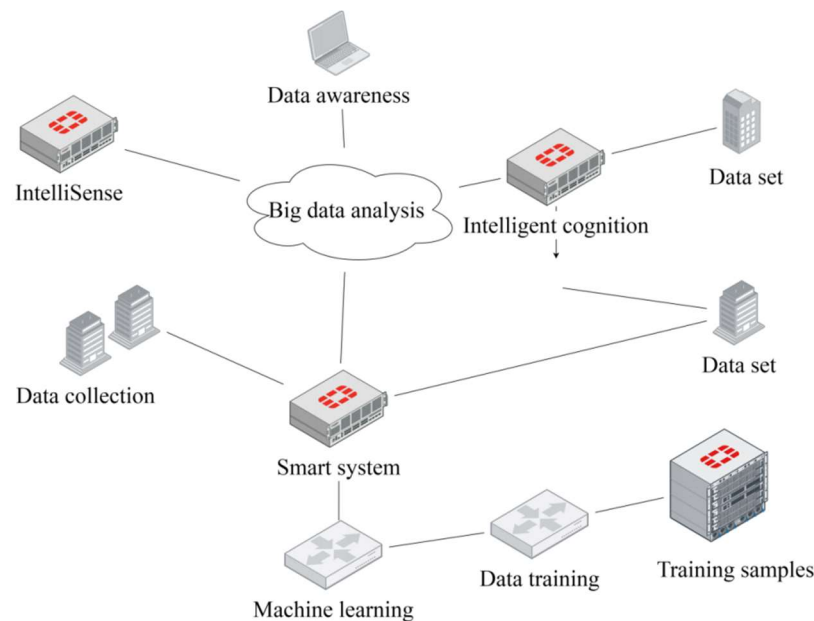


Figure 2. Big data parse and artificial intelligence

Nowadays, big data and artificial intelligence have gradually become a set of inseparable words. Mentioning artificial intelligence must be accompanied by discussions on data resources. A large number of researches on artificial intelligence are based on big data. In the use of big data parse methods of artificial intelligence technique, it is necessary to carry out rigorous testing of big data parse methods to ensure that the algorithms used in big data parse match the actual needs and reduce the problem of stalling in use. In the era of big data, the information update speed is fast and the information generation time is short. Under these information characteristics, various algorithms in the big data parse method need to have high calculation accuracy and calculation speed [6]. In the using of artificial intelligence, data retrieval and data parse need to use big data association parse. In the process of parse, the data related to the retrieval content is directly retrieved, and the data content is intuitively displayed in today's rapidly developing artificial intelligence. Intelligent voice and other technique products, the big data correlation using is directly connected to the background of artificial intelligence. When the user speaks a voice command, the big data correlation is directly indexed to a series of keywords, which can enhance the pleasure of use and improve the The role of product cost performance [7].

3. Trends and Challenges in the Growing of Artificial Intelligence Chips

At present, the global artificial intelligence industry is still undergoing rapid changes and growing. The broad industry distribution provides broad market prospects for the using of artificial intelligence. Rapidly iterative algorithms promote the rapid commercialization of artificial intelligence technique, and artificial intelligence chips are the hardware basis for algorithm implementation. It is also the strategic commanding height of the future artificial intelligence era. However, since the current AI algorithms often have their own advantages and disadvantages, only by setting a suitable scene for

them can they play their role best. Therefore, determining the using field becomes the growing of AI chips. important premise [8]. But unfortunately, there is no CPU-like general artificial intelligence chip yet. If artificial intelligence wants to penetrate the hearts of the people like mobile payment and change the society, it may be a "killer" level using. Whether it is image recognition, speech recognition, machine translation, security monitoring, traffic planning, autonomous driving, smart companionship, smart Internet of Things, etc., artificial intelligence covers all aspects of people's production and life. There is a long way to go. It is precisely because the "killer" using of artificial intelligence has not yet appeared, so some existing usings are not just needed for consumers' daily life. Therefore, which chip company can seize the pain points of the market and realize the using first, it will be a It can achieve a great advantage on the artificial intelligence chip track. For chip practitioners, the most urgent task is to study the problem of chip architecture [9].

In addition, there is also a kind of data visualization in big data parse method, which is to change the presentation of data from a simple digital form to a visual and intuitive presentation of visual charts or graphics, three-dimensional patterns, etc. when reading visual charts or observing visual data patterns, people can clearly feel the differences between the data and quickly locate the content needed in the data, Understand the data content in the process of intuitive parse and realize the function of rapid using. The visualization of data includes not only the symbolic expression technique of data information, but also the visualization and interaction technique of data, data visualization model technique, etc. These visualization technologies become the image infrastructure technique of data representation [4].

4. Conclusion

Under the background of the rapid growing of science and technique in the 21st century, the using of artificial intelligence technique makes people's life more convenient, and it plays an irreplaceable role in today's social growing. Judging from the current growing speed of artificial intelligence technique, the growing of artificial intelligence technique will change greatly in the next ten years or even only in the next five years. At present, the algorithms and usings in various fields of artificial intelligence are still in the stage of rapid growing and iteration. Considering the research and growing cost and production cycle of the chip, it is difficult for the customized design for specific usings, algorithms or scenarios to adapt to the changes. It will be a guiding principle of AI chip design to design for specific fields but not specific usings. AI chips with reconfigurable capabilities can be widely used in more usings, and can be reconfigured to adapt to new AI algorithms, architectures and tasks.

In order to adapt to the rapid growing of artificial intelligence technique, the use of big data parse methods needs to keep pace with the times. According to the existing technical means and algorithm models, the technique is continuously optimized and improved, so that there are more big data parse methods of artificial intelligence technique. Development space, improve the practicality of use. With the growing of information technique such as big data, the using of chip design should be more in line with the trend of social growing and the growing of computer technique, so that it can play a better role in various hardware and software platforms of computers and better serve people's daily life and work.

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