

# Application Analysis of Computer Science in Big Data Information Era

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**Abstract:** *The progress of science and technology and the development of The Times have brought unprecedented opportunities and challenges for the reform and development of the whole society in all fields. With the advent of the era of big data, computer science is constantly innovating, which greatly improving the efficiency of people's production, life and work, and bringing more convenience and possibilities. This paper mainly starts from the background of the big data information age, summarizes the application value of computer science in the big data information age, and focuses on analyzing the application of computer science in specific fields in the big data information age, in order to better improve the application level of computer science.*

**Keywords:** *Big data; The information age; Computer science; Application value; Application field*

## 1. Introduction

Under the big data age, our country has put more effort into the research of computer science. Although there are many obstacles in the actual research and development process, computer science is a very important core competitive element in the 21st century. We must actively carry out the modern and scientific concept, attach importance to the application of computer science in related fields, and constantly strengthen independent research and development and innovation. Thus, the development and maturity of Chinese computer information age are constantly promoted.

## 2. A basic overview of the big data information age

In the new era background, the rapid development and extensive application of computer network and a series of communication technologies make the degree of global informatization continuously improve. With the advent of the information age of big data, various fields have undergone brand new upgrading under the influence of technological innovation, and are fully covered by computer networks.<sup>[1]</sup> Therefore, a large amount of data and information began to penetrate into it, which not only gradually changed people's way of life, but also brought an impact on the division of labor and production mode of the whole society, and finally promoted many industries towards the direction of informatization and networking.

## 3. Application value of computer science in big data information age

To sum up, the application value of computer science in the era of big data information is mainly reflected in three aspects: high efficiency of data processing, intelligent use of technology and extensive application scope.

### 3.1. Data processing is more efficient

In the era of big data, as soon as computer science rises, it has been widely used by all walks of life, not only bringing great convenience to People's Daily life, but also making great progress in different fields. It is because of the high efficiency of computer science with its characteristics, a large amount of manpower, material resources, financial resources, can meet people's needs for some information retrieval, access or use in a short time, and more in line with the new era of people for fragmented time utilization trend.

### ***3.2. Technology is being used more intelligently***

With the development of science and technology, computer science begins to evolve in the direction of intelligence, especially the development and use of artificial intelligence technology. People can no longer be restricted by time and space, but break the boundaries of time and space to communicate and exchange anytime and anywhere, and realize the online sharing of resources and information. Compared with traditional computer applications, this kind of intelligent characteristics make people can control the function and scope gradually increase, more able to meet people's individual preferences and realistic needs.

### ***3.3. The application scope is more extensive***

In the era of big data, computer science has been widely applied to all walks of life in society, and with the increase of application fields, especially People's Daily life, work, shopping, travel and so on have been inseparable from the help of computer science. For example, you can browse the latest social information online through your mobile phone, or you can complete a consumption activity without leaving your home, or you can pay relevant fees and book relevant business through the Internet. All these phenomena show the extensive characteristics of computer science.

## **4. Application field of computer science in big data information age**

The application fields of computer science in the era of big data information are discussed from the aspects of industrial application, educational application, architectural application, transportation application, agricultural application and financial application.

### ***4.1. Industrial application***

As the basis of measuring national economic development and the level of industry, industry can directly affect or even determine the comprehensive strength of a country. In the era of big data, the application of computer science to the industrial field can continuously improve the level of industrialization.<sup>[2]</sup> For example, through the construction of automatic production line mode, in order to improve the industrial production and processing efficiency, but also can improve the precision of some products, reduce the heavy workload of staff. By creating a kind of intelligent production mode, we can not need more staff in the work, but also save a lot of cost. When using computer science in the process of put into production and processing of CNC machine tool for efficient production work, to be able to some complex and spare parts together, into the automatic control system, to the maximum extent, improve the overall construction quality and production efficiency, so as to bring considerable economic benefits for the enterprise. It can be clearly seen that when computer technology is applied to the industrial field, it has a significant role in helping the long-term development of industry. This is mainly because computer science, as the core of automation technology, can use advanced information technology or control software, as long as the processing equipment can reach its required processing accuracy, it can be easily completed in a short time. At present, although the application level compared with the developed countries there is still a certain gap, it is hard to better highlight some production performance superior hardware equipment, coupled with the degree of intelligent design and control program is low, which is given to illustrate the application of computer science in the industrial field in the future there is still a long way to go, but also need to increase financial input, So as to continuously improve its technical level.

### ***4.2. Education application***

At present, computer science has made great progress in the field of education, especially with the introduction of modern educational concept and series policies, a lot of advanced technologies have been introduced and applied in the process of teaching management. For example, we can build a high-quality campus information center with the help of computer science, which is responsible for the transmission and exchange of a series of information and data in the campus network, so as to ensure that the internal network of the whole school is in a good and safe operation state. In the course of class, teachers can adopt diversified teaching models and change to multimedia teaching to provide students with more vivid and intuitive teaching experience. The application of computer science to the network classroom, through the connection with the LAN, can directly control the students' computer screen, online teaching on the

computer. This method not only saves time and effort, and a series of information query is more convenient and fast, but also can improve the efficiency of the classroom, meet the needs of modern teaching, but also can provide more possibilities for students' learning. In addition, teachers can record short videos of the difficult points or key points of the lesson in the way of micro class before class, record and present them in a short and concise way, so that students can use the fragmented time to learn and consolidate at any time and anywhere.<sup>[3]</sup> In this way, when students have a certain grasp of the difficult points or key points of the course, they can reduce unnecessary time investment in the class and build an efficient teaching class. Therefore, with the support of big data and Internet of Things technology, an online learning system can be built and a three-layer network structure can be constructed to realize human-computer interaction. The specific operation architecture is as follows:

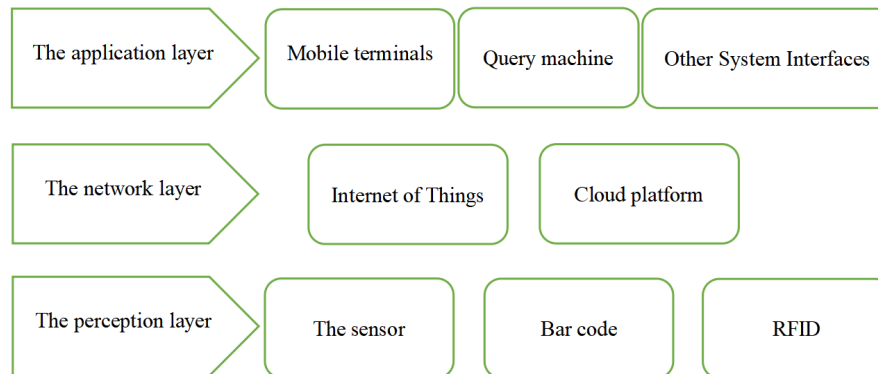


Figure 1: Online learning architecture

#### 4.3. Building applications

The application of computer science and technology to the field of architecture can promote the development of the building industry towards modernization, intelligence and greenization. The original construction process will cause more problems because of the conflict of construction concept and construction technology, but if the application of advanced information technology, in a modern mode throughout the construction project, it can improve the efficiency of construction operation, shorten the construction time. However, based on the current practical situation, the application level of computer science in various local construction projects is uneven, which is mainly due to the level of economic development in different regions and the advancement of computer science has a certain difference. Construction units as the specific implementation of the construction project units, in the use of computer technology, whether it is the early design, and then to the subsequent construction drawing software preparation and so on, can make the whole workflow at a glance, save time and effort and efficient and accurate. Moreover, many construction supervision units also began to use computer science and technology, the use of relevant technical software, for the progress and quality of construction projects and investment and other conditions of scientific and reasonable control. Especially in the project acceptance stage plays an ideal role, but also to promote the construction level of construction engineering. But in the future, with the continuous development of the field of construction in China, computer science will make more full application, it will become a landmark revolution in the development of construction, and can bring a new try opportunity for construction.<sup>[4]</sup>

#### 4.4. Traffic application

In the era of big data information, computer science is also widely used in the field of transportation. All the time, our urbanization process is accelerating continuously, with the increasing urban population, traffic congestion is a very common phenomenon in our modern social life. How to ensure the safety and stability of traffic travel, reduce unnecessary risks and accidents, and provide efficient traffic information are still important issues that relevant government departments should give priority to.<sup>[5]</sup> Under the background of the new era, the application of computer science in the fields of air transportation, ship transportation, tourism and so on has shown more and more good effects. For example, whether it is the seat reservation system, or the combination of intelligent transportation system and geographic information system, through computer science and technology can be timely accurate positioning of the vehicle. In addition, whether it is route query, vehicle tracking, emergency rescue and other aspects, can be combined with computer science to obtain first-hand information. And intelligent transportation

system is with the computer science and technology communication, artificial intelligence and other aspects of content for the integration of three-dimensional transportation industry chain, to provide transportation involved in a series of important information content, convenient for travelers or transport related management query and make judgment in a timely manner.

#### 4.5. Agricultural application

In the era of big data, the application of computer science to the field of agricultural production can be beneficial to improve the efficiency of agricultural production and processing, to help the development of our country's green modern agriculture. At present, under the background of rural revitalization, it is imperative to improve the accuracy and validity of agricultural production, reduce the heavy pressure of farmers, and create a modern and green agriculture with computer science. Therefore, when computer science is combined with agricultural production, it can promote the agricultural production to the direction of refinement. For example, when remote sensing technology is applied to the production and processing of agricultural products, the research object is defined by positioning technology, and agricultural activities are carried out according to the production environment of crops, etc., the purpose of energy saving and consumption reduction and intensive farming can be achieved. In recent years, with the development of computer science, the relevant mathematical analysis and prediction theory is constantly updated, put into the field of agriculture can be accurate prediction of agricultural economy.<sup>[6]</sup> Agricultural economic forecast often involves many factors, such as agriculture, rural areas and farmers, and also involves humanities, social sciences and other majors, which also shows that agricultural economic forecast has great difficulty and complexity. But the use of computer science and technology, the use of computer simulation and design, can be more persuasive mathematical models and curves, and the final prediction results are more convincing.

#### 5. Conclusions

In the information age of big data, from the perspective of the current application practice of computer science in different fields, computer science can play a subversive value role in the development of this field through the continuous integration with this specific field. , of course, any industry's long-term development needs the support of a large number of outstanding talents, it is need to actively cultivate in the field staff, not only to fully grasp the application of computer science methods, improve personal work strength, the understanding of the formation of lifelong learning, but also focus on r&d and innovation, and will be in the field of computer science and industry development, Thus forming a good consciousness and atmosphere in the hope of accelerating the maturity of our computer science application.

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