

## The Design And Research of Medical Education Learning Platform in Big Data Environment

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**ABSTRACT:** With the rapid development of cloud computing and mobile Internet, medical education has ushered in a digital, networked and Intelligent Cloud Era. The paper analyzes the medical education learning platform in big data environment, presents the basis of constructing the medical education learning platform, introduces the principle and architecture.

**Keywords:** Big data, Medical education, Learning platform

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### I. INTRODUCTION

Big data is a comprehensive reflection of the rapid growth of global data explosion and the high efficiency of data processing<sup>[1]</sup>. With the development of computer science, information technology is gradually integrated with the social ecological system, and "digital" has penetrated into all fields and industries. In the field of medicine, great changes have taken place in teaching, scientific research, clinical diagnosis and hospital management. In the big data environment, not only the medical resources itself has many kinds, the quantity is big, the renewal fast characteristic. At the same time, it also changes the way of production, collection, storage, processing, organization and dissemination of medical education resources. How to locate and process the target information in the massive medical education resources and realize the fast and effective sharing with the users is an important problem at present. In order to meet the needs of the current medical education resources and promote the development of the medical field, it is an effective way to solve the current problems by designing and implementing a digital and specialized medical teaching and information service platform.

### II. RELATED WORK

At present, the construction of medical education resources into the rapid development period. Medical literature digital construction, database construction, network information resource construction and information resource sharing as the carrier of mass medical education information carrier, has been widely concerned. In the digital education environment, the demand for information resources construction of medical education is becoming stronger and stronger. The scope, type, quantity and channel of data collection are becoming more and more diversified. The storage and access technology of massive data is updated day by day<sup>[2]</sup>. The development of digital age has made new demands for the organization, development and utilization of various medical education resources. The traditional teaching model can not meet the requirements of the new era. Therefore, the timely adjustment of medical education resource management mode, the use of intelligent way to strengthen the screening of medical education resources, breaking the time and space limitations, to achieve educational resources information, users and platform to share and provide more valuable to meet the individual needs The focus of exploration and reform of medical education resource sharing<sup>[3,4]</sup>.

### III. DESIGN PRINCIPLE

#### 3.1 Integrative principle

Medical education resource sharing platform set broadcast teaching, stand-alone experiment, virtualization experiments and high-performance computing and other functions in one, for different users at the same time provide a variety of teaching mode services<sup>[5]</sup>.

#### 3.2 High density principle

Using high-density servers, build hardware clusters, to achieve teaching training platform, so that the platform has enough physical nodes, while achieving high cost<sup>[6]</sup>.

### **3.3 Multi-platform principle**

In a set of hardware platform to achieve a number of cloud computing based on the medical data large data subsystem, build a variety of types of cloud computing, large data cluster environment, to achieve multi-platform coexistence<sup>[7]</sup>.

## **IV. PLATFORM ARCHITECTURE MODEL DESIGN**

In the big data environment, the medical education resource sharing platform takes the three service modes of IaaS, PaaS and SaaS as the base of the platform architecture, and the virtual resource pool composed of server, storage, network resources and medical data resources is the bottom, and Hadoop, Middleware and other large data cloud service platform components as the core, that the medical teachers and students to provide convenient and efficient cloud services as the goal, and ultimately build a cloud based on the medical education resources sharing large data platform. The model of medical data service platform based on cloud computing includes data source, data storage and processing, data management and analysis, application service, cloud terminal five-tier architecture<sup>[8]</sup>. Data source layer, mainly to provide physical resource pool and virtual resource pool. The physical resource pool mainly includes the server, the storage device and the network equipment. The virtual resource pool mainly includes the server virtual resource pool, the storage virtual resource pool, the network virtual resource pool and the data resource pool. The data source layer integrates the scattered hardware and software resources, and the hardware and software resources form the virtualized resource pool which can be dispatched through the virtualization technology, and provides the independent data source service for the other layers to be used separately. The main functions are resource monitoring, resource deployment and load balancing. Data source layer The main user is the system administrator data processing and storage layer: the main data processing and data storage which data processing, including data cleansing, data indexing, data extraction and aggregation associated; data storage services, including Hadoop, relational database HBase, YARN and so on. By preprocessing the data, different types of data are eventually stored in the distribution database. Data management and analysis layer: the main data management and analysis services. The data management functions include data scheduling, data parallel operation, life cycle management and resource allocation. Data analysis services include data statistics, machine learning, real-time analysis and aggregation association. Data management is more effective in the scheduling and distribution of data resources, data analysis for the upper data mining to provide an effective method of analysis, for different needs, call different data analysis. Application service layer: the main data mining services and application services<sup>[9]</sup>. Data mining services include teaching assessment analysis, trend discovery, correlation analysis and thematic detection. Application services include teaching assessment analysis system, student management system, resource retrieval system and educational administration system. The application service layer provides the individual resources and information through the way of data mining, the learning effect, the learning interest and the life condition of the students in the teaching, and effectively improves the teaching efficiency and educational administration efficiency of the teachers<sup>[10]</sup>.

## **V. CONCLUSION**

With the development of medical informatization and educational informatization, the medical education resource sharing platform based on cloud computing has become a new trend in the development of medical education in the era of large data. It is not only necessary to cultivate students' thinking as the core, but also from the perspective of network teaching platform construction, curriculum teaching mode innovation, education excavation and analysis, and so on. The medical resource sharing platform based on cloud computing in large data environment is the key to realize medical education and the focus of the next research.

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