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# Research on Computer Programming Optimization System Based on Big Data Technology

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**Abstract.** To improve network programming efficiency, the paper proposes a network automatic programming method based on big data analysis technology. Build a big data analysis model for automatic network programming. The dissertation uses the distributed information fusion method to extract the significant data feature of automatic network programming, extract the associated feature quantity of automatic network programming big data, and combine the fuzzy membership analysis method to carry out the synthesis operation and fuzzy comprehensive evaluation decision of automatic network programming and build network automation Programming multi-level index evaluation system to realize automatic network programming optimization.

**Keywords:** Big data analysis, automatic network programming, synthetic operation, embedded design.

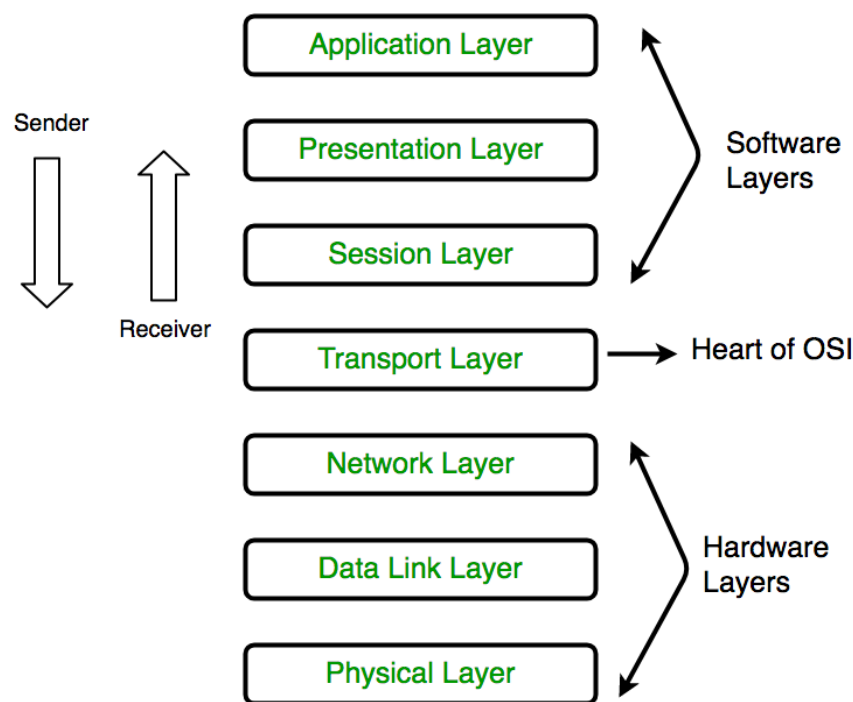
## 1. Introduction

With software technology development, software design is carried out through the optimized design of the network automatic programming system, and an embedded network automatic programming system is constructed to improve the automation level and compatibility of software design. The software cross-compilation control method is adopted for software development and automatic programming. The network automatic programming system based on integrated circuits and software technology has become a basic system to speed up software development. The software's ability to load and compile instruction programs is improved through the network automatic programming system. Research on the network automatic programming system The optimization design method is of great significance in promoting network programming and the independent development of software [1]. The research of related network automatic programming system design methods has attracted significant attention. This paper proposes a network automatic programming method based on big data analysis technology. Constructs a big data analysis model of network automatic programming, uses a distributed information fusion method to extract significant data features of automatic network programming, and constructs multi-level index evaluation of network automatic programming. The system realizes the optimization of network automatic programming. The embedded design of the network automatic programming system is carried out in the bus integration model. Finally, the simulation experiment analysis is carried out to demonstrate the superior performance of this paper's method in improving automatic network programming.



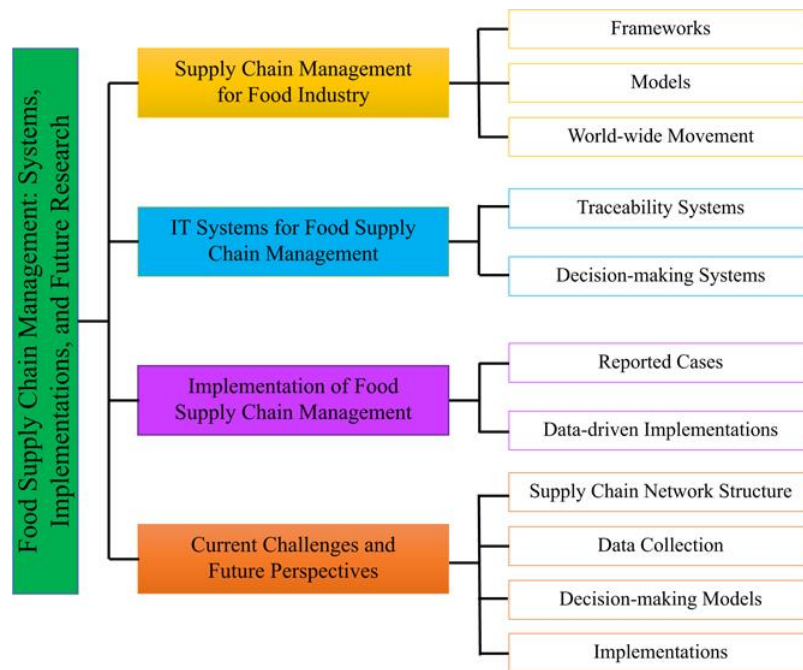
## 2. Significant data information sampling and feature extraction for automatic network programming

The design of the network automatic programming system is based on the entire software design [2]. To realize the automatic network programming's optimized design, the network automatic programming quality index system construction is combined, the network automatic programming system reliability design is carried out, and the fuzzy measurement index of the network automatic programming system is established. Quantify the set to get the overall structure model of the network automatic programming system design, as shown in Figure 1.



**Figure 1.** Design structure model of network automatic programming system

Analysis of Figure 1 shows that the design of the network automatic programming system is controlled by process quality control and internal quality attribute control, combined with the combination of external measurement, process measurement, and application quality measurement, and the overall model of the network automatic programming system index design is constructed [3]. Analyze the quantitative set of evaluation indexes of the network automatic programming system and obtain the network automatic programming system's index evaluation distribution, as shown in Figure 2.



**Figure 2.** Index evaluation distribution of network automatic programming system

According to the above-mentioned overall design framework, construct the big data analysis model of automatic network programming, adopt distributed information fusion method to extract the significant data features of automatic network programming, carry out automatic network programming significant data scheduling and sampling IoT node deployment, adopt data encapsulation Technology, program loading and measurement of automatic network programming, the calculation formula is

$$MHF = \frac{\sum_{i=1}^{TC} \sum_{j=1}^{M_d(C_i)} (1 - V(M_{mi}))}{\sum_{i=1}^{TC} M_d(C_i)} \quad (1)$$

$$V(M_{mi}) = \frac{\sum_{i=1}^{TC} is - visible(M_{mi}, C_j)}{TC - 1} \quad (2)$$

In the formula, TC is the total number of fuzzy data sets of network automatic programming big data,  $M_d(C_i)$  represents the number of types in the automatic network programming big data feature attribute set  $C_i$ , extract the regular feature quantity of automatic network programming big data, and adopt adaptive cross-compilation The control method is to perform the coupling control of the automatic network programming big data. The calculation formula for the correlation feature distribution of the automatic network programming big data collection is:

$$COF = \frac{\sum_{i=1}^{TC} (\sum_{j=1}^{TC} is - client(C_i, C_j))}{TC^2 - TC} \quad (3)$$

The formula  $TC^2 - TC$  is the maximum coupling degree of the network automatic programming system. According to the network automatic programming system's significant data collection results, perform feature analysis and adaptive data clustering processing to improve the network automatic programming system's fuzzy scheduling and adaptive control capabilities. Feature extraction of

network automatic programming big data to realize the network automatic programming system's optimization design, the powerful data analysis method is adopted to optimize the extraction of the feature set of automatic network programming big data. First, the distributed network automatic programming big data under the cloud service combination mode is constructed [4]. The data structure model is combined with the data distribution structure model for polymorphic factor (POF) scheduling, and the polymorphic factor distribution of the network automatic programming big data is obtained as follows:

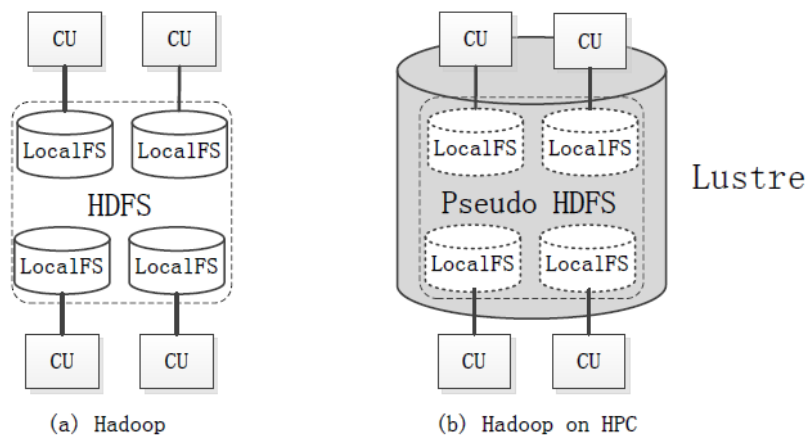
$$POF = \frac{\sum_{i=1}^{TC} M_0(C_i)}{\sum_{i=1}^{TC} [M_n(C_i) - DC(C_i)]} \quad (4)$$

In the formula,  $M_0(C_i)$  is the network automatic programming big data feature loading link set in the  $C_i$  network.

### 3. Computer programming system design based on big data

#### 3.1. Pseudo HDFS file system based on Lustre

To solve remote data reading and make Lustre highly compatible with the MapReduce framework, this paper proposes a Lustre-based Pseudo HDFS system, and its system structure is shown in Figure 3(b). In the ordinary Hadoop cluster in Figure 3(a), HDFS organizes and manages part of each server's local storage space to form a unified distributed file-system view. Each node can access globally shared data through HDFS. The Pseudo HDFS in Figure 3(b) divides a logically independent storage area for each computing node on Lustre (that is, each node has an independent file directory). These logical storage areas corresponding to each node in the traditional Hadoop cluster Local storage [5]. The essence of Pseudo HDFS is to modify the shared storage system Lustre with Hadoop's file system interface so that Hadoop can use this interface to access data on the underlying Lustre.



**Figure 3.** Comparison of the system structure of Pseudo HDFS and HDFS

In Pseudo HDFS, the local data of different nodes are actually stored on the same storage system, and after improvements, each task node can also perceive this. Based on this, task nodes can access remote data in the same way they access Lustre locally. After modification, the script first reads the ID number of the slave node from the pre-written NODE\_ID. List, which is also the directory name corresponding to each node, replaces the master node directory in the service startup command with the slave node. Click the directory so that the configuration file path in the command points to each node's configuration file [6].



#### 4. Simulation experiment and result analysis

To test this method's application performance in the realization of automatic network programming, simulation experiment analysis is carried out. In the experiment, the software design of network automatic programming adopts Matlab to design, and the development and design of the network automatic programming system are carried out in the embedded Linux kernel. Host computer communication and bus control are realized in /D and D/A. The number of samples for command data sampling for automatic network programming is 120, and the number of loop iterations is 2000. Compared with the Boehm model and ISO/IEC9126 model to get the network automatic, the programmed big data fusion output is shown in Figure 5.

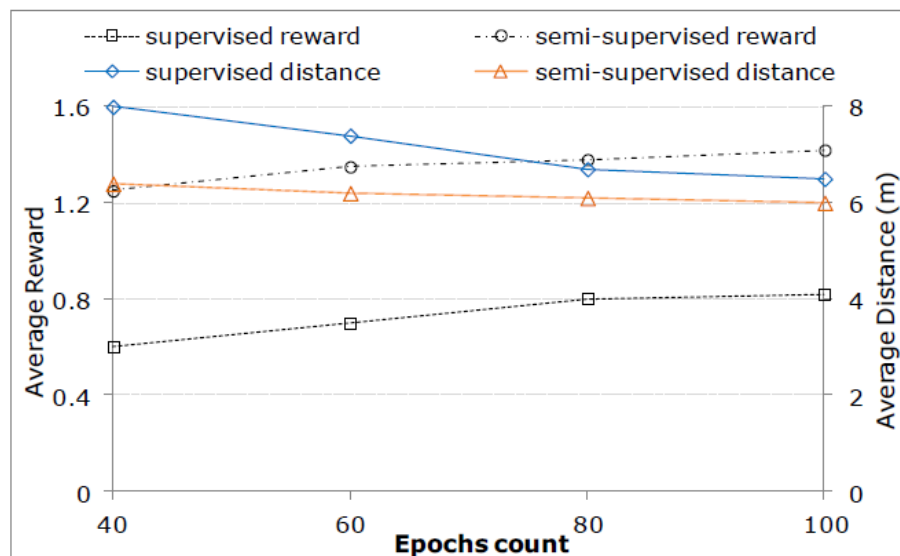


Figure 5. Big data fusion output of network automatic programming

#### 5. Conclusion

By optimizing the network automatic programming system's design, improving the software's ability to load and compile instruction programs, and studying the optimization design method of the network automatic programming system, it is of great significance in promoting the optimization of network programming and the independent development of software. This paper proposes one A network automatic programming method based on big data analysis technology. Build a big data analysis model of automatic network programming, use distributed information fusion method to extract the significant data feature of automatic network programming, extract the associated feature quantity of automatic network programming big data, construct The multi-level index evaluation system of automatic network programming realizes the optimization of automatic network programming. The network design and connectivity test of automatic network programming are carried out in the ZigBee networking protocol. The fuzzy control method is adopted to carry out the instruction loading and intelligent control of automatic network programming, To realize automatic network programming and big data analysis. This paper's system has higher efficiency in network automatic programming, better data fusion, and smaller output errors.

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