Optimization of English Learning Activity Observation Management Software Based on Openstack Optimization: Based on Extreme Hybrid Testing Algorithm

Liu Yan
Xianda College of Economics and Humanities
Shanghai International Studies University
Shanghai, China, 200080

Abstract:In this paper, a gray wolf optimization algorithm (BGWO) based on extreme mixture learning algorithm is proposed, which improves the population diversity of GWO in the search process. The training of KELM is completed by iteratively solving the observation of English learning activities with the best fitness function value in the search space. Combined with examples of reading teaching design in the same class and heterogeneous, this paper summarizes the design ideas of high school English reading teaching based on the concept of English learning activities. That is, to refine the main line of the text and construct structured knowledge; to use the 3×3 English subject ability element framework. The proposed multi-objective optimization strategy for virtual machine dynamic migration. This strategy is described from the aspects of system resource monitoring, resource scheduling timing selection, virtual machine selection to be migrated and physical machine migration selection.

Keywords: English Learning Activity, Observation Management Software, Openstack Optimization, Extreme Hybrid Testing

1. INTRODUCTION

Using soft sensing technology can realize the on-line detection of quality, economic indicators and some key process variables that are difficult to detect in industrial processes [1]. Soft sensor models based on different learning algorithms are widely used in various fields of industrial processes. Many scholars have studied the random vector function connection (RVFL) network. Based on the research results of RVFL [2], the "Extreme Learning Machine (ELM)" algorithm proposed by Huang et al. obtained a faster learning speed and better generalization performance. Due to the characteristics of random initialization of ELM algorithm [3], it is difficult to establish a nonlinear model based on small samples, but Kernel ELM (KELM) not only solves this problem. The cultivation of reading ability is the top priority of English teaching in high school [4].

Since the eighth reform of the English curriculum, high school English reading teaching has been continuously reformed. The majority of teachers [5] strive to practice the course goal of "cultivating students' comprehensive language use ability", and shift from focusing on knowledge to focusing on people and students' development [6] in English reading teaching in high school, but there are still many problems. Therefore, it is very necessary to explore how to effectively carry out high school English reading teaching design based on the theory of English learning activities [7].

The "General High School English Curriculum Standards (2017 Edition, 2020 Revision)" (hereinafter referred to as the curriculum standards) proposes that the English learning activity concept refers to the comprehensiveness of students through learning understanding [8], application practice, transfer and innovation under the guidance of the theme meaning. English learning activities with characteristics of , relevance and practicality, so that students can promote their

own language knowledge learning [9], language skills development, cultural connotation in the process of analyzing and solving problems based on their existing knowledge and relying on different types of texts. Understanding, multiple thinking development [10], value orientation judgment and learning strategy application. In short, the concept of English learning activities is goal-oriented to develop core literacy, and is a necessary means and operable path to ensure teaching results [11]. The performance of traditional feedforward neural networks (such as BP) often depends on the setting of parameter values in the network, and there is a certain dependence between the corresponding parameters in different parameter layers [12]. However, the gradient descent algorithm has the problem that the learning process is slow and it is easy to fall into the local minimum value. The structure of the feedforward neural network is shown in Figure 2-1 and Figure 2-2 [13].

Data-driven models are black-box models. In the blast furnace smelting process [14], through the data acquisition system, some input and output data can be measured in real time. These data are saved in a database, and researchers can easily call them to predict the blast furnace temperature. In actual production [15], there are many parameters affecting furnace temperature, including adjustable control parameters and some state parameters [16]. Based on the variables detected by the existing instruments and the smelting mechanism of the blast furnace, the measurable state parameters include: hot air pressure, oxygen enrichment rate, total pressure difference [17], furnace top pressure, actual wind speed, theoretical combustion temperature, blast kinetic energy, air permeability index etc.; OpenStack is a comprehensive set of open source software projects that provide an operating platform and toolset for deploying the cloud [18].

Its purpose is to help users run clouds as virtual computing or storage services [19], and provide scalable and flexible

deployment solutions for public clouds and private clouds. Rackspace and NASA were the first two important contributors [20], the former providing the "cloud files" platform code that enhanced the object storage part of OpenStack, and the latter bringing the "Nebula" platform to form the rest of OpenStack [21]. Today, the OpenStack Foundation has more than 500 members, including many well-known companies such as HP, DELL, Oracle, Huawei and so on. Application virtualization refers to the centralized push and deployment of applications [22], but each virtual application is independent. The advantages of application virtualization are: first, it is convenient for users to manage applications; secondly, it can reduce the company's development costs and improve the work efficiency of R&D personnel; thirdly, users can use their own virtualized applications on different terminals [23].

2. THE PROPOSED METHODOLOGY

2.1 The OpenStack Optimization

OpenStack adopts modular architecture as its core design principle, and consists of a series of components, each of which provides different services, each component is an independent project, with its own committee and project technical director. Up to now, OpenStack has a total of 9 core projects. The system architecture diagram of OpenStack is shown in Figure 2-1: It is a cloud computing platform jointly developed by the company and the US space agency in 2010. There is a good development trend in cloud technology, and it has gradually become the mainstream technology for building cloud platforms. Has the following characteristics.

It combines the technology of the National Space Administration, namely server virtualization deployment, and the technology of cloud storage. Not only can it be deployed in a single computer environment or in a clustered environment, it is compatible with license authorization, and it can flexibly create infrastructure solutions for multi-scale public and private cloud needs and can greatly improve data. Operational efficiency of the center. At present, its community has multiple companies and multiple developers, and this number is constantly increasing. The module is designed on the basis of OpenStack's basic monitoring service component Ceilometer to realize the main monitoring services, virtual machines and events. The overall operation of the service is the cloud platform, including OpenStack's main services Compute, Image, Network, etc. The monitoring of virtual machines includes CPU usage. Occupancy, memory usage, network I/O, disk I/O. The monitoring system obtains CPU, memory, network, and disk information through the service polling instance deployed on the computing node by Ceilometer. Dynamic resource scheduling judges migration conditions according to the utilization of computer resources including CPU and memory. Based on the Ceilometer component in OpenStack to realize resource monitoring and control Openstack is completely open source. An open source platform does not mean that it is not tied to a particular vendor? restrictions, and the modular design can easily integrate with third-party technologies to meet the needs of the enterprise's own business.

2.2 The Extreme Mixing Test Algorithm

The method proposed in this paper is effective. In Table 2, the accuracy of the KELM model using the Poly kernel is poor, and the accuracy of the KELM model using the RBF kernel is higher, indicating that the RBF kernel is more suitable for the NIR spectral data. When using the hybrid kernel, the effect is the best, in which the weight of the RBF kernel is 0.9003,

while the weight of the Ploy kernel is only 0.09961, indicating that the KELM algorithm of the hybrid kernel is effective. However, the question of why different nuclei need to be selected for different data needs to be further studied. Different from the traditional feedforward neural network, the learning speed of extreme learning machine SLFNs and ELM proposed by Nanyang Technological University Professor Huang Guangbin et al. By proving that the algorithm can approximate the training samples with zero error when the number of neurons in the hidden layer is equal to the number of training samples, and when the number of hidden neurons is less than the number of training samples, the training error of ELM can approximate an arbitrary value greater than 0. value. The hidden nodes of the ELM learning algorithm are like neurons.

The ELM structure is shown in Figure 2-3: Different from the traditional feedforward neural network, the SLFNs of extreme learning machines proposed by Professor Huang Guangbin of Nanyang Technological University in Singapore, ELM learning speed is greatly improved compared with traditional learning algorithms, and It has better generalization ability. By proving that the algorithm can approximate the training samples with zero error when the number of hidden neurons is equal to the number of training samples, and when the number of hidden neurons is less than the number of training samples, the training error of ELM can be Approximate an arbitrary value greater than 0. The hidden nodes of the ELM learning algorithm are like neurons. The structure of ELM is shown in Figure 2-3: Extreme Learning Machine is a machine learning algorithm based on feedforward neural network. Compared with traditional learning algorithms (such as BP algorithm, etc.) Has good generalization performance. Since the extreme learning machine method was proposed, it has been widely used in the prediction of silicon content in blast furnace hot metal.

The team led by Academician Gui Weihua of Central South University combined the composite differential evolution algorithm with the extreme learning machine to predict the silicon content of the hot metal in blast furnaces.

2.3 The Optimization of English Learning Activities Observation Management Software

In the design of teaching activities based on the concept of English learning activities, learning comprehension activities mainly include perceptual attention, memory retrieval, retrieval and generalization and other text-based input learning activities; application practice activities mainly include description and interpretation, analysis and demonstration, integration and application. The output learning activities of discourse aim to help students internalize and apply the acquired language knowledge and cultural knowledge, consolidate new knowledge structures, and transform knowledge into abilities; transfer and innovation activities mainly include reasoning and judgment, creative imagination, critical evaluation, etc. Advanced output learning activities beyond discourse, that is, guiding students to migrate from discourse style, language form, author's attitude and viewpoint. Innovative activities mainly include learning activities beyond discourse, such as reasoning and argumentation, criticism and evaluation, imagination and creation.

Migration and innovation activities help students to deepen their understanding of the meaning of the theme, and then enable students to comprehensively use language knowledge

and conduct multiple thinking in a new context, based on a new knowledge structure, through independent, cooperative, and inquiry-based learning methods. Creatively solve problems in unfamiliar situations. VTK consists of two basic subsystems, the core layer (written in C++ language) and the interpretation layer, as shown in Figure 4.1. The Interpretation layer supports certain rule-generating scripting languages, such as Tcl, JAVA and Python. The core layer provides speed and efficiency, including: data structures, algorithms and system functions that require high computing time; virtual functions and abstract factory design patterns are used to make the whole system have good portability and scalability; VTK adopts separation mode, The core layer is separated from the GUI, and the two are independent of each other, so the integration of VTK in any system is very convenient; VTK has good portability for graphics, which is inseparable from the abstract image model. Interpretation layer provides interfaces for other development languages, so that it has good extensibility and flexibility.

3. CONCLUSIONS

In English teaching, through a series of activities close to the real social situation, students' language knowledge and language skills are integrated and developed, their cultural awareness is continuously enhanced, their thinking quality is continuously improved, and their learning ability is continuously improved. Learning provides a strong guarantee. Compared with Bloom's educational objective classification, a multi-objective optimization algorithm is proposed for the dynamic migration of virtual machines on the OpenStack cloud platform. Firstly, the virtual machine scheduling strategy and dynamic migration technology are analyzed, and the current virtual machine dynamic migration problem.

4. REFERENCES

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