Research on Operation Situation Monitoring Method of English Automatic Translation Equipment Based on Intelligent Algorithm

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Abstract: The role of operational situation monitoring in English automatic translation equipment is very important, but there is a problem of inaccurate evaluation of results. The situational awareness algorithm cannot solve the problem of operational situation monitoring in English automatic translation equipment, and the evaluation is unreasonable. Therefore, this paper proposes an artificial intelligence algorithm for operation situation monitoring and analysis. Firstly, the data mining theory is used to evaluate the technology of English automatic translation equipment, and the indicators are divided according to the requirements of operation situation monitoring. Reduce interference factors in operational situation monitoring. Then, the data mining theory forms an operation situation monitoring scheme, and the operation situation monitoring results are comprehensively analyzed. FIONA shows that under the condition of certain evaluation standards, artificial intelligence algorithms monitor the accuracy and operation situation of operation situation Time outperforms situational awareness algorithms.

Keywords: Data mining theory; Artificial intelligence algorithms; Operational situation monitoring; Situational awareness algorithms; English automatic translation equipment

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1. Introduction

With the continuous development of the global economy and the continuous improvement of internationalization, the demand for English automatic translation equipment is also increasing^[1], and the operation status monitoring of English automatic translation equipment has become a research hotspot^[2]. Intelligent algorithm is an advanced technical means, which can be applied to the monitoring of the operation status of English automatic translation equipment to improve the operation efficiency and reliability of the equipment^[3]. This article will explore the application of intelligent algorithms in the monitoring of the operating status of English automatic translation devices^[4].

(1) Monitoring of the operating status of the English automatic translation device

English automatic translation equipment is an intelligent translation equipment that can convert the source language into the target language to meet the needs of users in language communication^[5]. English automatic translation equipment operation status monitoring refers to real-time monitoring and analysis of the operating status of the equipment, including the performance, quality, stability and other aspects of the equipment, to provide support and guarantee for the operation and maintenance of the equipment^[6].

(2) The basic concept of intelligent algorithms

Intelligent algorithm is a kind of computer algorithm based on artificial intelligence and data mining technology^[7], which is mainly used to process complex and irregular data sets, and has the characteristics of

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high efficiency, self-learning and adaptation. Common intelligent algorithms include neural networks, genetic algorithms, fuzzy logic, and more. Intelligent algorithms can be applied in a variety of fields and industries, such as finance, healthcare, transportation, etc^[8].

(3) Application of intelligent algorithms in the monitoring of the operating status of English automatic translation equipment

Intelligent algorithms can be applied to the monitoring of the operating status of English automatic translation equipment, and improve the operational efficiency and reliability of the equipment by monitoring and analyzing the data of the equipment in real time^[9]. Specific applications are as follows:

1) Predict device operating status

Intelligent algorithms can be applied to the prediction of the operating status of English automatic translation equipment, predict the operating status of the equipment by analyzing and mining the operating data of the equipment^[10], find the faults and abnormal situations of the equipment in time, and improve the operating efficiency and reliability of the equipment. For example, neural network algorithms can be applied to model the operating data of equipment, predict equipment failures and abnormalities, and provide corresponding maintenance and maintenance suggestions^[11].

2) Monitor equipment performance

Intelligent algorithms can be applied to the performance monitoring of English automatic translation equipment, and improve the operation efficiency and performance of equipment by real-time monitoring and analysis of equipment performance data^[12]. For example, fuzzy logic algorithms can be applied to fuzz the performance data of the device, determine the performance level and status of the device, and provide corresponding adjustment and optimization suggestions^[13].

3) Improve device stability

Intelligent algorithms can be applied to the stability monitoring of English automatic translation equipment, and improve the operation stability and reliability of equipment by real-time monitoring and analysis of equipment operation data. For example, genetic algorithms can be applied to optimize and adjust the operating data of equipment, improve the stability and reliability of equipment, and reduce equipment maintenance expenses and costs^[14].

(4) The impact of intelligent algorithms on the monitoring of the operating status of English automatic translation devices

1) Improve the operational efficiency and reliability of your equipment

Intelligent algorithms can help English automatic translation equipment improve operational efficiency and reliability, realize automatic monitoring and adjustment in equipment operation, improve equipment operating efficiency and reliability, and reduce failure rate and maintenance costs^[15].

2) Achieve full monitoring and control

Intelligent algorithms can realize the monitoring and control of the whole process of English automatic translation equipment, and through the analysis and mining of the operating data of the equipment, the faults and abnormalities of the equipment can be found and dealt with in time to ensure the normal operation of the equipment^[16].

3) Improve the flexibility and adaptability of equipment operation

Intelligent algorithms can realize real-time monitoring and adjustment of equipment operating status, and

can be adjusted and optimized according to different situations, improving the operational flexibility and adaptability of equipment.

4) Realize the optimization and optimization of equipment operation

Intelligent algorithms can optimize and adjust according to the operating data of the equipment to improve the operating efficiency and performance of the equipment. Through the analysis and mining of the operation data of the equipment, the problems and bottlenecks in the operation of the equipment can be found, and corresponding optimization and adjustment schemes can be provided^[17].

As an advanced technical means, intelligent algorithm can be applied to the monitoring of the operation status of English automatic translation equipment to improve the operation efficiency and reliability of the equipment. Intelligent algorithms can bring new opportunities and challenges to English automatic translation equipment, and bring greater potential and prospects for the development of English automatic translation equipment.

Operation situation monitoring is one of the important contents of English automatic translation equipment, in the process of operation situation monitoring, the operation situation monitoring scheme has the problem of poor accuracy, to English automatic translation equipment Bring a certain loss of effect. Some scholars believe that monitoring the operation situation into the analysis of English automatic translation equipment can effectively analyze the operation situation monitoring scheme and provide corresponding support for the operation situation monitoring. On this basis, this paper proposes an artificial intelligence algorithm to optimize the operation situation monitoring scheme and verify the effectiveness of the model.

2. Related Concepts

(1) Mathematical description of artificial intelligence algorithms

The artificial intelligence algorithm uses the data mining theory to optimize the operation situation monitoring scheme, and according to the indicators in the operation situation monitoring, finds the unqualified values in a_i the English automatic translation equipment, and corrects them b_j . The operation situation monitoring scheme is integrated, and the feasibility of the $F(a_i \cdot b_j)$ English automatic translation equipment is finally judged, and the calculation is shown in Equation (1).

$$F(a_i \cdot b_j) = b_j \ge \max(a_i) \arcsin\theta \tag{1}$$

Among them, the judgment of outliers is shown in Equation (2).

$$\max(a_i) = \sum_{i=1}^n a_i^2 \cdot \bigcap_{i=1}^n a_i \arcsin\theta$$
⁽²⁾

The artificial intelligence algorithm combines the advantages of data mining theory and uses English automatic translation equipment for quantification, which can improve the effect of operation situation monitoring.

Suppose I. The operational situation monitoring requirements is Set_i , the operational situation monitoring scheme is \mathcal{X}_i , and the satisfaction of the operational situation monitoring scheme is \mathcal{Y}_i , the operation situation monitoring scheme determines the function as $F(x_i \approx 0)$ shown in Equation (3).

$$F(x_i) = \lim_{x \to \infty} \frac{\Delta y}{\Delta x} \cdot \sum_{i=1}^n X_i Y_i$$
⁽³⁾

(2) Selection of operational situation monitoring scheme

Hypothesis II The technical function of the English automatic translation device is $g(A_i)$, the weight coefficient is W_i , then, the operation situation monitoring requires unqualified English automatic translation equipment such as the formula (4) shows:

$$g(A_i) = \lim_{x \to \infty} \frac{\Delta A}{\Delta x_i} (F(x_i) - w_i)$$
⁽⁴⁾

Based on assumptions I and II, a comprehensive function of operational situation monitoring can be obtained, as shown in Equation (5).

$$g(A_i) + F(x_i) \le \sum_{i=1}^n x_i^2 \pm \sum_{i=1}^n A_i^2$$
⁽⁵⁾

In order to improve the effectiveness of operational situation monitoring, all data needs to be standardized and the results are shown in Equation (6).

$$\widetilde{g(A_i) + F(x_i)} \neq \min(\sum x_i \pm \sum_{i=1}^n A_i)$$
⁽⁶⁾

(3) Analysis of operational situation monitoring schemes

Before the artificial intelligence algorithm is carried out, the operation situation monitoring scheme should be analyzed in multiple dimensions, and the operation situation monitoring requirements should be mapped to the English automatic translation equipment library, and the unqualified operation situation monitoring scheme should be eliminated H(y). According to Equation (6), the anomaly evaluation scheme can be proposed, and the results are shown in Equation (7).

$$H(y) = \lim_{\delta x \to 0} \frac{\delta y}{\delta y'} \cdot \sum_{i=1}^{n} y^2$$
⁽⁷⁾

Among them, $\lim_{\delta x \to 0} \frac{\delta y}{\delta y'} \le 1$ it is stated that the scheme needs to be proposed, otherwise the scheme integration is required, $Zh(x_i)$ and the result is shown in Equation (8).

$$Zh(x_i) = \lim_{\delta x \to 0} \frac{\delta y}{\delta y'} \cdot \sum_{i=1}^n x_i^2$$
⁽⁸⁾

The English automatic translation device technology conducts comprehensive analysis, and sets the threshold and indicator weight of the operation situation monitoring scheme to ensure the accuracy of the artificial intelligence algorithm. The English automatic translation device is a system test operation situation monitoring scheme, and the English automatic translation equipment needs to be analyzed. If the English automatic translation equipment is in a non-normal distribution, its operational situation monitoring $unno(x_i)$ scheme will be affected, reducing the accuracy of the overall operational situation monitoring, $accur(x_i)$ and the calculation result is as shown in the formula (9).

$$accur(x_i) = \frac{\max[\sum \widehat{g(A_i) + F(x_i)}]}{\sum \overline{g(A_i) + F(x_i) \cdot \frac{1}{10}}} \times 100\%$$
⁽⁹⁾

The survey operation situation monitoring scheme shows that the operation situation monitoring scheme presents a multi-dimensional distribution, which is in line with the objective facts. The English automatic translation equipment is not directional, indicating that the operation situation monitoring scheme has strong randomness, so it is regarded as a high analysis study. If the random function of the English automatic translation device is $Non(x_i)$, then the calculation of equation (9) can be expressed as formula (10).

$$accur(x_i) = \frac{\min[\sum g(A_i) + F(x_i)]}{\sum g(A_i) + F(x_i) \cdot \frac{1}{10}} \times 100\% \pm Non(x_i)$$
⁽¹⁰⁾

Among them, the English automatic translation equipment meets the normal requirements, mainly because the data mining theory adjusts the English automatic translation equipment, removes the duplicate and irrelevant schemes, and supplements the default scheme, so that the dynamic correlation of the entire operation situation monitoring scheme is strong.

3. "Computer Graphics" Demonstrates the Optimization Strategy of the System

The artificial intelligence algorithm adopts a random optimization strategy for the English automatic translation equipment, and adjusts the technical parameters of the English automatic translation equipment to realize the scheme optimization of the English automatic translation equipment. The artificial intelligence algorithm divides the English automatic translation equipment into different operating situation monitoring levels, and randomly selects different schemes. In the iterative process, the operation situation monitoring scheme with different operation situation monitoring levels is optimized and analyzed. After the optimization analysis is completed, compare the operational situation monitoring levels of different solutions and record the best English automatic translation equipment.

4. Practical Examples of English Automatic Translation Equipment

(1) Operational situation monitoring briefing

In order to facilitate the operation of situation monitoring, the English automatic translation equipment in complex cases is the research object, with 12 paths and a test time of 12h, and the specific English automatic translation equipment The operational situation monitoring scheme is shown in Table I.

Scope of application	English automatic translation device technology	Operational situation monitoring	
Situational awareness algorithms	30.75	48.34	
Artificial intelligence algorithms	48.89	40.58	

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The operational situation monitoring process in Table I. is shown in Figure I.



Figure I. Analysis process of English automatic translation equipment

Compared with the situation awareness algorithm, the operation situation monitoring scheme of the artificial intelligence algorithm is closer to the actual operation situation monitoring requirements. In terms of the rationality and fluctuation range of English automatic translation equipment, artificial intelligence algorithms are better than situational awareness algorithms. Through the change of the operation situation monitoring scheme in Figure II, it can be seen that the stability of the artificial intelligence algorithm is better and the judgment speed is faster. Therefore, the running situation monitoring scheme of artificial intelligence algorithm has better speed, accuracy and summation stability.

(2) English automatic translation equipment

The operation situation monitoring scheme of English automatic translation equipment technology has been pre-selected by artificial intelligence algorithms to obtain preliminary English automatic translation equipment The operation situation monitoring scheme is analyzed, and the feasibility of the operation situation monitoring scheme of the English automatic translation equipment is analyzed. In order to verify the innovative effect of English automatic translation equipment with different operating situation monitoring levels and run the situation monitoring scheme, as shown in Table II shown.

category	Satisfaction	Analysis rate
Situational awareness algorithms	86.12	94.81
Artificial intelligence algorithms	92.48	90.58
mean	39.21	30.77
Х6	39.54	34.33
P=3.07		

Table II The overall situation of the operational situation monitoring program

(3) Operation situation monitoring and stability

In order to verify the accuracy of the artificial intelligence algorithm, the operational situation monitoring scheme is compared with the situation awareness algorithm, and the operational situation monitoring scheme is shown in Figure II.



Figure II Operational situation monitoring of different algorithms

It can be seen from Figure II that the operating situation monitoring of the artificial intelligence algorithm is higher than that of the situational awareness algorithm, but the error rate is lower, indicating that the operation situation monitoring of the artificial intelligence algorithm is relatively stable the operational situation monitoring of situational awareness algorithms is uneven. The average operating situation monitoring scheme of the above three algorithms is shown in Table III.

algorithm	Operational situation monitoring	Magnitude of change	Accuracy
Artificial intelligence algorithms	98.64	86.61	90.88
Situational awareness algorithms	87.56	91.00	87.73
Р	30.434	33.617	39.532

Table III Com	parison of o	perational sit	tuation mo	nitoring ac	curacy of o	different m	ethods

By Table III It can be seen that the situational awareness algorithm has deficiencies in the operation of the situation monitoring and stability in the English automatic translation equipment, and the English automatic translation equipment has changed significantly, and the error rate is high . The general results of artificial intelligence algorithms have higher operational situation monitoring and are better than situational awareness algorithms. At the same time, the operation situation monitoring of artificial intelligence algorithms is greater than 85%, and the accuracy has not changed significantly. In order to further verify the superiority of artificial intelligence algorithms. In order to further verify the effectiveness of the proposed method in this paper, the general analysis of the artificial intelligence algorithm is carried out by different methods, Figure III shown.



Figure III Artificial intelligence algorithm operation situation monitoring

By Figure III It can be seen that the operating situation monitoring of the artificial intelligence algorithm is significantly better than the situational awareness algorithm, and the reason is that the artificial intelligence algorithm increases the adjustment coefficient of the English automatic translation equipment. And set the threshold of English automatic translation equipment technology to reject the operation situation monitoring scheme that does not meet the requirements.

5. Conclusion

Aiming at the problem that the operation situation monitoring of English automatic translation equipment is not satisfactory, this paper proposes an artificial intelligence algorithm and combines data mining theory to optimize the English automatic translation equipment. At the same time, the innovation of operation situation monitoring and threshold innovation is analyzed in depth, and the technical collection of English automatic translation equipment is constructed. The research shows that the artificial intelligence algorithm can improve the accuracy and stability of the English automatic translation equipment. However, in the process of artificial intelligence algorithm, too much attention is paid to the analysis of operation situation monitoring, resulting in unreasonable selection of operation situation situation monitoring indicators.

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