Retraction

Retraction: Quality Inspection of Digital Archives of Application and Installation in Power Business Expanding based on Artificial Intelligence Technology (J. Phys.: Conf. Ser. 2079 012030)

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The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

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Quality Inspection of Digital Archives of Application and Installation in Power Business Expanding based on Artificial Intelligence Technology

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Abstract—The existing quality detection methods of business expansion digital archives have the problem of fuzzy evaluation standard, which leads to low classification accuracy. This paper designs a quality detection method of business expansion Digital Archives based on artificial intelligence technology. The business characteristics of business development are extracted, the minimum business data unit is described, the digital archive catalogue database is established, the digital archive evaluation standard is defined, the text similarity is calculated, the user model is established, and the quality inspection mode is established by using artificial intelligence technology. Experimental results: the average classification accuracy of the designed method based on artificial intelligence technology and the other two quality detection methods is 55.763, 43.560 and 42.605, which proves that the quality detection method based on artificial intelligence technology has higher use value.

1.INTRODUCTIONS
With the development of market economy and the deepening of electric power system reform, the position and importance of electric power marketing is becoming increasingly prominent. In order to improve the work efficiency and management level of power marketing as soon as possible, and meet the needs of market development and high-quality service under the new situation, in recent years, more and more power enterprises begin to pay attention to increasing investment in power marketing, replacing backward equipment and means, and improving the traditional working and management methods. The new technology and means represented by computer, network communication and automatic control technology began to be applied and popularized rapidly in power marketing. With the acceleration of market-oriented reform of power industry, the application and popularization of new technologies and means in power marketing will be more rapid. Power marketing technology is a computer network and automation system based on computer, automatic control and modern communication technology, which can provide efficient and accurate data acquisition, transmission, processing and decision support for power marketing operation, management and decision. Business expansion report is a sub unit of power marketing module. The report and installation of business expansion is the first step to establish the relationship between customers and power enterprises. Most of the original data and basic information of marketing management department come from the report and installation Department of business expansion. If the basic information of customers in the report and installation Department of business expansion is processed by computer first, other departments...
can share information when using computers. It lays a foundation for the information sharing of the whole power marketing management, and makes the business query more convenient, fast and accurate. In the aspect of business expansion, the establishment of computer management information system is not only the problem of improving work efficiency and saving manpower, but also the problem of improving the image of power enterprises, enabling customers to use electricity as soon as possible and promoting power sales, so as to realize the purpose of increasing supply and sales. Artificial intelligence is the highland of current global scientific and technological innovation, and its application scope in various fields is more and more wide. More and more disciplines are paying attention to and exploring artificial intelligence, and combining with their own fields, so as to promote the digital archives [1]. Therefore, the field of archives should conform to the development of the times and apply artificial intelligence to digital archives service, so as to better carry out digital archives service and realize long-term development. In this context, based on artificial intelligence to explore the work of digital archives service, artificial intelligence is introduced into digital archives service, to explore the application field of artificial intelligence in digital archives service, to find the problems that may be brought by its application in digital archives service, and to put forward countermeasures to solve the problems, so as to improve the quality of digital archives service. To realize the sustainable development of archives and obtain the social recognition of archives [2-3]. At present, the academic literature on the combination of manual technology and the quality inspection of digital archives is not very rich, which needs to be further discussed.

2. QUALITY INSPECTION OF DIGITAL ARCHIVES OF APPLICATION AND INSTALLATION IN POWER BUSINESS EXPANDING BASED ON ARTIFICIAL INTELLIGENCE TECHNOLOGY

2.1. Extracting business characteristics of business expansion

Application and installation in power business expanding is the main business of power supply enterprises, which means that power supply enterprises accept customers' application for power consumption or change of power consumption, conduct examination and approval, and check and accept users' self built power receiving projects until the end of meter installation and power connection. After receiving the electricity application from the customers, the marketing department of the power supply enterprise shall conduct on-site investigation according to the nature and load of electricity consumption, combined with the specific situation of the power grid, determine the power supply scheme and sign the power supply and consumption agreement, and review whether the design and construction units have the relevant qualifications, power supply engineering drawings, acceptance of engineering electrical equipment, etc. Finally, we need to sign a power supply contract and install meters for power supply. Business data item maintenance describes the minimum business data unit. The business data unit is a set of business attribute elements. The business attribute set is the minimum unit of business processing, that is, the business attribute elements contained in the set must be completed at the same time in one operation. Through the in-depth analysis and refinement of the business of Power Supply Bureau, such as: customer basic information, customer electrical equipment information, customer power receiving location information, customer metering device information, customer billing method information, customer survey information, etc. TF-IDF weight formula is used to measure the importance of a word for one of the documents in the corpus. The importance of the word increases with the frequency of its appearance in the document, but decreases inversely with the frequency of its appearance in the corpus. On this basis, the calculation formula of the frequency of business expansion is obtained as follows:

\[ R = g \times \frac{\phi}{q} \log(q) \]  

(1)

In formula (1), \( g \) represents the frequency of words, \( \phi \) represents the total number of inverse documents, and \( q \) represents the number of files containing the number of features. Through the configuration of post standard business link, the dynamic setting of marketing business Post and the
business scope of post can be realized. Due to the large amount of data, wide range of services and various types of business, data processing is more complex. There are many data online queries. In order to facilitate the staff to grasp the power consumption status in real time and provide users with query service at any time, it is necessary to provide a large number of convenient and fast online queries, so the data is updated frequently and the historical data needs to be saved. In addition, high reliability is also an important feature of business expansion. Based on this, the steps of extracting business characteristics of application and installation in power business expanding are completed.

2.2. Making clear the evaluation standard of Digital Archives

Digital archives refer to the historical records formed by individuals, enterprises, institutions and organizations in social activities. Relying on modern information technology, they can be transmitted and used on the network, and recorded in the form of digital code such as graphics and audio. Or the original paper archives can be transformed into digital archives, and then stored in the corresponding media in the form of character coding and image multimedia. Digital archives service mainly relies on the Internet to collect, store and use digital archives resources, so as to provide users with the digital archives resources they need. For the business of business expansion, the core of digital archives is all kinds of digital resources. Under the current development of electronic archiving, the main source of digital resources is the digitization of archives. Digital archives, is the application of file scanning, OCR identification and other information technology, the traditional carrier form of archives information into computer recognizable data, and through the means of information storage and management. What digital archives change is only the way of information recording and the carrier form of information preservation, without modifying the archival information and changing the content and expression of the information itself [4]. After the traditional carrier of digital archives, the application of computer management can be very convenient to retrieve and use, so as to greatly improve the service level of the archives department. After the traditional carrier of digital archives, the application of computer management can be very convenient to retrieve and use, so as to greatly improve the service level of the archives department. The core idea of chi square test is to determine the correctness of the theory by observing the deviation between the actual value and the theoretical value, the expression formula of deviation degree is as follows:

$$\delta^2 = \frac{(h - L)^2}{T}$$  \hspace{1cm} (2)

In formula (2), \(h\) represents the theoretical value of detection, \(L\) represents the actual observed value, and \(T\) represents the entry category. Digital archives work consists of two parts. The first is to digitize archives catalogue and establish archives catalogue database. The first step of digitization of many units is to input all these catalogues into the platform to facilitate online retrieval. The second is to transform the traditional archives of various carriers with digital equipment, extract the text, image and other information on the archives, and transform it into a computer recognizable format [5]. This stage can be divided into two steps. The first step is to scan the full content of the file into image information and save it to the computer; The second step is to use OCR and other identification means to identify the full-text of the archives. After checking, it can be stored in text format or double-layer PDF, so as to achieve full-text retrieval. By calculating the change of information entropy when the feature-item appears or not, and then sorting according to the size of information gain, the calculation formula of information gain is as follows:

$$Y = K + \frac{1}{\sqrt{\eta^2}}$$  \hspace{1cm} (3)

In formula (3), \(K\) represents the number of documents filed, and \(\eta\) represents the probability of feature items appearing in the text set. The classification of digital archives should follow certain principles. Its basic principle is to make the archives information resources available accurately, conveniently and quickly, and to make the open archives information resources available to more
people, so as to meet the needs of more and more social archives information resources. The digital objects of archives should also be screened and confirmed according to certain principles and methods. Only those archives that meet certain conditions can be digitized. In order to improve the efficiency and quality of digital work, the primary selection should be carried out according to the scope of filing, and the files that should not be filed should be eliminated; Then select the files with high value and high utilization rate, and list them into the scope of digital processing. As far as archives digitization is concerned, the standard to evaluate its quality is to see whether it can meet the needs of archives management and information utilization, and its quality should achieve the following purposes: the fundamental purpose of quality detection of digital archives is to serve users and meet their requirements for archives information. In the process of digitization, it is necessary to explore the user's requirements for archives utilization according to the characteristics of archives utilization in the Research Institute, so as to take targeted measures to improve the utilization efficiency. In addition to save the format, more important is the choice of resolution. Different resolutions have their own advantages and disadvantages, which have great influence on the final quality. For business expansion, whether digital archives can protect the original archives is also an important evaluation standard of digital quality. One of the purposes of the application of digital archives is to protect the archives, but in the actual process involves the disassembly of the archives, it is easy to cause operation on the archives. Based on the above description, the steps of defining the evaluation standard of digital archives are completed.

2.3. Building a user model
Using the corresponding user attribute information, upload to the cloud server through the intelligent terminal for the primary user modeling. In the first stage, the data of user modeling comes from the user's manual input. In this way, archives institutions can simply and intuitively obtain users' interests and needs. However, completely relying on the user to fill in the file will lead to the decline of the ease of use of the file. At the same time, there may be randomness and fuzziness in the user's filling in and selection, resulting in the misjudgment of the user's interests and needs. Therefore, while updating the user model statically, we should update the user model dynamically in combination with the user usage records collected automatically in the second stage, so as to continuously improve the performance of the user model. Bag of words representation does not consider the context between words, and considers that the order of words in the text is not related. It represents the text as a multi-dimensional vector space, in which each dimension represents a feature in the text, so the similarity between texts can be measured by the similarity between vectors. The expression formula of text feature vector is as follows:

$$s = c(m, n) \times \frac{1}{\alpha} \quad (4)$$

In formula (4), \( m, n \) represents any two documents in vector space, and \( \alpha \) represents feature items in digital archives. The core technology idea of information push is to establish an information agent mechanism through computer and network, which transfers the work originally completed by the user in the client to the server and Internet. The server pushes the customized content directly to the user through the Internet, which avoids the tedious process of searching on the Internet, and enables the user to select the content needed in the push information as purposefully as watching TV programs. The category or domain selected by the user is used as the keyword of the user model. After the feature dimension in the corpus is determined, each dimension in the feature space represents a corresponding feature item. On this basis, formula (4) becomes the following form:

$$s_i = \sum_{j=1}^{i} (m, n) + e^{-1} \quad (5)$$

In formula (5), \( e \) represents the corresponding weight, and \( i, j \) represents two different word representation categories. According to the calculation results of formula (5), there are many ways to
calculate the weight of feature words. The basic idea is that the stronger the class representation ability of feature items, the higher the weight is given. Digital archives is the most intuitive source for users to experience archives. The ease of use and friendly interaction of the interface have an important impact on whether users can operate quickly and accurately, as well as user satisfaction and access. The search interface is generally organized and arranged according to the classification, field, region, time and knowledge topic of the file information, which can help users with clear information needs to quickly locate the information they need, and can also help users without specific needs to browse the distribution of files. However, for users without clear information needs and users with specific information needs, the way of classified search can not fully meet their needs, and there are some deviations between the unified fixed operation interface and the user's understanding and habits. This kind of deviation forces users to re learn to adapt to the operation habits and information layout of digital archives when using archival information, which not only reduces users' satisfaction and access frequency to a certain extent, but also hinders the use of information. Based on this, the steps of establishing user model are completed.

2.4. Artificial intelligence technology setting up quality inspection mode

The dynamic behavior Artificial intelligence has the characteristics of simulation language interaction. It can make the machine understand the human language, and has certain expression ability. It can communicate with natural language barrier free. It can not only expand the retrieval scope of the information system to the greatest extent, but also broaden the solution space of the information system as far as possible, so as to give the optimal solution. To meet the language needs to the greatest extent. The detection objective of digital archives quality is based on the archives management objective of "centralized and unified management of archives, maintenance of integrity, accuracy, system and safety of archives, and Realization of effective utilization of archives". Because whether the macro management of archives or the micro management of a certain kind of archives, the purpose is to achieve the effective use of archives. And "centralized and unified management of archives, maintaining the integrity, accuracy, system and security of archives" is the means and conditions to realize the effective use of digital archives. According to the principle of "integrity, accuracy, system and safety", the quality objectives of digital archives for application and installation in power business expanding should include the following aspects: complete materials, reflecting the whole process and results of engineering design, and reproducing the successful experience of scientific research and engineering design. The content of materials should be accurate and consistent with the actual work and results. The application of artificial intelligence can provide supervision and feedback for the service process of digital archives detection, and clarify the detection mode of digital archives. Artificial intelligence can rely on biological information collection technology to track and monitor the behavior of digital archives users, and then realize human-computer interaction. The application of artificial intelligence can not only further innovate the form of digital archives utilization consulting service, but also provide more technical support for digital archives utilization consulting service. The realization process of digital archives intelligent retrieval service is to put the retrieval languages of various digital archives in the natural language rule base, simulate the human brain at the human-computer interface, and use the computer to search and match the digital archives, which can filter the digital archives according to the specific needs and preferences of the Archives Users. The formula for calculating the correlation between entries is as follows:

$$F = \log \frac{u}{D} \times \varepsilon \ (6)$$

In formula (6), $D$ is the document split point, $u$ is the text information variable, and $\varepsilon$ is the number of words in the corpus. By relying on the intelligent retrieval agent and using the reasoning mechanism in the natural language rule base, even when the retrieval request of the file user is not clear, the potential needs of the file user can be inferred, and the results that are most closely related to the retrieval content entered by the file user can be retrieved, so that these results can be sorted according to the correlation degree, It makes the users of digital archives retrieve the required digital archives simply
and quickly. The quality inspection mode of the digital archives project of application and installation in power business expanding requires first to establish and improve the organization and start the quality management from the team building. The main work includes: clear division of labor and responsibilities, develop quality management plan, and promote the implementation of quality management measures in digital work. The intelligent retrieval service of digital archives relies on the natural language processing technology of artificial intelligence. Its effective application can intelligently identify and understand the retrieval words of archives users, automatically track and analyze the behavior of archives users, and realize deep mining based on the linguistic relevance of massive records, so as to better grasp the potential needs and preferences of archives users. The distributed and heterogeneous digital archives resources are integrated, and the quality detection mode is set according to its content and relevance. Based on this, the steps of setting the quality detection mode are completed.

3. EXPERIMENTAL ANALYSIS

3.1. Experimental preparation
In order to verify the effectiveness of the design of digital archives quality detection method, the experimental test is carried out. According to the needs of experimental test, select the number of features, install the Ubuntu Linux operating system in each node, the CPU is Intel Xeon processor, the main frequency is 3GHz, and the memory is 8GB. After feature selection, the selected features are used as the input of SVM. The training samples are randomly selected from 400000 documents, and the rest are used as test samples. Using artificial intelligence technology to build SVM model, radial basis function is used as kernel function, constant coefficient is set to 1, value is set to 0.003, and tolerance of termination criterion is set to 0.001. It is impossible to consider all the words in the model. Based on the quality detection method proposed in this paper, the most informative word combination is selected. The proposed feature selection method is used to process 2,728 words, which are sorted in descending order according to the mutual information value of a single feature variable. Use continuous numbers to represent each word, such as 0, 1,..., 2,727. In the experiment, the number of selected features is defined as 30. Based on the above preparation, the design of quality inspection method is tested.

3.2. Experimental result
This paper selects the machine learning based quality inspection method for business expansion, report and installation digital archives, and compares with the designed method based on artificial intelligence technology for business expansion, report and installation digital archives quality inspection, The higher the accuracy, the better the performance of the proof method. The experimental results are shown in Table 1-3:

| Number of experiments | Machine learning based quality inspection method for digital archives of business expansion | Quality inspection method of application and installation in power business expanding digital archives based on feature selection | Design of digital archives quality inspection method for business expansion |
|-----------------------|------------------------------------------|-------------------------------------------------|------------------------------------------|
| 1                     | 28.643                                   | 28.445                                         | 39.451                                   |
| 2                     | 29.665                                   | 29.106                                         | 38.557                                   |
| 3                     | 27.451                                   | 27.457                                         | 41.225                                   |
| 4                     | 26.354                                   | 26.334                                         | 40.357                                   |
| 5                     | 25.558                                   | 27.485                                         | 39.284                                   |
| 6                     | 26.607                                   | 28.809                                         | 42.228                                   |

Table 1 Classification accuracy of feature dimension 3000 quality detection method
Table 2 Classification accuracy of feature dimension 6000 quality detection method

| Number of experiments | Machine learning based quality inspection method for digital archives of business expansion | Quality inspection method of application and installation in power business expanding digital archives based on feature selection | Design of digital archives quality inspection method for business expansion |
|-----------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1                     | 46.331                                                                                   | 45.551                                                                                                        | 53.202                                                          |
| 2                     | 45.258                                                                                   | 46.228                                                                                                        | 54.322                                                          |
| 3                     | 46.032                                                                                   | 47.344                                                                                                        | 53.781                                                          |
| 4                     | 47.225                                                                                   | 45.021                                                                                                        | 56.881                                                          |
| 5                     | 44.103                                                                                   | 44.779                                                                                                        | 57.580                                                          |
| 6                     | 48.222                                                                                   | 46.201                                                                                                        | 62.113                                                          |

Table 3 Classification accuracy of feature dimension 12000 quality detection method

| Number of experiments | Machine learning based quality inspection method for digital archives of business expansion | Quality inspection method of application and installation in power business expanding digital archives based on feature selection | Design of digital archives quality inspection method for business expansion |
|-----------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1                     | 52.334                                                                                   | 56.481                                                                                                        | 68.547                                                          |
| 2                     | 53.677                                                                                   | 52.706                                                                                                        | 71.225                                                          |
| 3                     | 52.149                                                                                   | 55.338                                                                                                        | 69.998                                                          |
| 4                     | 53.087                                                                                   | 57.484                                                                                                        | 70.224                                                          |
| 5                     | 56.414                                                                                   | 59.112                                                                                                        | 68.557                                                          |
| 6                     | 57.780                                                                                   | 60.204                                                                                                        | 71.206                                                          |

According to table 1, the average classification accuracy of the proposed method is 40.183, 27.379 and 27.939; According to table 2, the average classification accuracy of the proposed method is 57.146, 46.165 and 45.854; According to table 3, the average classification accuracy of the designed method based on artificial intelligence technology and the other two quality detection methods is 69.959, 54.240 and 56.887, which shows that the designed method has a wider application space.

4. CONCLUSIONS
The design of the digital file quality detection method of business expansion, combined with artificial intelligence technology, provides a feasible idea of power supply task management and adjustment range. By separating the data layer and expression layer of digital archives, a more personalized power supply scheme for business expansion, newspaper and installation is formed. It enriches the academic literature on artificial intelligence technology and digital archives quality detection. Due to the limited research conditions, the application of artificial intelligence technology in other fields is not thoroughly studied in this paper. In the future, we will continue to devote ourselves to relevant research and make progress.

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