



Design and Application of Auxiliary Bid Evaluation System Based on Big Data and Image Recognition Technology

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Abstract. In recent years, with the continuous development of the national economy, the social level is also constantly improving, and science and technology have also achieved vigorous development, showing a thriving situation. In the era of information dissemination, the forms and ways of information dissemination have attracted the common attention of the whole society. The traditional way of information dissemination is mainly through text information, which has its advantages and disadvantages. In order to enrich the way of information dissemination, people have introduced information image recognition technology, which can integrate a large amount of data information into the form of images. People can know a lot of data information through image scanning, and big data analysis technology can integrate a lot of data information. Applying large data set domain adaptive technology to image recognition activities can improve the clarity and accuracy of image recognition. This paper will analyze the important role of big data analysis and intelligent image recognition technology in today's information dissemination from the aspects of overview of big data analysis, overview of intelligent image recognition technology and integration and application of big data analysis technology and intelligent image recognition technology.

Keywords: Big data · Image recognition technologies · Auxiliary Bid Evaluation System

1 Introduction

The concept of big data, as its name implies, is to process numerous data information. In order to facilitate users' access to data information, people integrate data information into images and present them in the form of images. However, due to the influence of image processing technology, the effect of the images presented will be different, and some images will be blurred and the pixels are poor, so that when scanning, the scanning can't come out or the scanning degree is limited. Aiming at the problems in data image scanning, workers can take advantage of the large data set domain adaptive technology, which can actively adjust according to the nature of the image, change the pixels and sharpness of the image, and select the appropriate pixels in the pixel range according to the size of the image. Big data analysis technology plays an important

role in intelligent image recognition technology, which can shorten the time of image recognition, improve the recognition quality and efficiency, and reduce the workload of staff. As the big data technology has not been popularized, some staff members do not have an in-depth understanding of this technology. In order to stimulate the staff's interest in work, the relevant departments need to improve the reward and punishment mechanism, and reward the innovative technical personnel, mainly with material rewards and supplemented with spiritual rewards. Only in this way can the staff's interest in work be mobilized to the maximum extent [1, 2].

2 Literature Review

In image recognition, the clarity and integrity of images will affect the quality of image recognition, and the information contained in images can't be well recognized. The combination of big data analysis technology and intelligent image recognition technology can solve this problem, and its fusion mode is mainly realized through database architecture design, secure database design and image recognition technology. According to the size and definition of the image, the big data analysis technology will adjust its pixels to ensure that the data information can be scanned out, and a lot of data information can be integrated into the image, which can reduce the burden of data managers and the difficulty and complexity of data management. In view of the problems existing in image recognition technology, relevant staff should pay attention to the integration and development of technology, integrate the idea of the development of the times into the technological reform, and guide the development and innovation of technology with advanced scientific ideas [3].

3 Fusion Application of Big Data Analysis Technology and Image Recognition Technology

Big data technology plays an important role in the activities of intelligent image recognition technology, which is always carried out in the activities of image recognition. Big data technology can provide necessary data information for image recognition, and reduce the burden of intelligent recognition technology through correct and scientific processing of data information. The fusion application of big data technology and intelligent image recognition technology is mainly realized through database architecture design, secure database design and image recognition technology. These three links are very important and can't be omitted. The staff should integrate the two technologies, give full play to their respective technological advantages, and learn from each other's strong points to offset their weaknesses. The staff of relevant departments should thoroughly implement the big data analysis technology into the intelligent image recognition technology activities, so as to really make it play its role and value. Only in this way can the technology really play its role and become a mere formality, and management workers should regularly carry out technical innovation and technical summary. As shown in Table 1:

Table 1. Big data classification technology

category	Subdivision of Lingcheng
Applicai on (accounting for 45%)	Intelligent Drive
	intelligent robot
	wit120
	Wisdom finance
	Wait for drone
Technical layer (accounting for 40%)	Computer vision
	Speech Recognition and Natural Language Processing
	AI open platform
Basic layer (accounting for 11%)	Machine learning platform, etc.
	AI chip
	Information distribution, etc.
Comprehensive category (accounting for 4%)	synthetical

3.1 Design of Database Architecture

Database architecture is a general term for the layout of data resources. The quality of database architecture can affect the speed and security of users accessing data. According to the investigation and research, the current big data access platform generally adopts the front-end platform building mode, which has its unique advantages, such as low cost, convenient use and strong applicability, but this front-end platform building mode also has certain disadvantages and drawbacks. Because this model is based on dynamic website construction, the security of this modeling method is relatively poor, and users will have the risk of data leakage when interviewing I. The staff also realized the seriousness of this problem, so they took relevant measures to strengthen the security and confidentiality of the database. Some staff members have adopted the control mechanism in the peripheral layers of the database. When users enter the data platform, one point they must pass through is the access point. In order to meet the needs of different users, the staff members need to improve the access types and provide users with wireless, wired and cloud data access service modes. The greater the number of visitors to the platform, the greater the risk. In order to protect the user's data information, the staff should also establish a protection mechanism at the access point. However, in the actual work investigation, it is found that the security mechanism at the access point will affect the access speed and quality, so generally speaking, the security mechanism at the docking entrance is not necessary. Middleware is the key link of database architecture design, because big data is characterized by a large amount of data and complexity. Middleware such as multilingual support and indexing is used in architecture design, which can improve the access efficiency of users, and users can access quickly and safely. The types of failure mechanisms will be different according to different access locations. In order to save

Table 2. Database structure

Machine 1	Sub-database 1	Sub-database 2
Machine 2	Sub-database 2	Sub-database 1

resources and give full play to the advantages of resources, it is necessary to set up a barrier protection mechanism at the core parts. Only in this way can the role and value of the safeguard mechanism be fully exerted [4, 5]. As shown in Table 2:

3.2 Design of Secure Database

In order to save the massive information of users, and to improve the security of data information, it is necessary to design a secure database. When storing big data, the most important thing is to keep the data confidential and prevent the leakage of data information. Because using the safeguard mechanism at the interface layer is not conducive to users' quick and convenient access, it is necessary to design a secure database in order to ensure the security of data as a whole. Security database is the core content of data. The management system of security database is adopted to manage the core of data, and the management mode is applied to data information, so as to give full play to the performance of configuration management, security audit, operation log management and user management of security database. These performances also include other parts respectively. Just because the information stored in the core database is very important, we should strictly manage it. From the perspective of data structure and data management, we should pay attention to data storage and data storage management. The design of security database should take the core database as the core, focusing on the security mechanism. Such databases mainly include warning database, performance database and configuration database. The design of secure database can improve the service quality of data platform, so that data information will become safer and more efficient after layer-by-layer management and filtering. Some data are very important. In order to improve the confidentiality of data, it is necessary to manage the data accurately, and a special data information base should be set up to store the data in the data information base, so that the security of data can be improved comprehensively. The establishment of a secure database requires specialized technical personnel to design, paying attention to the improvement of data security and scientificity. In order to improve the security of the database, relevant departments should introduce professional scientific talents, and only in this way can talents play their role and value. The main purpose of database security is to secure the core database. Therefore, managers should pay attention to the innovation of security technology [6].

3.3 Image Recognition Technology

Image recognition technology is the last stage of the implementation of big data analysis technology. Traditional images have different sizes and unclear pixels. When intelligent image recognition technology is used for recognition, the recognition effect is not good

or the degree of recognition is low. In order to increase the recognition efficiency and show all the data contained in the picture, it is necessary to apply the large data set domain adaptive technology, which can improve the recognition ability of the computer. In the actual work process, in order to integrate the big data technology with the image recognition technology, the staff should constantly accumulate working experience, integrate different images and make different image models. With the development of the times and society, the field of computer vision has also made rapid development, mainly because big data technology processes image fusion to form an antibody library of images. Users often bear certain risks when recognizing images by scanning codes, which may lead to access risks. Therefore, in order to reduce the risk of users, it is necessary to give full play to the advantages of big data analysis and combine different data information. Only in this way can the security of user access be gradually improved. Users must protect their data information when visiting. If there are bad website reminders, they must stop visiting activities to avoid unnecessary information leakage due to excessive visits. Relevant departments should also pay attention to the protection and guarantee of data information. If a user divulges his or her own information, the staff should try to reduce the losses caused to users by data leakage [7].

4 Design of Intelligent Auxiliary Bid Evaluation System

The design of this scheme includes the establishment of basic database, data cleaning and analysis, the application of artificial intelligence algorithm, image recognition and natural language recognition technology, and the establishment of model, as shown in Fig. 1.

4.1 Create a Basic Database

Adopt big data technology to identify all kinds of data needed in the bid evaluation process, and integrate and utilize information such as supplier performance evaluation, qualification performance verification, bad behavior, enterprise credit information, historical bid winning situation, life-span quality of assets and production, and price, etc., so as to provide data basis for intelligent auxiliary bid evaluation.

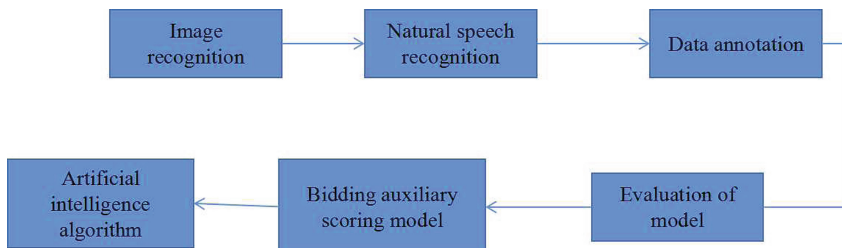


Fig. 1. System architecture diagram

4.2 Data Acquisition

Using artificial intelligence technology, input data including structured price, technical and commercial bidding response data, unstructured technical scheme, commercial document pictures and other data, historical scoring data of bid evaluation experts, historical bidding performance of bidders and other historical data. Deep learning is adopted to identify the content of unstructured data, word segmentation, grammar and semantic analysis are carried out on the text content through natural language processing, and the unstructured data is converted into structured data by combining with deep learning of expert historical scoring data.

4.3 Initial Evaluation Stage

By intelligently comparing the deviation between the bidding response and the bidding requirements, mark whether the response documents pass the compliance review one by one. Review and utilize the historical data information such as supplier qualification verification and prequalification, and automatically mark the response documents that do not meet the bidding requirements, so that experts can conduct targeted evaluation, reduce unnecessary repetitive work in the bid evaluation process, and improve the bid evaluation efficiency [8].

4.4 Procurement Standard Management

Identify the key technical parameters that affect the quality of the whole life cycle of equipment, record and collect structured data, analyze the difference between the required value, trial value, sampling value, equipment operation value and bidding response value, find the abnormal situation of stability and consistency of technical parameters, and realize all-round automatic evaluation of the supplier's technical capability level. Point analysis: after the research results of all-round automatic evaluation of suppliers' technical capability level are completed, they will be entered into this scene as the reference data of bid evaluation model.

4.5 Evaluation of Intelligent Auxiliary Bid Evaluation System

In terms of technology, image recognition technology and natural language processing technology are mature, which can identify the bidding documents submitted by suppliers and extract key data from the bidding documents. At present, the development of artificial intelligence technology has achieved remarkable results in simulating the application of human decision-making, which is technically qualified.

At the implementation level, some auxiliary bid evaluation tools have been used in the company at present. These bid evaluation tools only provide bid evaluation basis in a certain dimension, lacking comprehensiveness, and the final scoring results still depend on the experience of bid evaluation experts. Therefore, there are the following difficulties in the implementation level: (1) All data elements of bid evaluation need to be collected and analyzed, so as to ensure the analysis and output from as many angles as possible, and to ensure the fineness of the result score. (2) The bidding data used for

training machine learning (simulating expert thinking) needs to be processed, and the data of bid evaluation results need to be matched and correlated with the historical data of bid evaluation experts, because the expert data (experience, age, knowledge level) is a changing process, and it takes a lot of work and difficulty to separate and label the data corresponding to the bidding results at that time. (3) The logic model and algorithm model for simulating artificial thinking are not yet mature, belonging to the current frontier technology, requiring the participation of experts with higher technical level, and the research time is long. (4) Converting unstructured data into structured data, how to structure the bidding documents and how to standardize the response documents of bidders will have a great influence on the accuracy of the conversion of unstructured data [9, 10].

5 Conclusion

The integration of big data analysis technology and intelligent image recognition technology can give full play to the advantages of the two technologies, and only in this way can the accuracy of image recognition be improved. The application of big data technology can be realized by building a database and designing a secure database. The progress of the times also puts forward higher requirements for these technologies, which require technical innovation and technical change. In order to complete this work, professional staff should make corresponding efforts. The state should increase the input of human and material resources, cultivate professional technical talents, constantly innovate the working methods of big data, find a good fit, and integrate big data technology with intelligent image recognition technology.

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