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Research Article

Design and Implementation of High-Skilled Talent Information Management System Based on Multisensor Information Fusion

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With the rapid development of science and technology, the global network and informatization process is changing people's lives, and it has also brought profound changes to the management of enterprises. Traditional management still relies heavily on offline management and paper delivery of information. The traditional management model in the past cannot meet the needs of the continuous development of enterprises. The purpose of this article is to design a high-skilled talent information management system to meet the needs of users and enterprises. This paper combines the BP multisensor information fusion algorithm to screen and process the data and designs a multisensor information fusion-based competency evaluation model for highly skilled talents. A high-skilled talent information management system has been established with modules such as basic personnel information, skills identification information, high-skilled talent management, competence, key research teams, common reports, comprehensive query, and system maintenance. In the test of the system's usability, 156 users rated the system above 3 points, accounting for 78% of the survey population, indicating that the system has a certain ease of use. This system realizes the electronicization of the basic information of skilled personnel, which plays an important role in regulating the professional management of skilled personnel and improving the management efficiency of skilled personnel.

1. Introduction

With the rapid development of artificial intelligence technology, informatization construction and paperless office have become the signs of the modern office. The application of multisensor information fusion in robotics makes people pay more and more attention to the development of artificial intelligence. With the development of computer technology and management science, information management systems have emerged, which has greatly improved the quality and effectiveness of management and decision-making. The information technology of the international developed countries has been produced relatively early, has always occupied a leading position, and occupied a certain Chinese market. Although the domestic information technology started late, it is also developing rapidly. At present, the development of domestic management information systems is not inferior in technology to the same industry abroad, but there are certain differences in the types of applications and management functions.

The information management system can effectively manage enterprise data, so that these data can be efficiently stored, used, and shared and promote the standardization and modernization of enterprise management [1, 2]. The realization of a high-skilled talent information management system can provide enterprises with powerful intellectual resources, enable enterprises to better grasp, and reasonably allocate information on high-skilled talent resources, so that these talents can make full use of them [3]. As the enterprise continues to develop, the function of the information management system needs to be able to meet the changing needs of the enterprise, and it must have strong adaptability and scalability. Can draw on the application of multisensor information fusion in robot technology, design artificial intelligence network-based high-skilled talents information management system, to achieve professional management of standardized skilled talents, and improve the management efficiency of skilled talents [4, 5].

Chettibi's team used multisensor information fusion to develop an intelligent power management system that will automatically control load shedding in local power distribution areas and utilize different types of generator sets such as conventional and unconventional energy sources. If the power generation is insufficient to meet the load demand, the multisensor information fusion will predict and predict when the load demand is greater than the power generation amount and specifically propose a suitable load reduction area. Utilizing and processing different types of seasonal and occasional loading data, they designed multisensor information fusion to automatically show them that local power restrictions would be better based on priority. Therefore, the area that needs to minimize the load is a priority [6]. Peng's team established the development of an information database and information data management system to facilitate the multisource, multidisciplinary data generated by the data management work in the geological repository in China during the site selection process. Through this management system, basic functions such as creation, retrieval, update, deletion, full-text retrieval, and download can be realized. It can even provide some professional data statistics and analysis functions. Finally, data from many different disciplines was successfully integrated, stored, and managed. At the same time, the management system can also provide an important reference for data management in related research fields such as decommissioning and management of nuclear facilities, resource exploration, and environmental protection [7]. Yue's team has developed an air pollution and health impact monitoring information system that includes data collection, data management, data quality control, statistics, and visual display. Through the B/S architecture, the design concept of separation of authority management from professional applications and centralized data management, authority process management, and quality control is integrated into the entire process of data collection, data processing, data review, and statistics. Key functions such as data collection, three-level auditing, statistics, visual display, and system management of the information system were realized. The system has been applied in national projects in 31 provinces, 65 cities, and 126 monitoring points. So far, more than 16 million business records have been stored in the system, and the amount of data has reached more than 10 g. It not only meets the monitoring requirements but also provides basic support for research and decision-making [8].

This article designs a high-skilled talent information management system to meet the needs of users and enterprises. This paper combines the BP multisensor information fusion algorithm to screen and process the data and designs a multisensor information fusion-based competency evaluation model for high-skilled talents. It establishes basic personnel information, skills identification information, high-skilled talent management, competence, key research teams, a highly skilled talent information management system with modules such as reports, comprehensive query, and system maintenance. By testing the system, it is concluded that the system can meet the needs of users and enterprises. It can meet the corresponding requirements in many aspects such as functionality, reliability, software design, compatibility, and security. The realization of the electronicization of the basic information of skilled personnel has played an important role in regulating the professional management of skilled personnel and improving the management efficiency of skilled personnel.

2. Proposed Method

2.1. Multisensor Information Fusion

2.1.1. Characteristics of Multisensor Information Fusion. Multisensor information fusion is a simulation of the human brain system. It reflects many basic characteristics of human brain function. But it is not a true portrayal of the human brain nervous system, it is to simplify and abstract it [9]. It processes information by simulating the way a brain multisensor information fusion processes memory information. Its characteristics are the following:

(1) *Nonlimiting.* A multisensor information fusion can usually do calculations in the process of information transmission and can also store it. This source is formed by the connection of multiple neurons. The prediction of a certain behavioral result of the system requires the interaction and interconnection of multiple neurons, which mimics the characteristics of human neural connections, so that the operation efficiency is very high, which is the advantage of multisensor information fusion

(2) *Nonlinear.* The wisdom of the brain is a nonlinear phenomenon. It is a parallel structure and processing order. According to mathematical theory, the two states of activation or inhibition of artificial neurons are what people call excited or unexcited states, so they are understood as a nonlinear relationship

(3) *Nonconvex.* Multisensor information fusion under certain conditions, a certain state function changes, and a system state will also change. Multisensor information fusion is the same. A state function has multiple extreme values, and the system also has multiple stable states. The information is not only stored in a unit; there may be multiple evolution directions of the system. This is that multisensor information fusion has a relatively strong fault tolerance feature

(4) *Very Qualitative.* Multisensor information fusion has the ability to self-organize, self-learn, and adapt, which is very similar to the human brain. Therefore, if the final output is incorrect, the system will also add weights to produce new results, and there are multiple changes in the information to be processed. People often use iterative processes to represent the process evolution of dynamic systems

According to these four characteristics, multisensor information fusion has been applied to a variety of fields: in the information field, multisensor information fusion for nonlinear signal processing and adaptive signal processing [10], for example, spectrum estimation and noise cancellation. It can also be applied to pattern recognition, such as handwritten Chinese character recognition function and fingerprint recognition system in smartphones [11]. In the field of automation, intelligent monitoring and detection of comprehensive indicators such as environmental comfort are often used in daily life [12]. In the engineering field, such as the optimization of automobile fuel consumption rate and smoke exhaust degree, dense steel decentralized storage, voice switch, fingerprint switch function [13]. In the economic field, credit analysis and accurate and objective evaluation results can be obtained based on key data to reduce financial risks. At the same time, the performance of stock trends is particularly outstanding. It can build a more accurate and reliable stock market model based on a variety of factors and determine the future price trend [14].

Multisensor information fusion has developed rapidly over the years in the field of computational intelligence, which is characterized by simulating biological multisensor information fusion and learning from nature. Three branches of multisensor information fusion, evolutionary computation, and fuzzy logic have been formed, which provide new ideas, theories, and methods for the research and development of computer science and many disciplines. The organic combination of multisensor information fusion, evolutionary computing, and fuzzy logic to creatively solve complex problems belonging to the category of image thinking has become a research hotspot in computational intelligence and its applications [15].

The emergence of multisensor information fusion has changed the application of computers in many aspects. The main features of a computer are a centralized structure, a serial execution of a sequence of instructions, and a storage component separated from a computing component. During information processing, the problems to be implemented need to be programmed and executed by the computer. The problems must be structured problems that can be accurately expressed; otherwise, the computer will not be able to handle them [16]. The traditional artificial intelligence expert system has initially solved this problem, but it is based on planning. It requires people to clearly express their knowledge in advance. Only when the computer centrally stores these knowledge and rules summarized through human wisdom, it has intelligence. So in essence, the traditional artificial intelligence only makes logical reasoning in the form of simulating the human brain from the aspect of external functions. Multisensor information fusion is another sublimation on the basis of the former two. It is a network structure composed of a large number of parallel nonlinear processing units through connection rights, so it simulates part of the image thinking of the human brain from the internal structure. As a result, the ability to solve some non-linear and unstructured problems has become stronger and has been proven in many already implemented systems.

On the other hand, there are still some deficiencies and problems in the application of multisensor information fusion. First, for large-scale distributed systems, the execution time of multisensor information fusion is almost proportional to the square of the number of nodes. Considering the response time of the system, the computer is required to have a high operating speed, so the hardware requirements are very high, and sometimes special hardware is required, and the corresponding cost will be greatly increased. Therefore, hardware research is also an aspect of multisensor information fusion technology. Second, from the characteristics of the multisensor information fusion described above, it can be seen that modifying permissions in the network is a very complicated machine learning process. The network itself cannot give the reason for the output results; it just gives a mapping from the input space to the output space. The information processing process is a black box, and the knowledge distribution is stored in the connection right, so as information storage, the entire network after learning must be stored [17]. In addition, the learning algorithm converts the input and output problem of the example into a nonlinear optimization problem. There is a local minima problem in mathematics. It is likely that the system will fall into a local minima. No matter how many iterations, the error is decline. So at present, the improvement of learning algorithms is still one of the research directions of multisensor information fusion. In addition, the widening of application fields is also one of the research directions. Experts in many fields have tried to use the idea of multisensor information fusion to achieve problems such as prediction, evaluation, identification, and analysis, which have improved the development of productivity in various fields [18].

2.1.2. BP Multisensor Information Fusion. The BP learning algorithm generally consists of an input layer, a thousand intermediate layers, and an output layer, and each layer performs function mapping with weights. As shown in Figure 1, a number of factors, that is, the function independent variable is set as the input layer, and the corresponding output value is obtained by calculating the intermediate layer weights and adjusting the function. The corresponding error is obtained by comparing the output value with the actual value in the sample value. The error value is adjusted by the back-propagation of the multisensor information fusion to adjust the weights and adjustment functions of the middle layer, and the model is adjusted to an acceptable error range.

The input variables are x_j, the output variables are θ_k, w_{ki}, and w_{ij} are the weights θ_i and a_k of the network connection as the node thresholds, and $f(x)$ represents the excitation function of the network.

During the forward propagation of the signal, the input of the ith node in the middle layer is

$$\text{net}_i = \sum_{j=1}^{M} w_{ij} x_j + \theta_i. \quad (1)$$

The output of the ith node in the middle layer is

$$y_i = \Phi(\text{net}_i) = \Phi\left(\sum_{j=1}^{M} w i_j x_j + \theta_i\right). \quad (2)$$

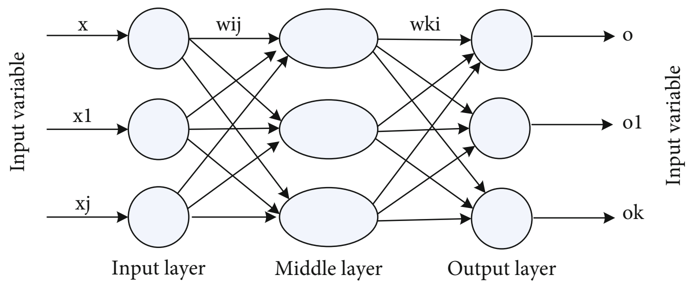

FIGURE 1: BP-ANN model structure.

The input of the kth node of the output layer is

$$\text{net}_k = \sum_{j=1}^{M} w_{ki} x_i + a_i = \sum_{j=1}^{M} w_{ki} \Phi\left(\sum_{j=1}^{M} w_{ki} x_j + \theta_i\right) + a_i. \quad (3)$$

The output of the kth node of the output layer is

$$o_k = \Phi(\text{net}_k) = \Phi\left(\sum_{j=1}^{M} w_{ki} \Phi\left(\sum_{j=1}^{M} w_{ki} x_j + \theta_i\right) + a_i\right). \quad (4)$$

During the back-propagation of errors, the back-propagation adjusts the weight value through the output error, so that the output continuously tends to the expected value. For the pth training sample, its error function is

$$E_p = \frac{1}{2} \sum_{k=1}^{1} \left(T_k^p - o_k^p\right)^2. \quad (5)$$

The total error function is

$$E = \frac{1}{2} \sum_{p=1}^{p} \sum_{k=1}^{1} \left(T_k^p - o_k^p\right)^2. \quad (6)$$

Determine each correction value by inverse calculation

$$\begin{aligned} \Delta w_{ki} &= -\beta \sum_{p=1}^{p} \sum_{k=1}^{1} \left(T_k^p - o_k^p\right)^2 \cdot \Psi'(\text{net}_k) y_i, \\ \Delta a_k &= -\beta \sum_{p=1}^{p} \sum_{k=1}^{1} \left(T_k^p - o_k^p\right)^2 \cdot \Psi'(\text{net}_k), \\ \Delta w_{ij} &= -\beta \sum_{p=1}^{p} \sum_{k=1}^{1} \left(T_k^p - o_k^p\right)^2 \cdot \Psi'(\text{net}_k) w_{ki} \phi'(\text{net}_k) x_j, \\ \Delta \theta_i &= -\beta \sum_{p=1}^{p} \sum_{k=1}^{1} \left(T_k^p - o_k^p\right)^2 \cdot \Psi'(\text{net}_k) w_{ki} \phi'(\text{net}_k). \end{aligned} \quad (7)$$

The multisensor information fusion can implement the nonlinear mapping process without considering the interference and correlation coefficients between various influencing factors of the input layer. There is no bottleneck that the computer cannot calculate within the effective time due to NP difficulties. With the help of computer programming, fast-convergent computing power can be achieved.

2.2. Highly Skilled Talents. High-skilled talent is a dynamic, historical category. With the changes of the times and the adjustment of the industrial structure, its connotation and extension have continued to develop [19]. At the current stage of our country, high-skilled talents refer to between the leadership and decision-making level and the technical operation level. Mainly refers to having solid professional theoretical knowledge, mastering contemporary high-level application technology, strong hands-on ability, superb ability, and technology in key skill areas, and being able to independently solve difficult technical and operational problems in this field; highly skilled talents promote technology. Progressive translators put scientific research results into practice. They are a group of compound application-oriented talents who fully meet the needs of the society [20]. Its main characteristics are embodied in complexity, professionalism, practicality, innovation, and modernity [21, 22].

Through specialized training and training, high-skilled personnel have mastered the current high-level applied technology, skills, and theoretical knowledge and have high-quality employees with innovative ability, entrepreneurial ability, and ability to independently solve critical problems [23]. With the continuous improvement of the high-skilled talent growth environment and incentive and guarantee mechanism of the group company, the skilled talent team has continued to grow in recent years. Every year, the graphic and textual materials retained by skilled personnel in terms of training, use, and evaluation are mostly based on raw paper, and the number is constantly increasing. In addition, most of the business offices of group companies have inconvenience in consulting and statistically reviewing a large amount of historical data, and lack of electronic files for changes in skilled personnel. To this end, research and design high-skilled talent information management system to grasp the construction and development of skilled talents, understand the changes of skilled talents, and build a large database of skilled talents information based on the intranet of the group company. Collect high-skilled talent information globally, realize unified information management and resource sharing, timely grasp the changes in the basic data of the skills of employees in all units, make a reserve of skilled talent resources, and improve the management of statistics, query, and evaluation of high-skilled talents.

2.3. Information Management System. The construction of an information management system plays an increasingly important role in the economic activities of enterprises. The application of our country's information management system is developing in a large-scale and networked direction. At the same time, information management technology is also continuously automated and intelligent. However, the traditional information management system still stays in the simple classification and storage of data in the form of tables. It has a low degree of intelligence and low information utilization efficiency. It does not really realize the functions of forecasting, decision-making, and optimization. Meet the needs of enterprise development [24].

An information management system (IMS) is a system composed of people, computers, and other related equipment. It is mainly used to manage the information required by users. It has data processing and auxiliary decision-making functions and is an information system for management services [25]. Like other disciplines, the information management system also has a process of continuous development and improvement, and various references have different opinions on its origin. Early IMS was limited by computer software, hardware, and network communication technology at that time, and many of them were developed based on CP-ALN. In this system mode, the database is built on the file server, but the database management system and database applications are still running on the workstation (usually the CP machine). The performance of servers and workstations in this type of system is difficult to make full use of the network transmission speed is very slow, and it is easy to cause network bottlenecks. When developing IMS, you can only consider more workstations with poor performance. Various IMS development standards are not unified, it is difficult to exchange information with the outside world, and it is impossible to use today's rich Internet resources. Because the traditional IMS development cycle is long and difficult to develop; if the user's needs change, it is difficult to modify the system to meet new requirements. Traditional IMS can only deal with narrowly defined information such as finance, sales, and inventory and cannot handle nonbusiness broad information such as internal management information, corporate culture information, and daily administrative communication of enterprises. It is inconvenient to operate, and the user interface is not uniform and not intuitive, which causes inconvenience to use, difficult training, and complicated maintenance [26]. With the rapid development of information technology applications, the inherent disadvantages of traditional IMS have become increasingly prominent. Information technology is developing rapidly, new technologies are constantly emerging, and the requirements of IMS for various parties are constantly increasing [27].

With the development of society, the improvement of computer performance and cost reduction, and the improvement of public computer operation skills, the management work of enterprises, institutions, and government agencies will develop in the direction of information, paperless, digital, and network. The popularity of information management systems is and will greatly change our way of life in the future. The information management system can not only complete the basic functions of traditional information systems but also have many functions that traditional information systems cannot achieve, such as information prediction and auxiliary decision-making. Information system security is an issue that information systems must consider, to ensure the integrity, availability, and confidentiality of information. Information system security planning is a very detailed and very important task. There are many common security threats to information systems, such as information leakage, illegal use, bypass control, counterfeiting, infringement of authorization, theft, and business fraud.

In order to meet the needs of the daily management of skilled personnel in the group company, from the perspective of actual management work and functions, the basic unit can guide the basic information and identification information of employees according to the Excel template. When there is an error in the guide data, the basic unit can download the error data and continue to guide after the maintenance is correct. The interface must be beautiful, concise, and easy to operate, and it is convenient for the basic units to maintain data. Facilitate comprehensive query and statistics of skilled personnel data. The ability to automatically generate reports is required for daily management. According to various conditions, you can query the data results required for statistics.

3. Experiments

3.1. Development Environment. This system is based on Windows operating system, the development tool is Microsoft Visual Studio 2008, the development language is ASP.NET, C #, the network platform architecture is B/S architecture, and the Web service middleware uses IIS7.5, as shown in Table 1. Strictly follow web security specifications, double authentication in front and back, and parameter encoding transmission.

3.2. System Architecture Design. According to the needs of business operations, in order to meet the needs of the group company to access the technical personnel management information system through the intranet to perform technical personnel information management, to achieve information sharing, comprehensive application, and visual analysis and statistics of technical personnel, the system adopts a three-layer software structure that is currently popular in distributed systems and is divided into an interaction layer, a service layer, and a data layer, as shown in Figure 2.

The interaction layer is the external interface between the system and the user. It only provides the user interface of the application and is responsible for interacting with the user. The results of various functions in the service layer are displayed in a centralized manner to provide a visual form of the basic services required by the user and the expected results.

The service layer is the key to the application system. Responsible for processing all user requests, performing specific calculations, and processing business processes. According to the specific data provided by the data layer,

Table 1: System development environment configuration standards.

System environment	Configuration standard
Operating system	Windows
Development tools	Microsoft Visual Studio 2008
Development language	ASP.NET, C#
Network platform architecture	B/S
Web service	IIS7.5

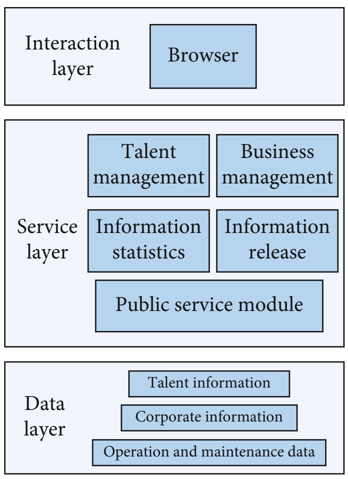

Figure 2: System framework structure.

specific functions such as user information management and maintenance, information statistics, and information release are realized. It also manages specific parameter settings during system operation and the interaction between the system and other systems.

The data layer stores the underlying data related to system operation, as well as personal information registered by individual users and corporate users. The data layer uses database technology to maintain and update applications. System resources are accessed in an authorized manner, and user passwords and access authorization are implemented for sensitive resources. Ensuring controllable and traceable sensitive resources will effectively ensure data security.

3.3. System Database and Module Design

3.3.1. System Function Module. Reporting needs and business processes based on skilled talent information. It is determined that the high-skilled talent information management system mainly includes eight modules of basic personnel information, skills identification information, high-skilled talent management, competency evaluation, key research teams, common reports, comprehensive query, and system maintenance, as shown in Figure 3.

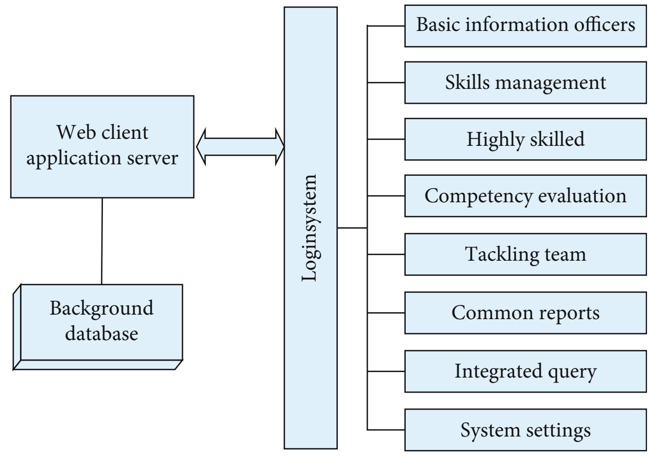

Figure 3: System function module division.

3.3.2. Evaluation Design of Competence of High-Skilled Talents Based on Multisensor Information Fusion. The high-skilled talent management system can be based on the competency model to help companies find talents that meet the quality characteristics of project implementation requirements, in order to avoid the adverse consequences and losses caused by talent errors. When selecting competent high-skilled talents for the project, not only the knowledge and skills should be examined but also the inherent personal qualities such as their personal qualities and role positioning. The influencing factors for determining competence are academic qualifications, professional titles, honors, skills competitions, assessment results, technical papers, and competence levels. The evaluation is classified as excellent (0.9-1), consistent (0.7-0.9), and not consistent (0-0.7). The BP multisensor information fusion algorithm is used here, and the influencing factors are used as the input layer input. The calculation steps of the established multisensor information fusion model are as follows.

The selection range of connection weight and threshold is uniformly distributed at (-0.3, 0.3) random numbers; the range of threshold value $\theta_0, \theta_1, \theta_2$ is (0, 0.3) uniformly distributed random numbers. Activation function selection is

$$f(x) = \frac{1}{1 + e^{-x}}. \tag{8}$$

Randomly assign a smaller value to $w_1, w_2, \theta_0, \theta_1$, and θ_2 and get the activation value of the input layer:

$$\begin{aligned} &\text{data\_training\_in-data\_training} + \theta^0, \\ &\text{data\_input\_out} = f(\text{data\_training\_in}). \end{aligned} \tag{9}$$

Calculate the inputs and activations of the output layer:

$$\begin{aligned} &\text{data\_hide\_in} = w_2 * \text{data\_hide\_out} + \theta_2, \\ &\text{data\_output} = f(\text{data\_output\_in}). \end{aligned} \tag{10}$$

Output layer error signal is

$$w_1 + w_1 + \beta * \text{data\_input\_out} * \delta^y. \tag{11}$$

Calculate the hidden layer error signal:

$$\delta^{y} = \text{data\_hide\_out} * (1 - \text{data\_out}) * \sum_{1}^{k} w_2 * \delta^{0}. \quad (12)$$

Utilizing a mature multisensor information fusion model, when the quantitative numbers of factors affecting the competency evaluation of a high-skilled talent are collected, they can be entered into the model, so that the level of competence of high-skilled talents (excellent, consistent, noncompliant).

4. Discussion

4.1. Design and Implementation of User Login Module and Main Interface

4.1.1. Design and Implementation of User Login Window. In order to improve the security of the information, under the premise of ensuring the security of the system, when setting the user to log in to the system, the user enters a user name and password, and the system will transfer this information to the server for review and verification. The login flow chart is shown in Figure 4. All the information entered is correct. If the verification is passed, the system will jump to the next interface, and the user can successfully select the required module for operation. If the user name or password is wrong or one of them is wrong, the system will prompt you to enter the wrong user name and password and keep logged in, as shown in Figure 5; if the user forgets the original password, the user can follow the instructions in the password recovery module The original password needs to be restored. To do this, the user must enter the password set by the user to restore the question prompt. If the prompt is answered correctly, the original password will be successfully retrieved.

4.1.2. Design and Implementation of Main Interface. After the username and password are entered correctly, the system will automatically jump to the main user interface. This interface includes basic personnel information, skill identification information, high-skilled talent management, competency evaluation, key research team, common reports, comprehensive query, and system maintenance. As shown in Figure 6, it is the main user interface.

4.2. System Test

4.2.1. System Module Test. The system function test is used to ensure that the operation results of the system are as expected. During the test process, the black box test method is used to test each functional module. In the test, the tester compares the required functions to determine the test cases, so as to test the operating results of the entire system. Unit testing is usually used to achieve functional coverage testing. The method used in the testing process is white box testing to test each module. Write corresponding test cases during the test to verify the difference between test results and test expectations. If there are differences, make corresponding adjustments, as shown in Figure 7, which is a user login failure graph.

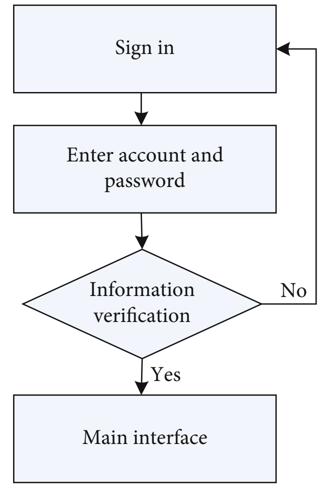

Figure 4: Login flowchart.

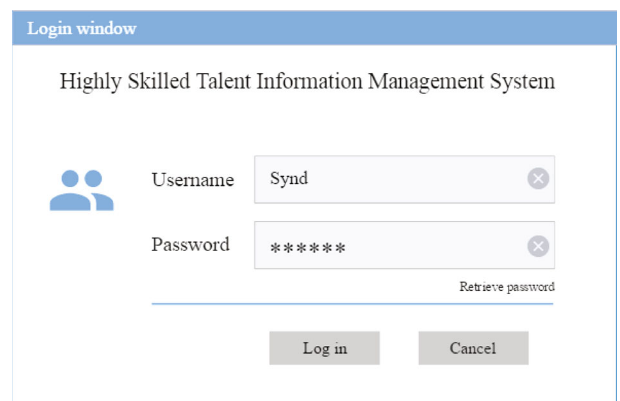

Figure 5: User login window.

By testing the system modules, the test results are the same as the expected results, indicating that the system modules operate normally and can meet the needs of users.

4.2.2. System Usability Test. Regarding the ease of use of the system, a survey was conducted for public users, talent users, enterprise users, and system administrators, with 50 people in each category and 200 people in total. Using the analytic hierarchy process, various users rate the system's use, with 0 being the lowest in ease of use and 5 being the highest in ease of use. The survey results of various users are shown in Figure 8.

It can be seen that 156 users rated the system above 3 points, accounting for 78% of the survey population, indicating that the system has certain ease of use. Test effectiveness through test cases can help testers find defects faster. Through testing, we know that under the simulated operating environment, the highly skilled personnel information management system including hardware, software, network,

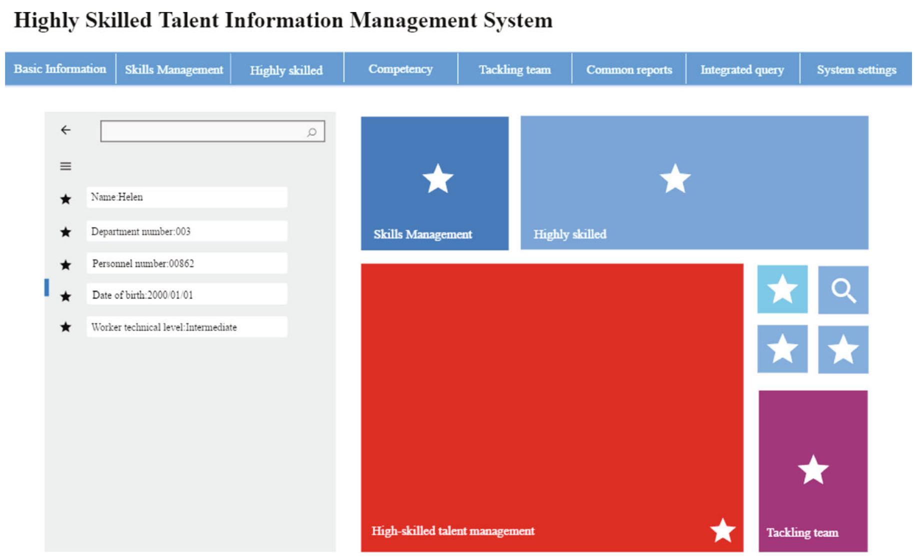

FIGURE 6: User main interface design.

FIGURE 7: User login failure prompt window.

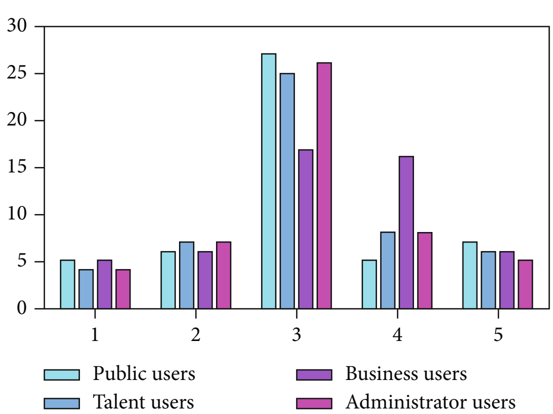

FIGURE 8: Usage survey results.

and support platforms is properly configured and connected to meet user needs. It can meet the corresponding requirements in many aspects such as functionality, reliability, software design, compatibility, and security.

5. Conclusions

This article designs and implements a high-skilled talent information management system based on multisensor information fusion. Through system testing, we know that under the environment of simulating system operation, the highly skilled personnel information management system includes hardware, software, network, and support platforms, which are properly configured and connected, which can meet users' functional requirements and system design for the system, and has certain applicability.

The high-skilled talent information management system designed based on multisensor information fusion in this paper has realized the transformation from artificial paper records to information management methods, electronicized the basic data of skilled talents, and quickly grasped the distribution of employee skills information data in the unit. It plays an important role in standardizing the professional management of skilled personnel and improving the management efficiency of skilled personnel. Multisensor information fusion-based competency evaluation design for high-skilled talents helps companies find qualified talents that meet the requirements and avoids the negative consequences and losses caused by human error.

At present, the information management system of high-skilled talents provides a development environment for standardizing the professional management of high-skilled talents. In view of the scalability and information resources of the information management system, the future research direction can connect the information management system message with SMS and WeChat and realize the application in the field of intelligent mobile.

Data Availability

No data is involved in this article.

Conflicts of Interest

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References

[1] C. Ialongo, M. Pieri, and S. Bernardini, "Artificial neural network for total laboratory automation to improve the management of sample dilution," *SLAS TECHNOLOGY: Translating Life Sciences Innovation*, vol. 22, no. 1, pp. 44–49, 2017.

[2] H. Wang, X. B. Zhang, X. G. Ge et al., "Design and implementation of information management system for Chinese materia medica resources survey," *China Journal of Chinese Materia Medica*, vol. 42, no. 22, pp. 4287–4290, 2017.

[3] C. Yuan, X. Zhao, and Y. Liu, "The design and implementation of the university alumni management system," *International Journal of Advanced Pervasive & Ubiquitous Computing*, vol. 8, no. 1, pp. 13–29, 2016.

[4] B. Chenglin, "The design and implementation on the network environment of the multimedia information processing system," *Computer Engineering & Software*, vol. 4, pp. 90–94, 2016.

[5] L. Huan-Zhang, X. Jing-Bo, Q. Men-Bao et al., "Design and implementation of field questionnaire survey system of taeniasis/cysticercosis," *Chinese Journal of Schistosomiasis Control*, vol. 30, no. 2, pp. 211–214, 2018.

[6] N. Chettibi, A. Mellit, G. Sulligoi, and A. Massi Pavan, "Adaptive neural network-based control of a hybrid AC/DC microgrid," *IEEE Transactions on Smart Grid*, no. 99, pp. 1–13, 2016.

[7] P. Wang, S.-T. Huang, J. Wang et al., "Development of geo-information data management system and application to geological disposal of high-level radioactive waste in China," *Nuclear Technology and Radiation Protection*, vol. 32, no. 3, pp. 294–301, 2017.

[8] Y. Liu, S. Hao, Y. Lü, J. Liu, and D. Xu, "Implementation and application of the new information system of air pollution and health impact monitoring," *Journal of Hygiene Research*, vol. 47, no. 1, pp. 97–102, 2018.

[9] R. Weijian, Z. Shan, and H. Fengcai, "Design and implementation of oilfield archive management system based on petri net and custom technology," *Journal of Jilin University*, vol. 34, no. 5, pp. 635–644, 2016.

[10] L. Zhang, A. Bose, A. Jampala, V. Madani, and J. Giri, "Design, testing, and implementation of a linear state estimator in a real power system," *IEEE Transactions on Smart Grid*, vol. 8, no. 4, pp. 1782–1789, 2017.

[11] W. Kim, "A design and implementation of the real time 4-channel image processing system for vehicle using the smart phone," *Journal of Computational and Theoretical Nanoscience*, vol. 23, no. 4, pp. 3763–3766, 2017.

[12] P. Yue, Z. Wu, and B. Shangguan, "Design and implementation of a distributed geospatial data storage structure based on spark," *Wuhan Daxue Xuebao (Xinxi Kexue Ban)/Geomatics and Information Science of Wuhan University*, vol. 43, no. 12, pp. 2295–2302, 2018.

[13] Y.-J. Zhang, Z. Li, and Q. Liu, "Design and implementation of remote monitoring system for high frequency vibrator," *Chung-kuo Tsao Chih/China Pulp and Paper*, vol. 37, no. 12, pp. 51–55, 2018.

[14] J. Li, "Information integration management system for spiral bevel gear networked manufacturing process," *Transactions of the Chinese Society of Agricultural Engineering*, vol. 33, no. 15, pp. 227–236, 2017.

[15] W. Ma, J. Ren, and X. Wei, "Design and implementation of CORS-based mobile field geographic information verification and acquisition system," *Journal of Geomatics*, vol. 42, no. 4, pp. 98–101, 2017.

[16] S. C. Ripamonti and L. Galuppo, "Work transformation following the implementation of an ERP system," *Journal of Workplace Learning*, vol. 28, no. 4, pp. 206–223, 2016.

[17] M. K. Hassan and S. Mouakket, "ERP and organizational change," *International Journal of Organizational Analysis*, vol. 24, no. 3, pp. 487–515, 2016.

[18] S. Shen, L. I. Zhe, J. I. Qinghui, and X. Chen, "Design and implementation of construction management information system for North Hubei water transfer project," *Journal of Yangtze River Scientific Research Institute*, vol. 33, no. 11, pp. 68–72, 2016.

[19] G. Wang, Z. Li, and Y. Li, "Design and implementation of mobile information system for electric power engineering environment evaluation water conservation," *Journal of Geomatics*, vol. 43, no. 5, pp. 100–103, 2018.

[20] B.-q. Chen, X.-d. Tian, H. Cao, J. K. Jia, and Y. Zhang, "Design and implementation of 3-D GIS-based monitoring and warning system for geological hazard in Danjiangkou reservoir area," *Journal of Yangtze River Scientific Research Institute*, vol. 33, no. 7, pp. 51–54, 2016.

[21] M. Zhou, Y. Long, W. Zhang et al., "Adaptive genetic algorithm-aided neural network with channel state information tensor decomposition for indoor localization," *IEEE Transactions on Evolutionary Computation*, p. 1, 2021.

[22] M. Zhou, Y. Li, M. J. Tahir, X. Geng, Y. Wang, and W. He, "Integrated statistical test of signal distributions and access point contributions for Wi-Fi indoor localization," *IEEE Transactions on Vehicular Technology*, vol. 70, no. 5, pp. 5057–5070, 2021.

[23] Y. Lee and J. Cho, "RFID-based sensing system for context information management using P2P network architecture," *Peer-to-Peer Networking and Applications*, vol. 11, no. 6, pp. 1197–1205, 2018.

[24] N. Maarop, K. Thamadharan, G. N. Samy et al., "Information security management system implementation success factors: a review," *Advanced Science Letters*, vol. 22, no. 10, pp. 3023–3026, 2016.

[25] N. Maarop, G. N. Samy, P. Magalingam, W. M. H. W. Affandi, W. Z. Abidin, and S. Ya'acob, "Exploring usability key issues regarding research management information system: a case study in research institute," *Advanced Science Letters*, vol. 24, no. 1, pp. 695–698, 2018.

[26] X. Mei and Y. Lu, "Development of implantable medical device traceability management information system," *Chinese Journal of Medical Instrumentation*, vol. 40, no. 5, pp. 359–362, 2016.

[27] O. Yigitbasioglu, "Firms' information system characteristics and management accounting adaptability," *International Journal of Accounting and Information Management*, vol. 24, no. 1, pp. 20–37, 2016.