

Construction of Financial Auditing Teaching Mode Based on Artificial Intelligence Expert System

Zhu Xinman, Li Wen
Wenzhou Business College
Wenzhou 325000, Zhejiang, China
zmxinmanz@163.com



ABSTRACT: Financial audit as a highly interdisciplinary, has been for education in the field of technological innovation and technology in the field of application and transformation made a great contribution, but in the financial audit of the related research, technical education and to the relationship between people of, in the field of financial audit internal also appeared in the various factions and point of view. In this paper, the problem with previous research and the author's thinking and put forward their views and opinions, that education and technology should to practical problem solving is proposed to balance the relationship between the two. At the same time, the current research focuses on artificial intelligence, and its application in the field of education as a case to explain the author's point of view. Specifically includes the introduction of artificial intelligence, the relationship between artificial intelligence and education. With the rapid development of artificial intelligence technology and its application, the application of artificial intelligence in the field of education has begun to attract people's attention. This paper describes the basic architecture, research focus and development trend of the artificial intelligence teaching system based on expert system.

Keywords: Financial audit, Education model, Artificial intelligence, Expert system

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1. Introduction

With the rapid development of modern science and technology, advanced technology has been widely used in the field of education, and the educational method is developing from the traditional financial audit to the educational information technology age. Among them, the influence of artificial intelligence technology on education and teaching process is the most profound. It introduces the advanced teaching methods into education, and obtains a significant effect on the students to create an ideal learning environment, stimulate students' interest in learning and improve teaching efficiency and so on.

Artificial intelligence, also known as machine intelligence, it is computer science, cybernetics, information theory, neurophysiology, psychology, linguistics, etc. a variety of disciplines mutual penetration and developed a comprehensive discipline. From

the point of view of computer application system, artificial intelligence is the study of how to create intelligent machines or intelligent systems, to achieve the ability to simulate human intelligence activities, in order to extend people's intelligence science. Artificial intelligence is a cross discipline, multiple fields currently in knowledge processing, pattern recognition, natural language processing, game, automated theorem proving, automatic program design, expert system, knowledge base, intelligent robots made remarkable achievements, and formed a diversified development direction (see figure 1).



Figure 1. Artificial intelligence expert system

Expert system is one of the most active and effective research fields in artificial intelligence, and it is a program system with a lot of knowledge and experience in the field of knowledge and experience. It has a large number of specialized knowledge and experience of the procedure system, it makes the artificial intelligence technology, according to a field in one or multiple human experts knowledge and experience reasoning and judgment, to simulate the decision process of human experts to solve complex problems, those who need the experts to decide. Expert system main components: knowledge base, language some storage for expert systems in the field of expertise; comprehensive database for storage areas or the initial data and reasoning process of intermediate data or information; reasoning machine for rules and control strategies of the memory used by the program, make the expert system to coordinate in a logical way work; to explain the mechanism, to explain the behavior of the expert system to the user. In recent years, there has been a trend of successful and effective application of artificial intelligence technology in the research of “expert system” or “knowledge engineering”. Human experts have a wealth of knowledge (see figure 2), so they can solve the problem of excellent, but also to help human experts found that the error occurred in the process of reasoning.

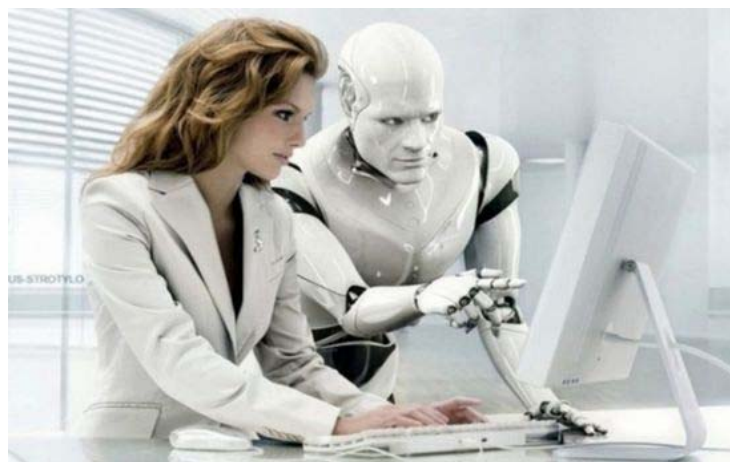


Figure 2. Artificial intelligent learning system

2. State of the Art

2.1 Intelligent Tutoring System

Intelligent tutoring system is a relates to artificial intelligence, computer science, cognitive science, education science, psychology and behavior science and comprehensive subject, with the help of artificial intelligence technology, let the computer play teacher role implementing individualized teaching, to the different needs, different characteristics of the learner to impart knowledge, provide the guidance of adaptability teaching system. The system is formally aimed at the shortcomings of traditional CAI and CBT. The system can be based on domain knowledge and student model to make decision and guidance of intelligent software system [1-3]. The system has according to the characteristics of students' cognitive characteristics, the current knowledge level, and said the flexibility of teaching materials and the different needs of students ability in response to the, by providing "how to students of information for teaching" teaching strategies to implement the system of "smart". Visible, the ultimate goal of the study of intelligent tutoring system is played by the computer system of Learners Guidance and help, give the computer system in intelligence, by the computer system in a certain extent replace human teachers and achieve the best teaching. The application of ITS has changed the traditional teaching mode, so that the students' learning enthusiasm and initiative has been fully played, improve the efficiency of teaching, and help students to develop their intelligence and ability. Artificial intelligence is shown in figure 3.



Figure 3. Machines to interact with people

2.2 Structure of intelligent teaching system

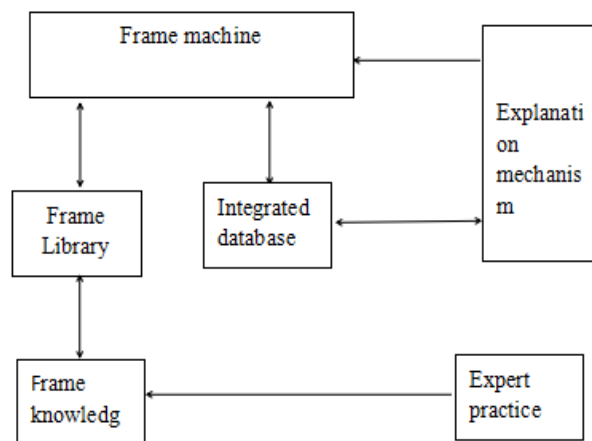


Figure 4. Expert system framework

ITS is a complex software system, which is composed of four parts, which are expert module (knowledge base), student module, teaching module and intelligent interface [4, 5]. The expert module is used to represent the knowledge in the field of teaching, as well as the expert problem solving knowledge which can solve the problem based on the evaluation of students to current knowledge level, mainly to provide information and basis for teachers to make the next step of teaching; students module by comparing students' behavior and expert behavior, intelligent simulation for the students, including students' knowledge, cognitive characteristics and personality characteristics, said the students' understanding of knowledge, to learn the feedback of students; the teaching module is based on the principle of the teaching, select appropriate teaching content in the appropriate teaching strategy under the guidance and to express the appropriate form of presentation at the appropriate time to the students; intelligent interface module is the communication bridge between the students and the information system, provides the expression of knowledge and letter for students [6-8]. As a system and a user interface, the information can be used as a method for providing intelligent multimedia knowledge input, user information and behavior acquisition and knowledge output for other modules. Expert system framework shown in Figure 4.

3. Methodology

3.1 Development Idea of Intelligent Teaching System

The development of science and technology will promote the breadth and depth of the application of artificial intelligence technology in education. The application trend of artificial intelligence, the extension of the application of artificial intelligence in education can be carried out in the following three aspects: first, the combination of artificial intelligence and other advanced information technology [9-11]. Artificial intelligence has been integrated with multimedia technology, network technology, database technology and so on. It has provided a strong technical support for improving the learning efficiency, and has aroused wide concern in the financial audit field. It is the application of artificial intelligence research in the field of integration. The application of artificial intelligence is not independent of each other, but promote each other, improve each other, they can be integrated with each other to expand the capabilities and application capabilities. Three is the research and application of artificial intelligence, the emergence of many new areas, they are the extension and expansion of traditional artificial intelligence [12, 13]. These new areas are distributed artificial intelligence and agent, computational intelligence and evolutionary computation, data mining and knowledge discovery, artificial life and so on, the development and the application contains enormous potential, will on education produced important influence. At present, the reasoning function of the artificial intelligence has been a breakthrough, learning and associative function under study, next step is to imitate human brain fuzzy processing function and whole brain parallel processing function. Artificial neural network is a new field of artificial intelligence application in the future. The composition of the artificial intelligence system is shown in Table 1.

Input device	Mouse	Keyboard	Camera
CPU	Arithmetic unit	Controller	Memory storage
output device	Output system	Voice output system	Magnetic recording equipment

Table 1. Composition of artificial intelligence system

3.2 Artificial Intelligence and Education

It takes a hundred years. Education is related to national development, social harmony and cultural heritage, has been the world's most concerned about the field. At the same time, education and technology have been very close, in the field of educational technology workers has always been keen to all kinds of new technology applied in teaching to solve teaching encounter problems or to improve the teaching effect, so that through technology innovation to promote the revolution of the whole field of education, the fact that is this constant efforts and try to continue to the field of education brings an endless vitality, promote better education and social integration, service to the society. But there are still many questions about technology applied in education. The relationship between education and technology has always been a core issue in the field of educational technology research, and it is also a controversial issue. Because of the technical education and this is two different things, at different locations, different ways of looking at things, of course, will have different points of view, to find out the balance point of technology and education and the combination of points is the technique has been successfully applied to the top priority of education.

4. Result Analysis and Discussion

Because of the financial audit of the digital content is more and more abundant, by means of the principle and technology of intelligent agent and data mining, mining user interest patterns and potential demand, thereby reducing user access delay, improve the retrieval efficiency, for the user to provide personalized active information service, this approach becomes very valuable. This is one of the successful cases in the application of intelligent agent technology in the field of education, which not only use the advantages of technology, but also not ignore the needs of education, and realize the combination of education and technology. But the problem is that this technology is originated in the field of computer, the development in the field of computer, highly technical, looking for the combination of other disciplines and fields span relatively large and not very easy thing, so although education has been recognized by this technology can very good service to education, but now really made have practical value of the product is not much. Meanwhile, it is also some other technology in the application will encounter problems, how to reduce the threshold of application technology, accelerate the new technology to the transition from theory to practice, faster service to the public to develop an appropriate set of solutions is still a long way to go. The implementation techniques of the artificial IS structure are shown in table 2.

Name	1	2	3	4	6
Reasoning	Neural network	Genetic algorithm	Intelligent algorithm	Vague	Expert system based on knowledge base
Transmit	I/O	Sensor	Overall situation	Local database	Distributed memory
Action	Calculation	Control	Robot	Data acquisition	Data processing

Table 2. Implementation techniques for artificial IS structures

5. Conclusions

Financial audit is a cross discipline, history is not very long, in the course of development also experienced a lot of twists and turns and exploration, and engaged in financial audit work people also constantly in the direction of the adjustment. China's financial auditing in recent years to keep pace with the world, continue to flourish, in support of national policy has made many efforts, but I think the current domestic financial auditing is still based on technology standard as the center, and the application effect of foreign heavy heavy heavy heavy feedback maturity model evaluation there is still a gap, in recent years, we see more of the state and the government in equipment and technology to investment and support, whether it is electronic whiteboard or tablet computer is very popular, but the relevant personnel training, resource development, evaluation of the effect did not keep up, resulting in many areas have advanced the equipment, in the teaching effect did not play what role, or even extreme cases as well as technical teaching interference phenomenon, these can not lead people to think Test. In the field of financial audit, technology is more like a double-edged sword, how to make good use of it is that we all engage in financial audit work should be considered to solve the. I think that the solution of the focus of the current problems in other aspects of support and technology to have enough support, after the theoretical demonstration of the new technology into application and associated supporting teacher training, resource development, the teaching effect of tracking and evaluation, feedback analysis, improvement have to keep up with, this is the way to solve the current domestic financial auditing development impasse.

References

- [1] Wang Wansen. (2006). The principle and application of artificial intelligence. Beijing: Publishing House of electronics industry. 12 87-90
- [2] Jiao Jialin, Xu Liangxian, Dai Kechang. (2009). Application of artificial intelligence in intelligent tutoring system. Computer simulation. 7 90-100
- [3] Yuan Hui. (2008). Discussion on the application and development of contemporary artificial intelligence. Fujian computer. 6 123-134

- [4] Kraus, S., Lehmann, D., Magidor, M. (1990). Nonmonotonic reasoning, preferential models and cumulative logics. *Artificial intelligence*. 44 (1) 167-207.
- [5] Chan, Mo., Shan, Feng., Chao, Tang . (2012). Development and Prospect of intelligent tutoring system. *computer engineering and application*. 6. 6-8.
- [6] Jing, Li., Zhurong, Zhou . (2005). New development of intelligent tutoring system. *Computer Application Research*. 22 (12) 15-20.
- [7] Etzioni O, Cafarella M, Downey D. (2005). Unsupervised named-entity extraction from the web: An experimental study. *Artificial Intelligence*. 165 (1) 91-134.
- [8] De Giacomo G, Lespérance, Y., Levesque H J. (2000). ConGolog, a concurrent programming language based on the situation calculus. *Artificial Intelligence*. 121 (1) 109-169.
- [9] Abellan-Nebot, J V., Subirón, F R. (2010). A review of machining monitoring systems based on artificial intelligence process models. *The International Journal of Advanced Manufacturing Technology*. 47 (1-4) 237-257.
- [10] Gao, Z., Zhang, D., Ge, Y. (2010). Design optimization of a spatial six degree-of-freedom parallel manipulator based on artificial intelligence approaches. *Robotics and Computer-Integrated Manufacturing*. 26 (2) 180-189.
- [11] Hennekens, S M., Schaminée, J H J. (2001). TURBOVEG, a comprehensive data base management system for vegetation data. *Journal of Vegetation science*. 12 (4) 589-591.
- [12] Newton, D., Hase, S., Ellis, A. (2002). Effective implementation of online learning: A case study of the Queensland mining industry. *Journal of Workplace Learning*. 14 (4) 156-165.
- [13] Polat, K., Sahan, S., Günes, S. (2006). A new method to medical diagnosis: Artificial immune recognition system (AIRS) with fuzzy weighted pre-processing and application to ECG arrhythmia. *Expert Systems with Applications*. 31 (2) 264-269.