Application of Artificial Intelligence Technology in Electric Automation Control

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Abstract: With the rapid development of modern science and technology, high technology has penetrated into all aspects of social life, bringing great convenience to people's life and production. Different from traditional disciplines, artificial intelligence technology, as a new discipline, has completely broken away from the shackles of traditional technologies and methods. It mainly realizes the simulation process of human intelligence activities by means of computer systems, thus solving many problems that are difficult to be solved by traditional technologies. The progress of society and the longevity of human beings require more developed productivity and more intelligent economic life, so as to save precious human time to do other useful things. The application of artificial intelligence technology greatly reduces the safety accidents in the field of electrification and improves the operation efficiency of the system. Based on this, this paper introduces the artificial intelligence technology, analyzes the application status of artificial intelligence technology in electrical automation, and studies the specific application of artificial intelligence technology in electrical automation.

1. Introduction

Artificial intelligence technology is a new subject developed in recent years. Because artificial intelligence technology can simulate people's thinking, its practical application value is huge. Its appearance is the inevitable product of modern industrial development [1]. Modern artificial intelligence technology has made rapid development, and has made a leap across the times in both theory and practice. The active application of new achievements in artificial intelligence is undoubtedly conducive to the development of electrical automation disciplines, especially in the field of automatic control, and also conducive to improving the intelligent level of electrical equipment operation [2]. Different from traditional disciplines, artificial intelligence technology, as a new discipline, has completely broken away from the shackles of traditional technologies and methods. It mainly realizes the simulation process of human intelligence activities by means of computer systems, thus solving many problems that are difficult to be solved by traditional technologies [3]. In order to meet the needs of the society for talents when learning the relevant contents of electrical automation control, relevant personnel should apply artificial intelligence technology to the learning of automation control, which can not only give full play to the advantages and functions of artificial intelligence technology, but also ensure the reasonable application of the technology in the automation control system [4]. In the field of electrical automation, the introduction of artificial intelligence technology has promoted the control and development of electrical automation.

Now China has also entered an information age, but under the influence of new forms, electrical automation control technology can only keep up with the pace of social development by continuous improvement and innovation [5]. The rapid development of society has placed higher demands on the level of productivity. In order to meet the needs of social progress and development, it is necessary to transform advanced technology into productivity. Artificial intelligence technology has been widely used in social services and social construction, and has achieved relatively remarkable achievements. Artificial intelligence technology can improve work efficiency and reduce work efficiency, so it is favored by many companies [6]. The development of modern society requires the participation of artificial intelligence technology, especially for the development of modern industry, which needs to be supported by advanced artificial intelligence technology. The application of

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artificial intelligence technology has greatly reduced the safety accidents in the electrification field, improved the operating efficiency of the system, and brought good economic benefits to the enterprise [7]. This article introduces the connotation and characteristics of artificial intelligence technology, expounds the current status of artificial intelligence technology in electrical automation control, and analyzes the application of artificial intelligence technology in electrical automation industry.

2. Application Significance and Advantages of Artificial Intelligence Technology in Electrical Automation

2.1. The Significance of Applying Artificial Intelligence Technology in Electrical Automation Control

Affected by various reasons, the electrical industry often has fault problems. If the fault diagnosis is not correct or timely, the losses caused will be very huge. Artificial intelligence technology refers to a method and technology to simulate, extend and expand human intelligence based on relevant theories. After the application of artificial intelligence technology in electronic automation control, its production and circulation process will be better, which is conducive to the real realization of automation [8]. During the operation of the electrical industry, electrical control plays a crucial role. In the electrical automation industry, the normal operation of the electrification system is a very complicated problem, which involves knowledge in many fields and disciplines. Therefore, it needs high-quality talents to be able to control it. As one of the branches of computer technology, artificial intelligence technology is committed to understanding the essence of human intelligence and simulating it to realize the production of intelligent machines. Its main research contents include robots, expert systems, language and image processing, expert systems, etc.

With the gradual intellectualization of electrical automation, the input of manpower can be reduced, the production cost can be reduced, and the actual production efficiency can be improved. The introduction of artificial intelligence technology into electrical automation control has optimized the industrial structure and promoted the gradual upgrading of electrical automation [9]. The application of artificial intelligence technology in the electrical control process Electrical control plays an important role in the entire electrical industry. If the electrical control process can be automated, it can not only effectively improve work efficiency, reduce the amount of money invested in work, but also save human resources [10]. As the most precise machine, the thinking process of the human brain can be imitated. The programming process of the intelligent machine is a simple imitation of the human brain. Through collecting the information of the human brain, the human brain is analyzed, exchanged and processed, and then the feedback process is carried out. The application of artificial intelligence technology in the operation of ordinary electrical systems can make complicated operation procedures simple, and relevant operations can be completed at home by using a computer, thus realizing remote control.

2.2. Application Advantages of Artificial Intelligence Technology in Electric Automation Control

Artificial intelligence technology can be said to be one of the most advanced technologies mastered by human beings. Generally, people will regard artificial intelligence technology as a kind of machine intelligence. In electrical equipment, artificial intelligence technology can be embodied in electrical equipment design. The design of electrical equipment is a systematic work, which requires us to master the theoretical knowledge of motor, circuit and electromagnetic field and accumulate a lot of design experience. The birth of artificial intelligence technology can gradually replace mental work and promote the automatic operation of electrical equipment. At the same time of saving labor cost, the operation efficiency and accuracy of electrical equipment are also improved. Artificial intelligence control technology needs to be controlled by means of computer running program, and the control program becomes the core of this technology. The most prominent feature of artificial intelligence technology is that it can replace human complicated mental work,

effectively collect and identify information, analyze and effectively process it, thus the calculation accuracy is quite high.

With the development of social science and technology, people's requirements for quality of life have become higher and higher, and artificial intelligence has emerged to meet the needs of social development. As a new technology, it plays a very important role and significance in the current era of globalization. The application of artificial intelligence technology in the field of electrical automation control has greatly improved the production capacity of electrical control systems and effectively promoted the optimization and upgrading of industrial structure [11]. In electrical automation work, artificial intelligence technology not only improves the precision and level of simulation automation, but also plays a very obvious role in the actual application process. Under the influence of external factors, its artificial intelligence technology can completely eliminate other interferences, so that the artificial intelligence can well control the problems, especially after the parameters are formulated, the probability of errors will become very small.

3. Application of Artificial Intelligence Technology in Electrical Automation

3.1. Implement integrated control

The design of electrical equipment is a complicated task, which requires not only the knowledge of circuits, electromagnetic fields, electrical machines and other disciplines, but also a large amount of empirical knowledge in design. Applying artificial intelligence technology to automatic control and management can well grasp the running state of equipment. As a part of the electrical field, the electrical control process plays a very important role. If the automation of the electrical control process is realized, the work efficiency can be effectively improved and the work cost can be greatly reduced, thus reducing the cost of human resources. If you want to ensure that the automation equipment is in a stable operation state, the first thing relevant personnel should do is to improve the monitoring work, that is, to control and manage every link in the operation process, so as to improve the overall operation efficiency. Due to the current optimization of artificial intelligence technology in essence and the gradual improvement of its functions, the application value of artificial intelligence technology in the field of electrical control is becoming more and more obvious. With the help of computer programming technology and its related operations, artificial intelligence technology has realized the replacement of human complicated mental work, thus realizing the automatic operation of electrical equipment and greatly reducing the input of human cost. Through all aspects of learning, relevant personnel can be more skilled in the application of artificial intelligence technology in electrical automation equipment, in order to realize dynamic management mode. Because the network-based automation equipment changes very rapidly, the requirements for management technology will also be higher. In the electrical field, accidents and failures occur frequently and for different reasons. However, these accidents and failures are especially troublesome. Failure to diagnose and deal with them in time or improper diagnosis and treatment will cause very serious losses.

3.2. Automatic operation of electrical equipment

To some extent, it can be said that the intelligence of electrical equipment can replace the labor operation defects existing in the human brain, which on the one hand can effectively improve the actual production efficiency of the work. When the equipment is in operation, there are many reasons leading to the failure, and the frequency of the problem is also very right, so after the failure occurs, the relevant personnel must analyze the cause and point of the failure in time. The application of artificial intelligence technology to electrical automation can prevent safety problems arising from the complex wiring structure of automation equipment. When relevant personnel use artificial intelligence technology to operate electrical equipment. It can greatly reduce the complexity of equipment wiring, thus making equipment connection more flexible and improving the operation efficiency and safety of equipment. The introduction of artificial intelligence into the control system can not only improve the overall operation efficiency, but also control the physical

cost and labor cost. The solution to the problem can be realized by means of artificial intelligence technology. As far as artificial intelligence technology is concerned, its theoretical core is mainly computer theory. By writing various control programs, intelligent control under the computer can be well realized [12]. Traditional product design is carried out by simple experimental methods and manual methods according to experience, so it is difficult to obtain the optimal scheme. Artificial intelligence can not only recognize speech, but also replace the work of some technicians, such as image analysis, image processing, operation of expert systems, etc. There is great complexity in electrical automation system, which involves many fields and disciplines. For the operators of electrical automation equipment, they should have good personal qualities and complete professional knowledge. The relationship between the faults of electrical equipment and their symptoms is complicated, with uncertainty and non-linearity. Artificial intelligence method can give full play to its advantages.

4. Conclusion

With the development of science and technology, various fields of artificial intelligence will permeate each other, making them more closely linked. The rapid development of science and technology has made great changes in our life. The emergence of artificial intelligence technology has promoted the development of modern civilization. As far as artificial intelligence technology is concerned, the goal of its research is mainly to finish some complicated work through intelligent machines, while the content of electrical automation control research is mainly related to the operation of electrical engineering systems. Applying artificial intelligence technology to electrical automation control can not only manage electrical equipment, but also ensure that the equipment is in a safe and stable running state. In the electrical automation control, after the introduction of artificial intelligence technology, the traditional electrical control mode has been greatly changed, and the leaping development of electrical automation has been successfully realized. Through systematic learning, the relevant personnel can realize the role and advantages of artificial intelligence technology, so as to improve the overall control quality and efficiency. The growth of national economy is inseparable from electric power, and the automation of electrical system must be controlled by artificial intelligence. Therefore, it is necessary to study and discuss the technology of artificial intelligence and its application in modern electrical automation control, so as to improve the operation efficiency of electrical engineering system.

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