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Analysis of the Application of Artificial Intelligence Technology in Electrical Automation Control

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Abstract

Based on the analysis of the application of artificial intelligence technology in electrical automation control, it is first analyzed that artificial intelligence technology is a programmable code written based on the problems existing in electrical automation, which is similar to copying part of the human brain to help humans solve difficult problems; secondly, it is analyzed that the application of artificial intelligence technology in electrical automation control effectively helps people reduce production costs and human resources, ensure the accuracy of data, and create huge benefits for human life; finally, it is analyzed that only by continuously exploring artificial intelligence technology and improving its intelligence can we help humans move towards a more convenient life.

Keywords

Electrical automation; artificial intelligence; intelligent technology; technology research

Introduction

In fact, artificial intelligence mainly relies on the current advanced computer technology and systematically programs computers. At present, my country has made certain progress in the production of robots, and applying this technology to work can greatly reduce labor consumption and reduce a lot of burdens. In the process of electrical automation control research in my country, it can be found that automatic control, system operation and information processing of electrical engineering are all important links. With the continuous development and progress of my country's era, the scope of electrical automation engineering has become more extensive. With the gradual progress of the technology industry, many work contents have reduced human intervention and handed them over to artificial intelligence. Artificial intelligence is convenient, safe and intelligent, and can work uninterruptedly. From the current development point of view, artificial intelligence technology in electrical automation control is already a future trend. This article mainly analyzes and thinks based on the application of artificial intelligence technology in electrical automation control. The specific contents are as follows.

1. The meaning of artificial intelligence technology

In the process of the development of artificial intelligence technology in China, it can be found that artificial intelligence technology has occupied an important position in all walks of life and has a strong penetration and influence. The main support object of artificial intelligence technology is computer technology, which is effectively combined with multiple technologies such as bionics, and finally gradually forms a cross-social technology. At this stage, China uses this technology as a development platform to develop and produce artificial robots for the Chinese people. Such

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robots can help humans complete various high-intensity and high-risk tasks, so as to reduce the problems of artificial damage and monetary damage at work. However, even though artificial intelligence technology has achieved considerable success, computers still cannot keep pace with the human brain when processing events, which also leads to certain limitations of this technology. The author analyzes and sorts out the input passwords of current computers and finds that there are three categories in total: fuzzy control, expert system and operation efficiency. Among these three types, the expert system type is more complicated, but it also has the strongest execution capability. There is no absolute thing. At the same time, because of the excessive complexity, the input process requires high requirements. Therefore, most people will choose to apply artificial intelligence to industries that prefer fuzzy control. Compared with expert systems, fuzzy control has simpler input, more flexible and more convenient, which is helpful for actual production activities and convenient for managers to carry out corresponding maintenance and control.

In general, artificial intelligence is the replication and application of a part of the human brain. If it is not completely replicated, there will still be problems in dealing with emergencies. But it must be said that artificial intelligence does bring great changes and conveniences to human life. In order to further develop, relevant personnel will continue to study. Artificial intelligence has a lot of room for appreciation, which also means that there are many ways to benefit mankind.

2. Specific application of artificial intelligence in electrical automation control

As we all know, electrical automation control technology is a difficult and complicated work content. Faced with such a nature of work, practitioners who cooperate with it need to have good professional ability and professional quality. These two aspects are mainly used in the design and maintenance of electrical equipment. Practitioners need to fully master the knowledge of electromagnetic fields and lines in electrical automation and have relevant work experience. At present, with the continuous development and progress of the times, my country has undergone earth-shaking changes in science and technology. In actual work, the laying of lines mostly adopts the full machine operation mode, which results in the maintenance and maintenance of equipment in the later stage no longer relying on humans, reducing the demand for humans. There are also companies that fully trust technology and will use artificial intelligence technology in the process of line design, and use computer-aided design systems to select the most excellent solutions for construction. This also shows that the continuous innovation of computer technology has not only improved the maturity of artificial intelligence, greatly reduced the labor of human beings, and saved human resources, but also optimized the available resources of society and contributed to the progress of society.

Artificial intelligence is mainly manifested in the following aspects in the process of electrical automation control: The first one is particularly evident in the early data collection and classification. Because the human brain has limited characteristics, it is difficult to scientifically analyze, organize and screen big data in a short period of time. However, the computer is equipped with cloud computing capabilities by the designer, which can make up for the shortcomings of the brain and analyze, organize and screen the collected data, thus providing a good data terminal. In addition, electrical automation engineering can be re-evaluated according to the specific results analyzed by the computer, and even the database can be entered into the computer terminal to let the computer make the most scientific choice. This process can not only reduce the work pressure of employees, but also determine the reliability of the results [1].

The second manifestation is that artificial intelligence can warn and supervise the electrical system during the electrical automation control process. This supervision function is not only reflected in the real-time supervision of the values of electrical instruments, but also in the automatic alarm function that can be activated when the data exceeds the warning value. In addition, if there is any irregular behavior during the operation, artificial intelligence will also use the forced intervention function to directly turn off the power supply to reduce the probability of accidents at the root. When there are inevitable accidents at work, artificial intelligence will also register and record them in detail in the system, and conduct in-depth exploration and tracking of this operation process, which plays an important role in the attribution of responsibility after the accident.

The third manifestation is that artificial intelligence can clarify the operating permissions of employees in the process of electrical automation control. The first thing that needs to be pointed out is that the advantage of artificial intelligence is that relevant personnel do not have to be present at the work site to control the on-site work in the workshop. The operator only needs to use the computer to turn on the manual intervention function to effectively modify the errors and deficiencies in the computer or system. For example, in a high-voltage plant, such manual

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intervention and operating system can ensure the safety of employees and ensure that production activities continue [2].

In general, the application of artificial intelligence in electrical automation control can help relevant personnel improve their work safety and sense of security, while ensuring work efficiency and reducing work costs, providing technical support for the development and progress of the electrical automation industry [3].

3. Analysis of the application of artificial intelligence technology in automation control

3.1 The application of artificial intelligence technology can reduce human errors

In fact, artificial intelligence is a programmable code written by professionals based on the detailed problems existing in the electrical automation workflow. These codes can effectively ensure that the electrical automation control process works uninterruptedly and provide reliability for it. Mistakes that often occur in human work can also be avoided due to the precise characteristics of artificial intelligence.

In addition, artificial intelligence has not yet achieved widespread application in the current application process. However, once artificial intelligence is popularized and mass-produced in the electrical automation process, the benefits at this time are unpredictable. Specifically, it can be divided into two aspects: the first is that the labor cost in the electrical automation process will be greatly reduced, and the production efficiency will be improved; the second is that because mass production has been achieved, the production cost of the entire industry will be reduced; the third point is that the number of personnel has been reduced, and the investment funds of enterprises have been saved by more than half, and related industries will also be affected. Whether it is electricity or heating, the cost will be reduced, and the ultimate beneficiaries are the general public. Therefore, the development of artificial intelligence in every industry should be inevitable. This is not only highlighted in terms of corporate profits, but also the key to improving people's living standards [4].

3.2 Application of artificial intelligence technology reduces inspection costs

In addition to reducing production costs, there will also be benefits in inspection costs. In traditional inspections, for example, when transformer failure occurs in daily electrical automation operations, manual methods are mostly used to collect transformer samples and then analyze the specific components of the oil in them to find the root cause of the transformer failure. Although results can be found, this process requires a lot of time and energy, and the accuracy of the test results is only half. The application of artificial intelligence technology can effectively solve this problem. In traditional electrical automation work, "people" are the most important, and it is necessary to continuously introduce experienced and technical talents, but such talents are often scarce, and this method has gradually been abandoned by the times. Artificial intelligence technology can connect with the adapter inside the transformer based on the chip installed inside the instrument, and can directly analyze specific data without sampling and testing, reducing the waste of time and energy. According to the abnormal data, the problem can be judged, which not only ensures the correctness of the results but also reduces the inspection cost [5].

3.3 The application of artificial intelligence technology plays a role in promoting employee enthusiasm

Artificial intelligence was created to help humans complete their work, and its capabilities should be comparable to those of the human brain. However, based on the current level of technology, such work is mostly simple and low-end. Electrical automation engineering is indeed programmed, and the work content is highly similar. Therefore, the introduction of artificial intelligence can reduce the complexity of work, allowing artificial intelligence machines to replace human employees to complete monotonous and tedious work, and replace employees to complete tedious and monotonous work behaviors, thereby liberating labor. This also plays a role in promoting the improvement of employee enthusiasm [6].

3.4 The application of artificial intelligence technology brings convenience to people’s lives

At present, artificial intelligence, as an emerging technology, has necessary value and great role in leading the transformation within the industry and improving the quality of human life. With the continuous improvement of artificial intelligence technology, people's lives have become inseparable. Only continuous development and progress can

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bring more benefits to people. In addition, related industries such as electrical automation control need to seize effective opportunities, based on their own advantages, not bound by the status quo, and increase the integration of resources within the industry, so as to promote the industry to a deeper level of development and progress [7].

4. Conclusion

To sum up, the application of artificial intelligence technology in automated control brings huge benefits to people. It provides convenience both in industry and in life, replaces humans to complete difficult tasks and tedious work, and enables automated control to reduce personnel costs and energy. The convenience, breadth, accuracy and reliability of artificial intelligence technology can enable people to live a better life.

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