

Application of artificial intelligence technology in electrical automation

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Abstract: with the vigorous development of artificial intelligence technology, it has quietly entered all fields of human life and production, especially the application of artificial intelligence technology in the field of electrical automation has greatly improved the quality and efficiency of electrical automation, which shows that artificial intelligence technology has a bright future. Therefore, this paper focuses on the advantages, strategies and specific applications of artificial intelligence technology in electrical automation, in order to provide effective reference and reference for maximizing the level of electrical automation intelligence, so as to contribute to the vigorous development of artificial intelligence technology in the future.

Key words: artificial intelligence technology; Electrical automation; Application; Effective strategy

Introduction

With the continuous progress and development of science and technology, the drawbacks of the traditional production mode based on pure manpower have increasingly emerged. The times call for a technology-based production mode that can effectively meet the needs of social production and life. It is precisely because of this that production automation has slowly emerged and entered the public view. In recent years, under the guidance of the strategy of vigorously developing technical personnel in China, the overall level of production automation in China has been unprecedentedly improved, almost meeting the needs of people's daily life. However, with the further development, the problems of the electrical automation industry gradually exposed, such as uneven product quality, imperfect equipment and so on. The development and application of artificial intelligence technology is conducive to fundamentally solving the above problems, promoting the close integration of the two, and driving the continuous development of the whole industry.

1. Advantages of artificial intelligence technology in electrical automation

1.1 Ensure product quality

Traditional industrial production requires staff to invest a lot of time and energy. Only in this way can we ensure that the production goal can be achieved. But in the long run, the staff will be more and more tired, and ultimately the product quality can not be fundamentally guaranteed. In this way, not only the production materials of the enterprise are greatly wasted, resulting in the waste of material costs and labor costs, but also the overall economic benefits of the enterprise may be reduced. This shows that the traditional human production mode is not enough to meet the needs of the times and economic development. The timely introduction of artificial intelligence technology in electrical automation production is conducive to fundamentally solving this problem, ensuring the consistency of the production process, and ultimately ensuring product quality. Specifically, the production process based on artificial intelligence technology needs to rely on computers to set the corresponding programs, and these equipment programs have a set of standardized standards, which can automatically carry out production operations. As long as the connected equipment and computer programs remain stable, the final product quality is certain. More importantly, it can achieve mass production of the same quality. In short, the application of artificial intelligence technology in electrical automation not only greatly reduces the waste of human resources in industrial production, but also maintains certain advantages in product quantity and quality, which is conducive to promoting the improvement of enterprise production efficiency and ultimately greatly improving product competitiveness.

1.2 Standardize production process

Industrial production and processing involves many links, and each link process is extremely complicated and complex. Any omission or problem in any link will have a serious impact on the whole production chain. In electrical automation production, operators need to closely monitor the details of each link, so as to ensure the accuracy and efficiency of the product as much as possible. At this time, if the production is heavy and the number of orders increases, the operators need to pay double energy and time to ensure that the orders are completed within the agreed time limit. In this process, operators will inevitably be in a hurry, which may sometimes reduce the product production efficiency. At this time, the flexible application of artificial intelligence technology in electrical automation is conducive to greatly reducing the workload and pressure of operators, and even operators can operate the equipment through remote control. In this way, when the order volume increases significantly, the operators can also control the equipment in an orderly manner, which is not only conducive to ensuring the quality and standard of product production, but also effectively improve the overall production efficiency of the enterprise, and can save time and labor costs for the enterprise.

1.3 Optimize resource allocation

Traditional industrial production needs to invest a lot of labor in each post and refine the operation process and work content, so as to maintain the consistency and integrity of the whole production process as much as possible, and the final production goal can be successfully completed. At the same time, the traditional industrial production also puts forward higher requirements for the hard-working, conscientious

and responsible spirit of operators. Operators must have professional knowledge and solid skills to ensure that the quality of industrial products is consistent with the design requirements. With the wide and effective application of artificial intelligence technology in electrical automation, enterprises only need professionals to conduct real-time monitoring and supervision of the product production process according to the standard production process in the control room. The key is to monitor the equipment operation data, and the whole production can proceed smoothly. It can be seen that the application of artificial intelligence technology has effectively improved the quality and efficiency of electrical automation production, which is beyond doubt.

2. The wide application of artificial intelligence technology in electrical automation

2.1 Application in electrical equipment

Both the design and operation of electrical equipment put forward strict requirements for the comprehensive ability of relevant personnel. The application of artificial intelligence technology in the design and operation of electrical equipment has been widely promoted, which is popular in the electrical industry.

First of all, taking the design of electrical equipment as an example, as we all know, this is a highly complex and professional work, which puts forward higher requirements for the theoretical knowledge and practical ability of designers. The traditional electrical equipment design mostly relies on the manual experience method and experimental verification method. Although it has also achieved some results, it is often unable to obtain the best design scheme. At this time, the key to introducing artificial intelligence technology is to promote the close combination of computer technology and electrical equipment design. In fact, it is to use computer-aided artificial design to further improve the effectiveness and accuracy of design. Secondly, AI technology is often used in the operation and operation of electrical equipment, which is more conducive to improving the working efficiency of electrical equipment and bringing more economic benefits to enterprises.

2.2 Application in electrical control

Electrical automation control has a direct impact on the overall operation of electrical automation. The application of AI technology in electrical automation control has obvious advantages over manual control. For example, AI technology can adjust and implement the corresponding production procedures according to the specific needs of different production links, so as to control the production process with high quality, To maximize the efficiency of electrical automation control. More importantly, artificial intelligence technology can realize the purpose of remote control of equipment through computers, thus simplifying the control process, effectively reducing the complexity of maintenance personnel's work, and providing many conveniences for their work. At present, the electrification control technology based on artificial intelligence control technology mainly includes three aspects: expert system control, fuzzy control and neural network control. Each technology has its unique advantages and characteristics, which is conducive to the timely diagnosis and repair of equipment operation status, and ultimately further promote the rapid development of the control system of electrical automation equipment in the direction of intelligence and integration.

2.3 Application in daily operation

In the process of specific operation and application of electrical equipment, there are extremely strict requirements for its operation process, and the field staff must follow the formal operation process specification. In view of the close internal relationship between the electrical field and people's production and life, the operation of electrical equipment should always maintain the principle of high efficiency and strive to serve production and life with the least problems. During the implementation of specific operations, in order to ensure the standardization of operations, professionals can optimize and improve the traditional complex operation process through artificial intelligence technology, so as to significantly improve the working efficiency of equipment. For example, workers can directly control electrical equipment through computers and controllers, and further optimize the operation interface to make it more concise; With the good assistance of artificial intelligence technology, information can also be stored and widely collected through the computer system, so as to provide a lot of convenience for subsequent data access and reference. Of course, artificial intelligence technology also has the functions of automatic report generation and automatic troubleshooting, and ultimately avoid the mistakes of manual operation.

3. Effective strategies for the application of artificial intelligence technology in electrical automation

3.1 Optimizing AI technology in the right direction

In the process of applying artificial intelligence technology, enterprises should always maintain a clear consciousness and an active attitude of innovation. First, enterprises should actively learn from the experience of foreign electrical automation enterprises to achieve the purpose of high-quality application of artificial intelligence technology. Second, enterprises should seriously analyze and study the current AI technology from their own actual situation, find the best entry point of AI technology and realize technological innovation. Third, adhere to the concept of long-term development to study the development prospects of artificial intelligence technology in electrical automation or other fields, and should always maintain an optimistic attitude and steadily promote the transformation and upgrading of its own electrical automation technology.

3.2 Training professional and technical talents in the direction of practice

In view of the current lack of comprehensive talents with a solid theoretical foundation and practical skills of artificial intelligence in the field of electrical automation, on the one hand, colleges and vocational colleges should strengthen efforts to cultivate talents in the direction of artificial intelligence and improve their professional quality, on the other hand, enterprises should regularly organize special training activities to improve the proficiency of technicians in operating equipment, Further promote enterprises to complete the intelligent

direction reform and improve the application level of artificial intelligence in electrical automation.

Epilogue

To sum up, the flexible application of artificial intelligence technology in electrical automation is conducive to giving full play to the advantages of artificial intelligence technology, which makes electrical automation develop towards a healthier, more active and longer-term direction, which is an effective way to improve the quality and efficiency of electrical automation production. In order to promote the more stable and long-term development of artificial intelligence technology in the field of electrical automation, relevant experts and scholars must keep pace with the times and strive to promote the deep integration of artificial intelligence technology and electrical automation with more innovative schemes, so as to improve the overall level of productivity development of enterprises and promote the sustainable development of enterprises in the future.

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