

The value and application of artificial intelligence technology in mechanical and electronic engineering

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Abstract: *In the new era, with the rapid development of China's economy and society, the demand for artificial intelligence technology and mechanical and electronic engineering in all walks of life is becoming more and more widespread and vigorous. Based on this, this article mainly from the artificial intelligence technology and the basic overview of mechanical and electrical engineering, analyzed the artificial intelligence technology in the field of machinery and electronics engineering application value, and from the physical AI technology and robotics, machine learning, RPA intelligent core technology of artificial intelligence technology in the concrete application in the field of mechanical and electrical engineering are discussed in this paper, In order to better understand the value relationship between the two, promote the integration of the two development, so as to better play the role of artificial intelligence in the field of mechanical and electronic engineering.*

Keywords: *Artificial intelligence technology; Mechanical and electronic engineering; Application value*

1. Introduction

In the context of the new era, China's scientific and technological level continues to innovate and progress, especially the development of artificial intelligence technology has brought unprecedented changes to all walks of life. How to better application in the field of machinery and electronics engineering artificial intelligence technology, which requires the joint efforts of government and industry, and academia, through specific analysis of the actual development situation of mechanical electronic engineering, prompted both fusion development unceasingly, thus further promote our country social economic development of the vitality and energy.

2. Overview of artificial intelligence technology and mechatronics Engineering

2.1. Artificial intelligence technology

Artificial intelligence refers to the relevant technology that presents human intelligence operation through computer programs. Its core is to establish an intelligent system similar to or even beyond human intelligence, so that knowledge learning, communication of perception and reasoning of problems can be transmitted in an intelligent way.^[1] With the development of artificial intelligence technology, more and more attention and application by all walks of life. In the process of development, more and more information technology companies and scientific research institutions have begun to join in the research and development of artificial intelligence technology. For China, the development of artificial intelligence is a new opportunity for China's sustainable development. And in 1978, artificial intelligence became an important part of the country's development plan. Although China's artificial intelligence research started relatively late and developed slowly, with the continuous improvement of national policies, by 2000, Chinese Society for Artificial Intelligence, Machine Intelligence Committee and other professional organizations were established, which greatly promoted the development of Artificial intelligence in China. At the same time, in order to promote the rapid development of artificial intelligence, China has promoted artificial intelligence to the height of the national development strategy. In the field of applied technology in China, artificial intelligence is a system related to discipline research, and it also plays a huge role in the integration and development of various disciplines.

2.2. Mechatronics engineering

Mechatronics engineering can also be called mechatronics technology. The application of this

technology is a combination of microelectronics technology and large-scale integrated circuit technology, and in the development of traditional mechanical engineering field, can be rapidly covered, infiltrated and derived.^[2] Mechatronics engineering is a highly comprehensive field, including power electronics technology, information technology, mechanical technology, sensor testing technology and many other technologies, for the application of these technologies, can make the automation degree of the whole production is increasing, the production process of products will become relatively simple. Thus, to a certain extent, it makes up for the shortage of traditional machinery production. In the process of practical application, the industrial assembly line production will be effectively optimized. In the current stage, in order to promote the sustainable development of mechatronics engineering field, it is necessary to integrate information technology and mechatronics engineering field with ground machine, so as to provide an important guarantee for the improvement of development quality of mechatronics engineering field.

3. Application value of artificial intelligence technology in the field of mechanical and electronic engineering

Artificial intelligence technology has important application value in the field of mechanical and electronic engineering, which not only helps to realize intelligent production, but also helps to improve the precision of production.

3.1. To achieve intelligent production

In the field of mechanical and electronic engineering, artificial intelligence technology has been widely used in production planning, equipment interconnection, manufacturing process, resource management, production coordination and other aspects, which makes the overall production process increasingly intelligent and informationized.^[3] And in the development of the current phase of the machinery and electronics engineering, more and more intelligent core technology constantly emerging, for example, the intelligent control system, new sensing identification systems, industrial robots and automation of complete sets of production lines, etc., the application of the core technology, advanced machinery and electronics engineering field to further improve the level of development. For example, in the C2M mode, the operation of the mode directly drives customers to the new business operation mode, while in the O2O mode, the online orders and offline experience directly increase customers' stickiness and trust in the enterprise. It should be noted that this mode is created by Kute. And the emergence of Double Star, with the help of artificial intelligence technology, successfully close the distance between customers, and achieve the goal of high-end enterprises and artificial intelligence full integration, product quality is effectively guaranteed, it also carries out the construction of digital workshop, intelligent factory, promote enterprise production transformation and upgrading. In COSMO platform made by Haier, the effective integration between production technology and individual customization is thoroughly promoted. At the same time, the platform will also carry out large-scale promotion of this model.

3.2. To improve the precision of production

In the continuous development of mechatronics engineering, instability is its main deficiency. In the original field of mechanical and electronic engineering, the adjustment and control of this instability will be solved by analytical method. But after practice found that the way it is difficult to fundamentally to this instability, for precise control, and the emergence of artificial intelligence technology, is a computer based technology, for the precision of calculation and data processing, it is very efficient, intelligent, for treatment and control of the instability, is also very effective.^[4] In short, the application of artificial intelligence technology makes up for the shortcomings of traditional analytical methods in problem solving. Based on this, artificial intelligence technology can be fully utilized to play the key role of its neural model, in order to control the whole mechatronic system and ensure the smooth operation of the system. In addition, in the machinery and electronics engineering, its role in corresponding system module, the data of the control is more precise, but the corresponding system function in the process of continuous application, there will be a change of the data, which requires ongoing system engineering planning and adjustment of data, only in this way can provide guarantee for the stability of the system is running, sex, In order to effectively improve the precision of system control.

4. Application of artificial intelligence technology in mechanical and electronic engineering

Based on the current background of the new era, the specific application of artificial intelligence technology in the field of mechanical and electronic engineering can be explored and discussed from three aspects: physical robot technology, machine learning AI technology and RPA intelligence core technology.

4.1. Application of physical robot technology

Physical intelligent robot is the key component of artificial intelligence technology development. Computer, programming design and other disciplines are the key contents of China's future industrial production system. Under the background of China's aging population, intelligent robots will be rapidly developed and applied. Robotics technology can be constantly optimized and adjusted according to human needs, perception, information and other aspects. With the continuous improvement and innovation of science and technology in China, the neural network technology of intelligent robot is becoming more and more perfect and mature, which will contribute to the reform and expansion of related fields to a great extent.^[5]

The robot is very fast in the process of learning, and can carry out complex logic analysis and effectively execute corresponding commands. Based on the current reality of technology, the development of neural network technology can be said to advance by leaps and bounds, in order to test the thinking ability of intelligent robots, they compete with the top experts in human society. At present, China's intelligent robots can be divided into two categories according to the different service fields, one is a household computer robot, the other is an industrial robot. Household robots serve the family and housework. Industrial robot refers to multi-joint manipulator and other corresponding mechanical equipment, for the effective use of these equipment, can quickly execute the established industrial processes and tasks. Combining robotics with the development of mechatronics engineering can effectively solve the problems related to mechatronics, such as the instability of electronic systems.

By effectively improving the work efficiency of mechatronics, the goal of fully automated and intelligent production can be achieved without human intervention in the future. At the same time, the integration of the two development, can ensure that both can get more perfect development. In addition, the integration of the two can also provide a platform for the development of mechanical and electrical engineering of intelligent robots, expand the space, accelerate its development speed fundamentally, and the application of intelligent robots will become more extensive. In the field of mechanical and electrical engineering, physical robot technology can not only promote the mechanical and electrical systems and products to develop in the direction of intelligent, automation, but also can reduce the mechanical and electrical investment cost, improve the market competitiveness of enterprises, not only to ensure the products quality, and improve the efficiency of the enterprise, injected fresh energy to the optimization and upgrade of manufacturing in China.

4.2. Application of machine learning AI technology

The application of machine learning AI technology is an effective means to realize artificial intelligence. In the continuous development of machine learning AI technology, its progress and effectiveness is very significant. Driven by the continuous development of science and technology, computing chip technology is becoming more and more mature, coupled with the accumulation of a large amount of experience data, in the field of mechanical and electronic engineering, the application of machine learning AI technology will be able to make the whole production and operation tend to be intelligent and automated. For example, in the process of motor program control, the parameter data involved in the corresponding program writing is very extensive, and the traditional design and writing way is difficult to ensure the accuracy of the results. Through the use of machine learning AI technology, parameter data can be automatically input, and program parameters can be adjusted and controlled by computer. The generation of errors will also be within the acceptable range, which is conducive to the stable and sustainable development of the whole industry.

4.3. Application of RPA intelligent core technology

The application of RPA intelligent core technology in the field of mechanical and electronic engineering is very helpful to the control of the whole production process in this field. RPA technology, fully known as robot process automation, software to simulate human operation on PC, and in accordance

with certain standards, rules, automatic execution of process tasks technology. The characteristics and advantages of this technology are very significant, which are reflected in the following four aspects: First, 7*24 hours without rest; Second, do not rely on complex development; Third, it is a kind of non-invasive development; Fourth, the whole process is traceable and controllable. These advantages will make the production and manufacturing in the field of mechanical and electronic engineering more effectively controlled, and the overall production quality will be improved accordingly.^[6]

5. Conclusions

To sum up, this paper analyzes and explores the value and application of artificial intelligence technology in the field of mechanical and electronic engineering, aiming to fully recognize and highlight the key role of artificial intelligence technology. The application of artificial intelligence technology in mechanical and electronic engineering can not only control the operation of mechanical and electronic equipment and electronic data analysis, but also improve the overall level of mechanical and electronic engineering.

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