Application and Development Trend of Artificial Intelligence Technology

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Abstract: With the development of computer science, the field of artificial intelligence has made unprecedented breakthroughs. Its application fields span the basic fields of human life and industrial production fields. Artificial intelligence has emerged in smart phones, smart homes, information retrieval, smart medicine, AI education and other fields. In the future, AI is expected to make more outstanding achievements in neuron-like systems and pattern recognition.

1. Introduction

Artificial intelligence technology is the product of the development of science and technology and one of the most advanced products of human science and technology. The concept of AI was first put forward by Professor Nelson of Stanford University in the United States. He believes that AI is a subject about knowledge, how to express knowledge, how to acquire knowledge and how to use knowledge. With the increasing speed of computer operation, it has become possible for machines to learn and think like human beings. In addition, the combination of artificial intelligence with biological science, mathematical computing, medicine and education has made the theoretical system of artificial intelligence more perfect and more widely used.

In China, the government attaches great importance to the development of artificial intelligence engineering. On the recommendation of the Chinese Academy of Engineering, the Ministry of Industry and Information Technology of China has decided to vigorously promote the development of artificial intelligence. It plans to solve the three core intelligent problems of Chinese manufacturing in 2025: digital manufacturing, networked manufacturing and intelligent manufacturing. In the world, Germany has also given priority to the concept of industrial 4.0 with artificial intelligence as its core, emphasizing three major themes for the future development of the world: intelligent factory, intelligent production and intelligent logistics. Therefore, it is of positive significance for the development of AI to systematically understand the relevant concepts of AI and to study the specific application of AI in social life and industrial production. Furthermore, it will play an important role in exploring the future development direction of AI and how to serve future human beings.

2. Practical Application of Artificial Intelligence Technology

Since the beginning of the 20th century, thanks to the development of computer science, the application of artificial intelligence has become more and more extensive, spanning the fields of human life and industrial production. The most common is smartphones. With the rapid development of smartphones, as a typical example of Apple's iPhone, the smartphones manufactured by artificial intelligence have defeated the once popular Nokia and Motorola handset manufacturers. There are also intelligent education software in the field of education, such as "English fluency speaking" APP, which has been able to enable people to self-study English on the Internet through artificial intelligence technology, and to obtain artificial intelligence voice correction services. In addition, AI has served in the fields of "driverless vehicles" and AI robots. As recently, China's first unmanned taxi was put into trial operation in Guangzhou, opening up the unmanned operation mode. Below, for several practical applications to do a detailed introduction.

Fig.1. Application of Unmanned Driver and Face Recognition

2.1 Application of Artificial Intelligence in Information Retrieval

Information, as an important means of understanding the world and using knowledge, is an indispensable element of human life. How to get information and how to efficiently get the information needed by human beings are the problems that scientists and engineers are constantly exploring and solving, even the concerns of all mankind. We know that the traditional way to get information includes the most primitive way, that is, to look up the relevant knowledge in the library, but this way of access to knowledge is very limited, because not only the number of libraries is small, but also the speed of people to access and retrieve books is slow. The second kind of information retrieval method after the development of computer and Internet, but most of them are more programmed. Its working principle is to carry out fixed retrieval through the relevant search terms or retrieval requirements provided by the searcher. Not only is the retrieval efficiency low, but the information retrieved by the searcher is accurate or may be very low, and it can not provide the information that the user really needs to retrieve. But after the application of artificial intelligence in information retrieval technology, the accuracy of information retrieval has been improved a lot.

First, AI can achieve heuristic search. That is to say, AI can use the situation of searching, browsing and downloading documents before searching users, intelligently identify and match the articles related to the search keywords, and at the same time give users the articles related to the previous documents. This process is equivalent to finding out the relevant specific knowledge through artificial intelligence, filtering some information with low correlation directly, so it can solve the user's needs more efficiently and accurately, and greatly shorten the search time.

Second, AI can achieve vertical search. The biggest characteristic of vertical search is that it can process the search information structurally based on the specialty of various information, so that it can search and group the information in depth in full text. Vertical search is a search technology that can achieve very short query time and ensure high search accuracy. Of course, its disadvantage is that its application scope is limited and it needs to be used in a specific field. For example, in the field of job-hunting information for college graduates. College students can go to the job pages that have been categorized by vertical modeling, and input their jobs, salary needs, and workplace conditions, so that they can find out the jobs they need.

2.2 Application of Artificial Intelligence in Education

There is an artificial intelligence system called "intelligent tutor system", whose function is to simulate human teachers and conduct one-to-one intelligent teaching aiming at the problems that students encounter in the learning process. Intelligent tutor system is mainly composed of three parts: domain model, tutor model and learner model. Domain model is also called expert knowledge, which includes some basic knowledge of the field to be studied, such as related concepts, rules and problem solving strategies. Domain model has a key role, that is, it can complete the calculation and reasoning of knowledge, so it can meet some of the learners'problem needs. This model determines learners'learning activities and teaching strategies. The learner model dynamically describes the status quo of learners'cognitive ability and level, even their emotional state. The tutor model, learner model and domain model of ITS are the three elements of teaching - teachers, students and teaching content, as shown in Figure 2.
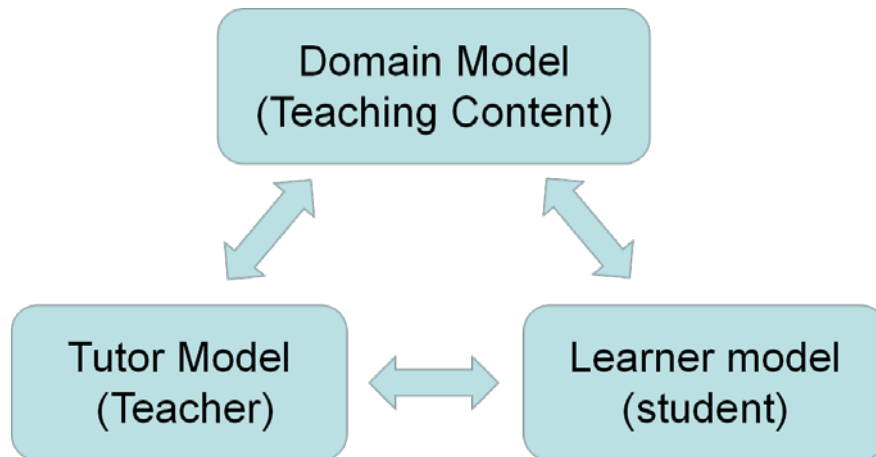
In China, there is an English learning APP called "Fluent Speaking of English", developed by a listed company of "AI + Education". One of the services is the use of artificial intelligence. For example, when learners learn phonetic follow-up, learners are required to follow-up sentences first. After receiving the reader's recordings, APP scores the sentences through the scoring system, and at the same time, it points out the deficiencies of the language they read. Then, it divides the sentences into modules and decomposes the long sentences so that the reader can follow-up again. This is the typical application of artificial intelligence in the field of education.

2.3 Application of Artificial Intelligence in Language Science and Technology

Artificial intelligence in speech processing can provide voice solutions similar to those of the human brain after thinking through thinking the questions of the questioner and using artificial intelligence to think. This is due to the increasingly sophisticated infrastructure of AI, including chips, modules, sensors, as well as the improvement of large data platforms, cloud computing services and network operators. At present, AI has made great breakthroughs in natural language processing. Most of the major chip manufacturers, technology giants and operators, including Technological University Info, Amazon, Apple and Millet Technology, have made breakthroughs in the speech processing module of artificial intelligence. Take "Xiao Ai" of millet science and technology as an example, it has been possible to have an artificial dialogue with people. When people ask all kinds of strange questions to Xiao Ai, they have been able to provide corresponding answers according to the way of life. This was impossible in the past. It is precisely such applications, including smart wearing equipment, smart home equipment and even various types of service robots, and so on, have begun to use.

3. Development Trend of Artificial Intelligence

With the development of science and technology, I believe that artificial intelligence technology will be used in more and more fields in the future. There are many possibilities for its development, and it can not be accurately predicted. However, the following two trends are likely to become reality in the near future.

The first is that artificial intelligence will be applied to artificial neural networks. The reason why human beings have the ability of self-imitation and learning creation is precisely because human beings have the brain. More precisely, it is because the human brain has a network of systems interconnected by multiple neurons, so that human beings have a strong learning ability and the ability to analyze and deal with problems. If the field of artificial intelligence can make breakthroughs in artificial neural networks in the future, it will be an important development trend of artificial intelligence technology in the future. In this way, not only the application of artificial neural network in artificial intelligence technology can be realized, but also the more complex multi-dimensional non-linear problems can be solved, and the quantitative and qualitative problems can be solved, making the application of artificial intelligence technology to a higher level.

The second is the trend of pattern recognition. Specifically, it refers to the technology of automatic recognition based on computer, including automatic recognition of words, sounds, objects and even people. The aim of combining AI technology with pattern recognition is to improve the computer's perception of the external environment and enable it to recognize and judge the external environment automatically, so as to achieve the goal of imitating AI machine. If this can be done, it will play an important role in driving unmanned areas.

4. Conclusion

With the development of modernization, the field of artificial intelligence has made unprecedented breakthroughs. Its application fields span the basic fields of human life and industrial production fields. Artificial intelligence has emerged in smart phones, smart homes, information retrieval, smart medicine, AI education and other fields. And looking to the future, AI is expected to make more outstanding achievements in deep learning. At that time, artificial intelligence can really become the gospel of human society.

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