ISSN 2522-6398 Vol. 5, Issue 6: 44-47, DOI: 10.25236/FER.2022.050608

Artificial Intelligence and Its Application in Educational Industry

Yang Liu[1,a,*]

[1]Department of Informatization Construction and Management, Shaanxi Normal University, Xi'an, Shaanxi, China
[a]lyang@snnu.edu.cn
**Corresponding author*

Abstract: *This paper first introduces the basic concepts of artificial intelligence and the application of artificial intelligence, and then combines the educational industry, elaborated the application of artificial intelligence in the education industry, and finally prospects for the future of artificial intelligence.*

Keywords: *Artificial Intelligence, Educational Application, Informationization*

1. Introduction

Over the past five years, with the rapid development of information technology, artificial intelligence research has made incredible development and progress[1]. In May 2017, KeJie who is known as the "king of human chess" against artificial intelligence machine AlphaGo, the results KeJie 3:0 lost the game; the results once again shocked the world. Google which stand for the highest level in the field of artificial intelligence, its researchers have put a lot of artificial intelligence theory into reality, Google also teach computer automatic identification of parts of speech, understand the meaning of the sentence, recognition, handwriting fonts, images, video, etc. At the 2017 Google I/O conference, Google has announced that it will be "artificial intelligence priority" rather than "mobile priority", it seems that Google will be the future R&D focus from the mobile field to the field of artificial intelligence. And the world famous social networking site Facebook in their next 5 to 10 years will be connected to the world, artificial intelligence, virtual reality and enhance the reality as its future development of the three directions, and in order to support the development of artificial intelligence, set up Facebook's Artificial Intelligent Research Laboratory (FAIR) and Applied Machine Learning Department (AML). Artificial intelligence has become a trend.

2. The Concept of Artificial Intelligence

Artificial Intelligence is a new technology science that studies and develops the theories, methods, techniques, and applications for simulating, extending, and extending human intelligence. Artificial intelligence is a branch of computer science that attempts to understand the essence of intelligence and produce a new intelligent machine that can react in a similar way to human intelligence. Nelson, professor of artificial intelligence at the Stanford University in the United States, has a definition of artificial intelligence: "Artificial intelligence is a subject of knowledge - how to express knowledge and how to acquire knowledge and use knowledge." And another professor at the Massachusetts Institute of Technology says: "Artificial intelligence is the study of how to make the computer to do the past only people can do the intelligent work." Artificial intelligence is the study of human intelligence activities; the structure has a certain intelligence of the artificial system, and how to let the computer to complete the previous needs of human intelligence to work, that is, how to use the computer hardware and software to simulate some of the basic human intelligence theory, methods and techniques.

3. Artificial Intelligence Applications

Artificial intelligence has a wide range of applications, including data mining, deep learning[2], intelligent retrieval, , neural network, pattern recognition, machine learning, computer vision, automatic programming, natural language processing, expert systems and other applications.

ISSN 2522-6398 Vol. 5, Issue 6: 44-47, DOI: 10.25236/FER.2022.050608

3.1. Machine Learning

Machine Learning (ML) is a multi-disciplinary field, involving probability theory, statistics, approximation theory, convex analysis, algorithm complexity theory and other disciplines. Machine learning specializes in how the computer simulates or realizes human learning behavior to acquire new knowledge or skills and reorganize the existing knowledge structure to continually improve its performance. The machine learns to use algorithms to analyze data, learn data, and then make judgments and predictions of real-world situations. Unlike pre-programmed software that can only follow instructions to execute instructions, the machine actually uses a lot of data and algorithms to "self-train" to learn how to accomplish a task. Machine learning is to make the machine become more intelligent algorithm, is the core of artificial intelligence, so that the computer has one of the important characteristics of intelligent, through machine learning to promote the rapid development of artificial intelligence and progress.

3.2. Pattern Recognition

Pattern Recognition is an important part of artificial intelligence[3]. Pattern recognition is a study of how to make a machine aware of its ability to simulate the various perceived abilities of human beings through the organ through the computer system. With the rapid development of artificial intelligence and information technology, pattern recognition theory and technology are also progressing and progressing, not only limited to the traditional image, voice, visual and other single mode of recognition and recognition, especially in the introduction of neural networks After that, pattern recognition begins to identify and extend the complex external objective environment.

3.3. Artificial Neural Networks

Artificial Neural Networks is an algorithmic mathematical model that mimics the behavioral characteristics of animal neural networks and carries out distributed parallel information processing[4]. Its basic characteristic is to try to mimic the pattern of information transfer between the neurons of the brain. In detail, the artificial neural network is to obtain a specific problem solution, according to the grasp of the biological neural network mechanism, in accordance with the control of engineering ideas and mathematical description method, the establishment of the corresponding mathematical model and the use of appropriate algorithms, to determine the mathematical model parameters of the technology. With the rapid development of information technology and neural network research changes, the essence of that Non-linear, distributed, parallel computing, adaptive, self-organization and other characteristics are constantly retained, the current artificial neural network model frequency and improve the speed of amazing, and in many areas combined with artificial neural network model results are remarkable.

3.4. Natural Language Processing

Language ability is the essential characteristics of humans differ from other animals, and exchange a variety of human thought and intelligence activities in language as the carrier, so how to like between person and person, through natural language communication between computer and is the important direction of artificial intelligence research, its theory and its practical significance is self-evident. Through the computer or machine to simulate people, to achieve different context of artificial intelligence methods and based on these methods to implement the process of reasoning. In recent years many breakthroughs were made in natural language processing technology, such as can take the place of human beings "double high" machine translation, is expected universal access in the next five to ten years. At present in the simultaneous interpretation and professional translation machine translation has yet to be promoted, believe that the natural language processing will gradually mature[5].

3.5. Logical Reasoning

How can we let the machine learn logical reasoning? Letting the machine have the logical reasoning ability has always been one of the goals in the field of artificial intelligence, through unremitting efforts, at present to a certain extent, let the computer have the ability to achieve logical reasoning and problem solving, more classic predicate logic reasoning methods are: natural deduction Reasoning, deductive reasoning, rule-based deductive reasoning, etc., in addition to the emerging examples of the method, based on the axiom of the system method.

ISSN 2522-6398 Vol. 5, Issue 6: 44-47, DOI: 10.25236/FER.2022.050608

3.6. Intelligent Decision Support System

The intelligent decision support system is the product of artificial intelligence and decision support system. The intelligent decision support system is a computer application system that helps decision makers through semi-structured or unstructured decision-making through data, model and knowledge. Through the introduction of artificial intelligence means to provide decision makers with analytical problems, the establishment of models, simulation decision-making process and program environment, call a variety of information resources and analysis tools to help decision-makers to improve the level of decision-making and quality.

3.7. Expert System

Expert system is a smart computer program system, which contains a large number of experts in a field of knowledge and experience, can use the knowledge of human experts and problem-solving methods to deal with the problem in the field. In other words, the expert system is a program system with a great deal of expertise and experience, which uses artificial intelligence technology and computer technology to conduct reasoning and judgment based on the knowledge and experience provided by one or more experts in a field, simulating human experts In order to address the complex issues that require human experts to deal with, in short, the expert system is a computer program system that simulates human experts to solve problems in the field.

4. The Application of Artificial Intelligence in Educational Industry

With the rapid development of artificial intelligence theory and technology, artificial intelligence in the application of the education industry has also been taken seriously, its education also had a profound impact. Artificial intelligence in the education industry is as follows:

4.1. Intelligent Learning System

Intelligent Learning System is the artificial intelligence and data mining technology and the combination of the computer aided teaching, is a subject for the students in learning provide a good learning environment, according to the students' personality characteristics, understanding ability, learning and knowledge level, accord with the characteristics of its teaching decisions, and choose different teaching path, and to give students a targeted individual guidance of modern distance learning system based on computer network, through the intelligent tutorship system, according to their aptitude, for different students with personalized education and training[6].

4.2. Intelligent Teaching System

Intelligent agent is one of the widely used technologies in the field of artificial intelligence. Its autonomy, reactivity, cooperation, openness, communication and mobility make it widely used in intelligent teaching system, and intelligent agent can Through the perception of their own and the environment of information, to take action to achieve a series of pre-set goals or tasks, has been developed to multi-agent system stage, in the intelligent teaching system, through intelligent agents can achieve learning and teaching process dynamic monitoring , Behavioral analysis of teaching process, collaborative learning and intelligent reasoning.

4.3. Intelligent Education Decision Support System

The intelligent education decision support system is the typical application of the intelligent decision support system in the education industry. The intelligent decision support system provides the educators with the analysis problem, the establishment of the model, the simulation decision process and the environment of the program, calls all kinds of information resources and analysis tools, To help decision makers improve decision-making levels and quality. At present, intelligent education decision support system has been widely used in library construction, university employment guidance, and development planning office and so on. Through the training and perfection of decision-making model, decision support and suggestion are provided for each business department.

ISSN 2522-6398 Vol. 5, Issue 6: 44-47, DOI: 10.25236/FER.2022.050608

5. Conclusions

With the rapid development of information technology, artificial intelligence technology has been gradually applied to various fields. Kai-fu Lee pointed out that the existing artificial intelligence technology and product development speed, greatly beyond our understanding and expectations, artificial intelligence technology is destined to change our world.

References

[1] Zhuwu Zhu, Summary of the development of artificial intelligence [M]. Science and Technology of West China. 2017,10 (17): 8-10.

[2] Lecun Y, Bengio Y, Hinton G.Deep learning [J]. Nature, 2015: 436-444.

[3] Tsutsui S, Kerola T, Saito S, et al.Minimizing Supervision for Free - Space Segmentation [C]2018 IEEE / CVF Conference on Computer Vision and Pattern Recognition Workshops (CVP RW), 2018.

[4] Quadrana M, Karatzoglou A, Hidasi B, et al. (2019). Per-sonalizing Session - based Recommendations with Hierar-chical Recurrent Neural Networks [C]. the Eleventh ACM Conference. ACM, 2019.

[5] Lopez M M, Kalita J K. Deep Learning Applied to NLP [J/OL].ar Xiv.org,2017,ar Xiv: 1703.03091 [2017-03-09].https: ⁄⁄arxiv.org / abs / 1703.03091.

[6] Reiter E.Building Natural-Language Generation Systems [J].Computational Linguistics, 2020, 27(2) : 298-300.