



The Applications and Drawbacks of Emerging AI Framework in Online Education Field

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Abstract. With the rise of the fourth revolution of science and technology, artificial intelligence is pushed to the forefront of the world; Under the attention of the world again and again to upgrade innovation, gradually permeability; Under the attention of the world again and again to upgrade innovation, gradually into the people of various fields, including the education industry. Education is the foundation of training talents, its purpose is to improve the person's intelligence and a kind of activity, and artificial intelligence are pretty much the same.

Keywords: Artificial intelligence · Education · Mixed reality education

1 Introduction

“Artificial Intelligence” (Artificial Intelligence, AI) jargon in 1956 at the earliest, At the time, artificial intelligence is defined as to be their own simulation can be accurately describe the learning ability of features or intelligent robot [1]. In the past 60 years AI made great progress. Kai fu lee, Wang Yong-gang defined in “Artificial Intelligence” is: “deep learning + big data = artificial intelligence, artificial intelligence rely on artificial intelligence algorithm put knowledge and meaning, education and human nature into ‘0’ and ‘1’ machine code, and provide learning solutions for people.” [2]. Artificial intelligence is the study of human intelligence activity rule, the structure has a certain intelligent artificial system, is the study of how to apply the computer hardware and software to simulate the human. The emergence of artificial intelligence and its rapid development made great contribution to education reform. If the object of education is mutual learning and communication, So the education object of artificial intelligence can do P2P, between people and machines, M2M learn from each other. In recent years, the prestige of the artificial intelligence is more and more big, the industry is also more and more. Education as a first step in training talents, nature is to follow in the footsteps of time development, the introduction of artificial intelligence is also keep up with the trend of The Times development. This article will revolve around under the new situation, The application of AI education way, AI education existing problems and solutions to these problems in-depth discussion.

2 The Background

Under external pressure of competition of the international environment, a new round of international competition is mainly around the core technology, top talent, and innovative talents competition; under the new situation has led us to develop internationally competitive and innovative, creative, combining the artificial intelligence of intelligent high-tech talent. To drive the progress of science and technology of personnel training, promoting economic development and industrial transformation, achieve the goal of improve the international competitiveness of our country. Once upon a time, in the artificial intelligence in our country's talent gap is too large, the slow development of artificial intelligence, and with the world development orbit, But after the reform and opening-up policy, a series of reform for our country and the world smaller and smaller, today's China is occupies a majority say countries in the world. In the past, in May 2019 the People's Daily interview, said: "the advantage of education talent intelligence, boost the development of intelligence technology industry" [4]. Emphasizes the AI in the prominent influence to the education, only to learn the core technology, shortened to make technological innovation process, display the person's intelligence to the maximum. Along with the people of a new generation of artificial intelligence research and development, in health care, pension, education, culture consists of people of various fields such as are for use with artificial intelligence, and education as the pioneer of the popularization of artificial intelligence, natural is toward intelligent direction.

3 The Application of AI in Education Field

Is by the end of the 2019 market research report, The application of artificial intelligence in education industry form mainly embodied in the following five aspects: Intelligent evaluation, Intelligent tutor, Education Simulation, Education robot and Mixed reality education [5]. Here we selected the now use the highest frequency and the latest education situation is analyzed. Construct and optimize the content model, and establish a knowledge graph, so that users can more easily and more accurately find content that suits them. A typical foreign application in this regard is a graded reading platform, recommending appropriate reading materials to users, and linking reading with teaching, with a quiz at the end of the text, and generating reports of relevant reading data, so that teachers can keep track of students' reading conditions.

3.1 Education Robot

Education robot. It in addition to the robot body itself, and the corresponding control software and teaching textbooks, etc. Because education robot to adapt to the new curriculum, the cultivation of student's scientific literacy and play the positive role to improve education quality, In many primary and secondary schools to promote, and to the features of "play school" is popular with teenagers,

Robot into schools and computers on campus, has become a necessary trend, Robot education has become the primary and secondary school education in the field of the new curriculum, the education robot will become a trend in the future. Robot education prevailed earlier in the United States, Japan, the United Kingdom, Germany and other countries, and some countries have included robot education in the curriculum of primary and secondary schools. For example, the United States already has relatively complete robotics education courses in primary and secondary schools, including robotics courses in the classroom, robotics extracurricular practical activities, robotics-themed summer camps, and related courses that use robots as tools to cultivate students' abilities. There is also a project "Robotics in K12 Education" supported by the National Natural Science Foundation of the United States, which aims to help K12 educators develop or improve robots to support STEM and develop robotics courses. And this practice-based education model is obviously recognized by many parents and children. According to a joint survey conducted by BSM and Digital Kids Media, 65% of parents said that compared to traditional toys, they are more willing to spend money on education that can learn STEAM education. On the robot. Former US President Barack Obama has personally participated in programming to encourage young people to learn programming, and Melinda Gates, Chairman of the Gates Foundation, has also expressed his admiration for educational robots.

3.2 Online Autonomous Learning Platform

Online autonomous learning platform. Autonomous learning platform is different from previous forms of classroom teaching, students able to log in to the learning anytime and anywhere through the network platform for a course. Login process is based on students from the network learning platform to learn course knowledge to finish the homework, tests and comprehensive tests - end of course evaluation. Autonomous learning platform can be used as auxiliary teaching, cannot completely replace the classroom teaching. It also has the content management, resource management, case management, work management, and management and learning management function module, able to complete online lessons, online teaching and learning control and so on a series of teaching activities. The online education platform uses all tools to conduct educational activities based on the premise of improving efficiency. It is the essence of online education research to use advanced Internet technology to change the way teachers and students communicate in class, to further improve the efficiency of students' knowledge acquisition, and to further cultivate their abilities. Pre-class teachers collect relevant materials based on educational goals and educational content, and make them into web pages; teachers in class explain classroom tasks, allowing students to explore, seek, and exchange answers to questions based on their own understanding of tasks and their weak links Or the solution; then the teacher gives the answer to the problem or the method to solve the problem. This way of teaching fully makes the students change from passive receivers of knowledge to explorers of knowledge; students focus on solving the knowledge that they have

not yet mastered according to their own situation, thus avoiding that students who have already mastered the knowledge in the previous class have nothing to do. Or students who have not mastered the previous part of the knowledge are in a passive situation at a loss. Online courses are best at solving the problems of hierarchical education and individualized education in the current class teaching system. Online education allows some students to take the lead, making it possible for students to learn in accordance with their aptitude, and the efficiency of education will be greatly improved. This is where the strongest vitality of online education lies under the premise of the class teaching system.

3.3 MR Technology

MR (Mixed reality) technology. MR techniques include augmented reality and enhanced virtual, the technology through the introduction of reality in the virtual environment, Set up between virtual and reality, and the user can real-time interactive information loop, thus increasing reality [8]. This is the further development of virtual reality technology, the technology by introducing real scene information in virtual environment, In the virtual world, build an interaction between real world and user information feedback loop, it using augmented reality and enhanced virtual reality and virtual world together and produce a new visual environment. Information and virtual reality simple superposition was the result of AR technology, and virtual information exist alone is the embodiment of the VR technology. MR technology is the key to the new visual environment coexistence of real and virtual digital objects, and real-time interaction. The key point of the core technology of MR technology is how to create a high-definition, virtual object that can be accurately focused on the front and back objects like the human eye. This is also the biggest difference and advantage compared to ordinary AR/VR equipment. At present, the most typical civilian MR equipment on the market is Samsung Xuanlong MR. According to many users who have personally experienced Xuanlong MR, the device will find that the distance between people and visual objects seems to disappear, giving a more realistic holographic feeling. And this kind of visual technology, which is similar to the rapid construction and transformation of virtual models, and can provide content richness, can indeed be used in many fields.

4 AI Education are Faced with the Problem

Despite the exciting future development potential of AI in education field, there are still many problems remain unsolved. For example, the technology of context-awareness in AI is not yet mature, there remains tens of technical issues to solved in the AI system. At the application field level, the integration of artificial intelligence technology and education is not close enough. At present, most products only focus on a single narrow field of adaptive learning, and pay less attention to student growth, comprehensive ability development, and physical and mental health.

4.1 Shortcomings of Existing AI Technology

The use of artificial intelligence in a special primary intelligence phase. This phase refers to the development of artificial intelligence technology in our country is just a simulation on a person's behavior, The machine through a lot of learning and memory to simulate the function of the human behavior, Performance for the intelligent products on the market data is missing, the teaching model of a single problem. Teachers will never be replaced. Because teachers are to promote the growth of people and have two functions, one is the function of teaching, the other is the function of educating people. In the future, if it is only knowledge-based teaching, knowledge-based teaching will be increasingly improved by artificial intelligence, but it is impossible to completely replace it. Because people need communication between people, face-to-face communication, this emotional communication is still different from our communication on the screen. People will never replace. But the efficiency of many of our lectures will be greatly improved. In addition, in addition to teaching, teachers also educate people, as well as solve various problems in the growth of students. The solution of this problem requires artificial intelligence to enhance. Teachers are very important in education and teaching. I think the relationship between teachers and artificial intelligence is a relationship of mutual empowerment and mutual enhancement.

4.2 The Contradiction Between Technological Development and Real Need

The talent cultivation of artificial intelligence is too broad. Artificial intelligence is a branch of computer science, its purpose is to understand the essence of the computer intelligence, and use this function to create closer to human intelligence machine. And its composition is very broad, and contains the psychology branch, machine vision, mathematics, control theory, and so on, but most of the colleges and universities just opened but to open the course system of artificial intelligence far couldn't keep up with the cultivation of the talent post standard, led to the theory and practice, then there is the artificial intelligence development is rapid, the corresponding disconnected for teaching content teaching material and teacher's teaching experience of imperfect is artificial intelligence and education. Data is the "nourishment" of artificial intelligence. The key bottleneck of artificial intelligence in education is data. Data between different education systems and platforms is not open and shared. The phenomenon of information islands is serious. It is difficult to collect data throughout the entire process of student learning. Without data, there is no intelligence. At the level of intelligent decision-making, a single intelligent algorithm cannot adapt to complex and changeable education scenarios, and there is a risk of partial generalization. It requires multiple intelligent systems to make joint decisions, strengthen manual intervention, and realize human-machine joint decision-making; the value of artificial intelligence There are polarizations in understanding. There are not

only the overall affirmation of artificial intelligence and the idea of “only artificial intelligence” in the process of educational application, but also the overall denial of it and the idea of turning a blind eye to the benefits of artificial intelligence. In terms of artificial intelligence education applications, Human-machine coordination should be emphasized, not overestimated or underestimated.

4.3 The Combination is not Close Enough

In the field of application level, The combination of artificial intelligence and education is not close enough. People increase the attention was focused on the education quality of teaching and digging their own learning ability from two aspects, To the students’ physical and mental health, in the heart not enough comprehensive quality and ability development. In addition, artificial intelligence makes cognition occur not only in the mind, but also in the interaction between people and intelligent tools. In terms of educational relations, artificial intelligence has broken the balance of knowledge dissemination in education and strengthened the “student-centered” relationship. And virtual tutors, virtual learning partners, virtual teams, virtual coaches, virtual classmates, etc., are the extension, reinforcement and supplement of human brain intelligence, changing the interaction between the learning subjects, learning subjects and the environment in the past. Learning ecology. “But no matter what changes, the general trend of education development is to let students learn to learn and create.

4.4 Lack of Applicability

In the aspect of judgment too careless. For the diversification of teaching scenario, single teaching schemes are biased, machine linkage access to information is not complete in a series of make a wrong judgment for students’ learning situation decision-making. The knowledge learning of artificial intelligence has a gradual process. The core of artificial intelligence is the automation of intelligence. Just like machinery is the extension of our physical strength, artificial intelligence is the extension of our brain power. It allows us to handle complex things that we could not handle before. The above is to improve the efficiency of our teachers and learn these knowledge appropriately. Like in our lives, such as holding a mobile phone to record voice every day, is that complicated? Not complicated. However, the technology behind it is very complicated.

4.5 Ethical Issues

For the presence of the artificial intelligence produced ideological polarization. Both to negate its emergence and ignore the benefits of artificial intelligence and the into artificial intelligence will replace human negative thoughts. A study by Ruhr University in Bochum, Germany showed that the brain changes its structure within 3 h after learning new things. Artificial intelligence-supported learning methods such as personality learning, collaborative learning, experiential

learning, and inquiry learning will change the brain structure more significantly. In particular, the in-depth experience and inquiry learning supported by artificial intelligence will deeply activate different brain nerve areas in many ways, which means that the human brain is constantly being reshaped by intelligent technology.

5 The Development of AI in Education

The current application technologies of artificial intelligence in the education field mainly include image recognition, speech recognition, and computer interaction. For example, through image recognition technology, artificial intelligence can free the teacher from the heavy batch work and scoring work; speech recognition and semantic analysis technology can assist teachers in English oral test assessment, and can also correct and improve students' English pronunciation; and human-computer Interactive technology can help teachers answer questions for students online. Last year, the media reported that robotic assistants at Georgia Institute of Technology replaced human assistants to communicate with students online, but no students found out, indicating the application potential of artificial intelligence in this area. In addition, the educational applications of artificial intelligence such as personalized learning, intelligent learning feedback, and robot remote teaching support are also promising. Although the application of artificial intelligence technology in education is still in its infancy, with the advancement of artificial intelligence technology, its application in education may deepen in the future, and the application space may be even greater.

5.1 Promote Education System Innovation

Artificial intelligence will drive the future innovation of education system, and artificial intelligence can't depart from the support of big data. Education is no longer one-sided in the future, But under the circumstances of data flow, in the artificial intelligence technology as the support of the education system in artificial intelligence, Only combining the artificial intelligence and big data, to maintain the normal operation of the education system. In the education industry, artificial intelligence is not only used to save teachers' manpower and improve teaching efficiency, but also to drive changes in teaching methods. Take artificial intelligence-driven personalized education as an example, collect student homework, classroom behavior, exams and other data, make personalized diagnosis of different students' academic conditions, and further develop targeted counseling and exercises for each student, so as to teach students in accordance with their aptitude This has become a direction for educational artificial intelligence to explore personalized education. However, a key point for realizing artificial intelligence to lead personalized teaching is data collection and analysis. Regarding the relationship between data and artificial intelligence, there is a saying that data is a kind of "nutrient" for artificial intelligence. In the same way, we can also say that educational data is the "nutrient" of educational artificial intelligence.

Educational data is generated from various educational activities and the entire teaching process. If artificial intelligence is to be better applied to education, the first thing to face is the problem of data collection. At present, there are two sources of educational data. One is from the digital teaching environment, where teaching and learning data are naturally produced in this digital environment, and the other is to collect educational information from traditional teaching behaviors and transform it into data. The advantage of the former is that it collects data in real time, is efficient and saves manpower. Now that the breadth and depth of Internet + education needs to be further promoted, a large part of the source of education data depends on the latter. In the future, education data may become a major factor in the development of artificial intelligence in education.

5.2 Make Things Easier

Determine the role of artificial intelligence. The rapid development of artificial intelligence technology, on the one hand, study, life and work of for mankind causes all sorts of convenient, on the other hand will also let the human of artificial intelligence. So, artificial intelligence should exist in a kind of what kind of role? “Afar” dog won lee se-dol century war, is the artificial intelligence can be intellectually through deep learning and imitating human brain thinking, But a big part of artificial intelligence called artificial intelligence is derived from the machine for rely on, Artificial intelligence is not everything. There’s mastercard it is the person will lose the meaning of existence, Artificial intelligence is the essence of imitation, he isn’t it like humans have the ability to perceive things and independent thinking ability to solve problems, from this perspective, the machine can’t replace human innate judgment and originality is the same with artificial intelligence. Human made robots are not used to replace human, but to help humans, to extend the ability of human beings. Robots are artificial, need people to maintain, and the robot has a lot of ability is not as good as. As some dangerous environment, people can’t go to the robot can. But the robot in many unknown and complex environment risk environment such as earthquake, unable to make the right decisions, Then will need to have rich experience and knowledge of human cooperation with it, to complete the task together, therefore the relationship between human and robot is cooperation.

5.3 Change Roles Between Teachers and Students

Positive change the role of teachers and students. The emergence of artificial intelligence in a certain extent impact the position of teachers’ professional, Spur teachers to some extent, this also should be from the traditional “book centered” teaching idea of a single into a comprehensive role, Learn to use the information collected by the education robot. To make system analysis, use according to their aptitude, Targeted and personalized education mode. And on the other hand, students have to do is reasonable use of resources, improve their own quality and competitiveness, Strive to become a “will use, to use, with good”

[6] intelligent science and technology innovation talents. In this new learning culture, teachers have also changed. In the future, teachers cannot be replaced by artificial intelligence. But it is believed that the role of teachers must be changed from knowledge disseminators to learning facilitators; teachers' ability structure must also be changed. Teachers who do not understand technology will be replaced by teachers who understand technology; there must be a reasonable division of labor between humans and machines.

5.4 Establishing and Perfecting the Education Teaching System

Establishing and perfecting the education teaching system of artificial intelligence. In one hundred, education for this. Schools as a talent training base, to keep pace with The Times, bring into play the function of education to move. First, the school will accept artificial intelligence into the campus, to facilitate the construction of wisdom campus, fundamentally enable students to experience the convenience brought by artificial intelligence, "To learn, use high school". Second, the school take responsibility to cultivate innovative talents, to meet the needs of The Times development for talents. Third, the state to strengthen the support of vocational colleges as well as the appropriate courses in STEAM at different ages, pay attention to develop the students' ability of innovation, creative thinking and opened the AI of colleges and universities, from experience, perfect the relevant teaching system. In traditional artificial intelligence learning systems, we find that more is to meet the learning needs of a specific field, the purpose is to promote learners to obtain specific knowledge and skills, and these systems are often used as a supplement to school education, fail to go deep Affect students' daily study and life. With the development of artificial intelligence technology, the education field puts forward higher requirements for artificial intelligence technology, and it is expected that artificial intelligence technology will have a revolutionary impact on education. In general, artificial intelligence can still bring many opportunities to education, can provide personalized learning, promote the improvement of learners' literacy and ability in all aspects, accelerate the popularization of global classrooms, and reduce teachers' repetitive tasks.

6 Conclusion

Now, with internal and overseas for artificial intelligence research paper literature gradually reduce the proportion of the artificial intelligence, in the field of artificial intelligence research in China mature fine and our country has been in 5G communication technology achievements is good to promote the development of artificial intelligence in the education industry. Artificial intelligence has entered the machine period of the term, our country also vigorously support the development of artificial intelligence, in the new era, the development of artificial intelligence is the core of talent. Artificial intelligence industry still faces challenges in education, the cluster of the new technology breakthrough, the study way of change, and human vision is to drive education for a better education.

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