Application of Artificial Intelligence in Civil Engineering Education

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Abstract. Artificial intelligence technology plays a very critical role in many fields in China. The technology can also realize its due value in the field of education. Taking civil engineering as an example, teachers can use artificial intelligence technology and civil engineering. The combination of professional course content helps students’ in-depth understanding of the actual construction of civil engineering projects and the application of some professional mechanical equipment in the classroom. This is also the main content that the author will discuss in the paper.

1. Introduction
The civil engineering major is mainly based on the curriculum content of training various civil engineering professionals. The content of the civil engineering major courses mainly includes civil engineering materials, mechanical equipment, survey operations, design operations, civil construction, maintenance and maintenance, etc. The civil engineering major is a typical engineering major. The talents trained in this major can master the construction technology involved in the civil engineering major and have the ability to solve practical problems encountered in engineering projects. Civil engineering major it is a comprehensive and practical major, and the range of knowledge involved is relatively wide, so it brings a lot of pressure to teachers’ teaching.

2. Overview of Artificial Intelligence Technology
Artificial intelligence technology is mainly a method for researching and simulating humans. The technology was originally evolved from the field of calculator science. The intelligent machines created with artificial intelligence technology as the core can independently complete the phase with the human brain. Similar reactions and this reaction are expressed in body language. Common artificial intelligence technologies involve language recognition, expert system recognition, robot system recognition, natural language processing, and so on. In recent years, artificial intelligence technology has improved significantly at the technical level. The main manifestations of this mechanical device are learning, planning, reasoning, etc. These artificial intelligence principles are very different from the way the human brain thinks and judges. Close connection, artificial intelligence technology not only needs to think logically in the process of practical application, but also needs to think and judge the character image and inspiration, and further strengthen the applicability of the technology with the help of mathematical tools [1].

3. Structural Model Analysis
The analysis of the building structure has a very important impact and significance on the final quality level of the entire civil engineering. When talking about the teaching content of this department, teachers need to choose from earthquake resistance, deformability, corrosion resistance, bearing
capacity, fire protection The safety issues of civil engineering projects are fully understood and mastered in aspects such as sex, and the rational use of artificial intelligence technology can help students to analyze the overall structure of the project in multimedia teaching equipment in detail [2]. In this way, students can vividly display the whole process of creating structural analysis models in the entire civil engineering project, and teachers can also repeat these sections for some difficult problems encountered in the analysis model modeling process. Watch to help students break through the key points and difficulties in the content of civil engineering projects and deepen the differences between students in different engineering structures in civil engineering projects. The analysis model created using artificial intelligence technology generally allows people to modify or change a certain data.

When teachers introduce the technology into classroom teaching tasks, teachers can guide students to observe the dynamic changes of civil engineering projects from different visual angles, thereby greatly improving the quality of teaching.

4. Geological Model Analysis
The vast majority of civil engineering requires a comprehensive survey of the construction site in the early stages of construction. In this process, teachers can use artificial intelligence technology to complete the survey work required by the civil engineering project. According to the survey results, the geology in the construction site is analyzed accordingly. From an objective point of view, the geological survey work has a very important impact and significance on the overall construction quality level of the entire civil engineering. To complete the geological survey work in the project, teachers may need to create an independent analysis model based on the project's specific structural characteristics and design requirements, using the project as the standard, and will use it as a carrier to connect with artificial intelligence machines and equipment. Teachers can use artificial intelligence technology to import and present the detection information obtained by mechanical equipment in the computer. In this way, teachers can better help students strengthen their understanding and cognition of geological environment survey results, and can use this technology to perform dynamic simulation and demonstration of the three-dimensional space of the rock layer, groundwater level, comprehensive stratum, geological structure, high ground stress and other attributes in the geological environment corresponding to the engineering project, allowing students to understand the structural characteristics of the underground space from different levels. Help teachers to complete teaching tasks more smoothly.

4.1 Simulated Construction Site
In order to further strengthen the students' enthusiasm for learning the content of civil engineering courses, some teachers use artificial intelligence technology to use multimedia teaching equipment to project some video files related to the construction work of civil engineering projects, and use advanced artificial intelligence technology to The construction site shown in the document is simulated and restored, so that students can experience the atmosphere of civil engineering site construction through special glasses and other auxiliary equipment. In this way, not only the safety of teaching is greatly improved, and some safety accidents that may occur in the real construction environment of students are avoided. At the same time, the limitations of the traditional teaching mode can be broken, so that students can be profound in the classroom. Realize the real atmosphere of the construction site of the civil engineering project. In the process of students' immersion, teachers should explain in detail some important courses corresponding to the civil engineering construction site according to the content of the video, combine theoretical knowledge with practical operations, and help students be more specific I learned the specific process of civil engineering project construction [3]. In addition, teachers can also use the technology to demonstrate some safety accidents caused by non-standard construction behaviors. Through the shock of the vision, students can fully realize the importance of construction behavior standards and train students' safety awareness helps students set a good professional ethics benchmark.

4.2 Video Test
Compared with the content of other professional courses, civil engineering majors have higher
requirements for practicality and operability. If teachers organize students to watch and actually operate some construction projects on the construction site of civil engineering projects, it is easy to cause some safety. The occurrence of an accident makes it difficult to protect the personal safety of students, and the application of artificial intelligence technology in the classroom can solve this problem well. Through video experiments, it helps students observe and understand the use of mechanical equipment, detection methods and design standards corresponding to different construction technologies for different construction links. Taking the ventilator that is often used in civil engineering projects as an example; different projects have different requirements and standards for the ventilator. Teachers can use artificial intelligence technology to make systematic statistics on the more common types of mechanical equipment on the construction site, this technology can automatically compare the performance and specifications of mechanical equipment with design standards to quickly find the most suitable mechanical equipment. Teachers can present the entire operation process to students, which can not only help Students have a comprehensive understanding of the specific use methods and operating procedures of mechanical equipment and technical processes used in the construction process of the entire civil engineering project. At the same time, they can greatly reduce the cost of teaching and expand students' thinking and vision to improve students' practical ability and shorten the time spent in practice [4].

4.3 Intelligent Building
From an objective point of view, the application of artificial intelligence technology in civil engineering projects can also be reflected in helping students better learn and understand intelligent buildings, which is a very important item in the domestic civil engineering field in the next few years. The development trend, and at the present stage when teachers are explaining this type of building, because the number of real intelligent civil engineering is relatively small, it is difficult for students to investigate this type of civil engineering project on the spot, and artificial intelligence Technology can help teachers solve this teaching problem [5]. Teachers can first construct a corresponding neural network model for a specific intelligent building. Its main role is to adjust the coordination and safety in different building structure systems, and then use this neural network system as a standard to convert civil engineering The departments corresponding to different system modules in the project are structured.

In addition, teachers can also tell students about the expert system in artificial intelligence technology. The system mainly refers to the intelligent control system with self-learning as the main method. All the algorithms corresponding to the calculation of data parameters used by the system can be automatically recorded by the system, and the algorithm is recorded as a new data calculation method. When the expert system in the artificial intelligence technology is applied by the teacher, the specific operation of the system can be combined with the application examples in civil engineering. And use methods to conduct a comprehensive analysis in order to achieve the best teaching effect [6].

5. Summary
For now, the domestic artificial intelligence technology is still in the early stages of development, and there are still certain technical defects in the actual application of the technology, but for the teaching content of civil engineering, the defects of the technology can be ignored. Teachers can significantly improve students' practical ability through the rational use of artificial intelligence technology, help students better complete the content of civil engineering major courses, and cultivate a new batch of professional talents for the society as soon as possible.

6. References
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