Editorial

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AI, defined by Oxford Dictionary, is the theory and development of computer systems to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. With the rapid advance of technology, the application of artificial intelligence has rapidly increased in many scientific sectors. The development of artificial intelligence-based educational techniques has been upgraded significantly the last years. Implementing artificial intelligence and artificial neural networks in education includes many kinds of intelligent instructional and evaluation techniques such as: intelligent tutoring systems (ITSs), intelligent assessment of student performance, intelligent virtual agents, talking robots, humanised chatbots, and any other educational technique based on artificial intelligence.

A teaching method comprises the principles and methods used by teachers to enable student learning. These strategies are determined partly on subject matter to be taught and partly by the nature of the learner. For a particular teaching method to be appropriate and efficient it has to be in relation with the characteristic of the learner and the type of learning it is supposed to bring about. Suggestions are there to design and selection of teaching methods must take into account not only the nature of the subject matter but also how students learn.

Utilising artificial intelligence technologies in the classroom can be very valuable to many kinds of learners, but most crucially to the students with special needs who can benefit from a more flexible educational solution that artificial intelligence can provide. Artificial intelligence can be combined with other technologies (e.g., speech recognition) in order to develop artificial talking tutors who can communicate with the students and interact with during the learning process. Furthermore, ITSs can be used as e-learning systems based on artificial intelligence approaches in order to advance adaptive and personalised learning according to the individual characteristics of every student.

Artificial intelligence can improve the teaching practices in classroom through many ways and that is the main reason that we need to further examine the involvement of artificial intelligence in education procedures.

This special issue aims to highlight the broad field of artificial intelligence applications in education, regarding any type of artificial intelligence that is correlated with education, such as learning methodologies, ITSs, intelligent student guidance and assessments, intelligent educational chatbots, artificial tutors, etc. in order to advance and enrich the existing literature with new artificial intelligence approaches and methodologies in education. This special issue provides a forum for the publication of articles that address broad challenges on both theoretical and application aspects of AI in education.

In this issue, we invited scholars and researchers to contribute original research articles as well as review articles that will stimulate the continuing effort on the application of AI approaches to solve education problems. Topics for this special issue included but not limited to:

- artificial intelligence in education

- artificial intelligence algorithms in education

- artificial neural networks in education

- artificial intelligence in student evaluation

- assessing student performance using artificial intelligence

- educational robotics

- evaluation of artificial intelligence educational systems

- generalised intelligent framework for tutoring

- intelligent adaptive learning

- intelligent agent-based learning environments

- intelligent agents on the internet

- intelligent chatbots in education

- ITSs

- intelligent virtual reality-based learning systems

- pedagogical artificial agents

- spatial artificial intelligence in education

This special issue is dedicated to exploring recent advances in artificial intelligence in education.

In the first paper, Emmanuel Boachie and Chunlin Li provide a novel spark streaming framework and machine learning algorithm to guide admission processing and focus on the number of students that can be admitted and rejected to reduce time and cost. The experiment show the practical usefulness of spark streaming and machine learning algorithm for data processing as it reduces time and cost and provides comprehensive graphical interpretation of data as compared to using Excel, Tableau and other statistical tools.

In the second paper, Lede Niu, Xin Chen and Rui Xu provide a teaching ability evaluation combination model based on resource scheduling data envelopment analysis method. According to the teaching ability and the linear combination model of traditional education and teaching, the MOOC learning resources are completed. Data scheduling; construct a statistical model of data envelopment analysis to quantitatively assess the impact of MOOC model on teaching ability and traditional education and teaching. The experimental results show that the proposed method has good adaptive performance, high resource scheduling capability and high accuracy.

In the third paper, Wang Jun provided a research method of college English teaching mode based on intelligent robots is proposed. According to the experimental results, the proposed method is significantly superior to the traditional method in terms of enhancement effect of students' satisfaction and performance, indicating that the proposed method has high application value and certain reference value.

In the fourth paper, in order to improve college students' English learning ability, Peng Sang puts forward a model to analyse the influence of multimedia network mixed teaching on college students' English learning ability. This paper constructs an information acquisition model adapted to college students' English learning ability, and uses an improved extreme learning machine model to integrate multimedia network teaching information with college students' English learning ability information. The simulation results show that the method has high accuracy in analysing the effect of multimedia network mixed teaching on college students' English learning ability, and reduces the network transmission delay, improves the throughput, and promotes college students' English learning ability.

In the fifth paper, in order to solve the problem that traditional mobile online education platform can not provide personalised recommendation according to students' own situation and neglect students' learning emotion, Li-hui Nian, Jing Wei and Can-bin Yin provide a new mobile education platform. This paper analyses the role of mobile online education platform in promoting students' self-learning, and draws a conclusion that the design of mobile online education platform can improve students' interest in learning, increase students' self-learning time and enhance students' self-learning ability.

In the sixth paper, Yong-feng Wu, Ming-hui Yuan and Zhi-Chao Peng provide an interactive teaching system based on MOOC is proposed. The teaching system adopts the B/S mode, and divides the system into a presentation layer, a business layer and a data layer to improve the processing speed. The experimental results show that the system improves the cognitive ability of students by about 20%, and improves the ability of students to develop learning plans.

In the seventh paper, Hong Cao proposes a robot-based motion detection method. It applies robot to the motion detection of colleges and universities, and takes the visual

mechanism coordinate system as the world coordinate system to construct the motion equation of the robot camera. The test results show that the proposed method has higher accuracy and efficiency, it is more helpful to improve the college physical education teaching level.

In the eighth paper, Riwei Liang provides a multimedia network hybrid teaching method based on multiple linear regression analysis. The factors that promote the hybrid teaching of multimedia network are analysed, and the multiple regression analysis model of mixed teaching method is obtained. The model is used to analyse the influence of multimedia network hybrid teaching method on college students' learning ability. The simulation results show that the satisfaction of the method is higher than 80%.

In the ninth paper, Jiwei Qin, Zhenghong Jia and Pei Ma analyse the learning behaviour of 1388 undergraduates in the online Advanced Mathematics course of the online platform named 'Erya' with statistical analysis and clustering methods. The results show that the lack of positive interaction between teachers and learners can affect learners' enthusiasm for learning and learners' learning outcomes. At the same time, the academic performance related with the ethnic, the number of access and the completion of the after-school tasks, but the correlation with the discussion is small.

We very much hope that readers of this special issue will find the ideas presented in it of interest to them. We also hope that the material will be sufficiently stimulating to encourage many readers to explore the relationships between artificial intelligent and education. We do hope that these carefully selected papers will inspire and stimulate the industrial effort to use intelligent techniques in education applications.

Acknowledgements