ARTIFICIAL INTELLIGENCE IN EDUCATION AND MACHINE LEARNING

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Abstract

This paper reviews the research on artificial intelligence in education and machine learning and how AI can help in building a model which would create the best learning environment for students and would create a resonance between students and teachers. It addresses affective strategies that promote quality learning and how to provide best way of education to teachers.

Keywords: ITS (Intelligent Tutoring Systems), machine learning, holo study, e-learning, personalization

Introduction

Nowadays, "Artificial intelligence" has a great importance in every field like online shopping, education, and many other areas of everyday life. AI (Artificial Intelligence) is the study of man-made computational systems, devices and intelligent agents. The main of AI in education is to create virtual environment for learning. AI is designed to include speech recognition, learning, problem solving and all of these are major challenges in education. Thus, AI systems have a lot of benefits like one is personalization i.e. it is quite easy to recognize the individual learning related requirements of a student. It is not possible by a teacher to provide meaningful feedback to each and every student, so AI will help the teachers in this way so that they can recognize the flaws and strengths of the students using machine learning. Machine Learning is a field that uses techniques the give computer the ability to "learn" with data using studies like pattern recognition and computational learning theory in artificial intelligence. Machine learning in education can be used to divide teachers and students in group according to the needs and availability of students. In ML(Machine Learning) has major categorisation in classification in which inputs are divided in to two or more classes and some others are regression and clustering act as the major applications of the machine learning. The scope of machine learning only keeps increasing. There are plenty of ways machine is learning in education in getting better; some of them are so instrumental in education that we probably couldn't live without them. I characterize the past, present and the near future of AI in education research in terms of combination of different roles played by constituents of educational processes. Machine learning is a core part of AI. Learning without any kind of supervision requires ability to identify problems and patterns in stream of inputs provided. I think that there is no way that going online completely is going to solve all all the problems now, however when combined with school curriculums and programmes can be used as a powerful tool. Hence, human factor would always have importance and AI would not replace it every time.I can only hope that some readers will be willing to give counter arguments on my research and that a result could emerge from any ensuing debate.

Literature Review

[1]Technologies are slowly changing the practice of research and education. This paper discusses how work in AI (Artificial Intelligence) is contributing new ideas towards education and learning.

The main aim of this paper is to review the past and present trends in the application of AI in education and to find from the failures and successes of past applications to possible future applications. Discussion of this paper includes the two main applications of AI in education: intelligent tutoring system (ITS) and micro words. We also discuss other research to support general points but many outstanding systems and studies are mentioned only in passing or not at all. It will be also considering the implications of AI in education of the changes that will be coming over the next few years. The effects will be at least significant to the society as the renaissance, the industrial revolution, and the invention of the printing press put together.[2] Intelligent Tutoring Systems: To reduce human teacher efforts a computer system was built which aims to provide personalized and immediate instructions to students. We began by reviewing the fundamentals of this behind these systems and illustrating them to tutors we have developed. ITS systems begins by comparing the student model and the content model i,e it basically begins by identifying what knowledge student already has through an assessment and then updating student model's status as instruction occurs.ITS has not grown upto its full potential. ITS can also teach despite of lack of visibility of ITS in the real world. Researches havce been made that ITS can replace over traditional classroom teaching and can provide many benefits of a human teacher to a very large scale of students. There are various applications of ITS which includes language processing, planning, multi agent systems, machine learning .Present computer instructions archetypes like e-learning provides an excellent platform for ITS .In the last several years applications of AI in education has diversified and the field is not certainly as unified as five years ago when ITS dominated AI research in education. Some recent research attempts to improve one on one tutoring method of teaching associated with ITS, other researchers are investigating different methods of teaching and learning. [3]Artificial intelligence includes e-learning. A research has been done to develop an artificial intelligence in education system (AIed) that is able to detect and then appropriately react to an effective state of a learner; one of the such research was cherer's effect framework. We chose to utilize cherer's effect framework as a way to integrate the research findings.[4] AI also helps students to practice the different or situations or scenarios anywhere and anytime and with the help of their teachers it can provide a serious training bottleneck. It also helps student to get a three dimensional, interactive and a simulated environment which increases their leaning power including their skills.AI in education is practice of building computational models of a school curriculum for a particular subject such as maths. A model of learners that would record how learners interacted with AI and Ed software and use that recording to make predictions about how that child is progressing.[5]The AI and Ed system through a piece of software and an interface, which could be a screen based interface or it could be something slightly different, would interact with the learner and take them down the most optimal path to improve their learning outcomes.[6]One type of such system is Holostudy. Holostudy is an application for the Microsoft halogens that anyone can use to gain the cumulative knowledge of mankind. Holograms can simplify studying complicated subjects like study of atoms and their connections, complex working of human organs or explaining physical and chemical phenomena. Holostudy will make knowledge easier to grasp and more enjoyable which will improve the quality and quantity of specialists making positive change in the world. [7]AI can also help teachers. AI can manage some of the tasks as well as it can communicate with students. With more interaction the AI can understand the strength and weakness of every student and help them work efficiently by building a curriculum and schedule that is suitable for the student. It will be more convenient to take help from AI to reinforce a skill or master idea before an assessment. In this way students will get

additional support from AI and will understands topics more deeply and will be able to apply it more effectively. [8]As different students have different capabilities, AI will provide different solution for different students. This will help the students to tackle problems in a way the find easy. As AI can focus on the skill sets on different students more effectively, it can provide the students with helpful feedbacks and can help them improve in the areas where they lack. [9]As far as education is concerned, practical knowledge plays an important role in it. With the help of AI we can improve this practical knowledge. Before making a real working model, we can make an virtual model 3D of it by use of AI. By this we will save a lot of labour and we can fix or change anything easily instead of starting it from the beginning. We can also monitor its working and see if it is providing the optimal results. By this it will be easier for the students to understand the working of a machine or a model. [10] Machine learning technology can help teachers to evaluate or assess tests objectively and provide feedback accordingly to the students. The applications of the machine learning included doing the assessment of the student and providing the scores. Machine learning can potentially redefined not only how education is delivered but also improves the quality learning on the students part. Machine learning can help in delivering customised in class teaching by providing real time feedback based on individual student requirements and behaviour. It also plays important roles in assessments or evaluation by removing biased grading.

Findings

Machine learning will be able to explain the concepts as well as set the goals for individual students. It considers the individual student aptitude, learning speed, background and give students an appropriate feedback on how they should grow their practical knowledge and improve his or her thinking skills. It processes the data in real time and provides feed to the teacher so that the teacher can recognize flagging student attention or poor response immediately and take corrective actions. A model of AI can be built which can potentially improve student participation and explain concepts and set goals for students. Based on the feedback, professors can change or modify the methodology of teaching, curriculum and topics accordingly.

Conclusions

There has been a significant rise in the field of AI in education and machine learning. Hence, it is difficult to neglect its role in future guided by the manner in which schools and universities will change their curriculum. The past and present use of learning management systems and intelligent tutoring systems has made prolific changes in the field of AI in education. Nowadays quality education is the most needed which somewhat cannot be fulfilled only by the teachers, so with the help of AI significant changes can be made in field of education thus the teaching practises followed in all the fields of education will be replaced in future by implementing the complex algorithms of AI designed by programmers . There is a urgent need for the universities and schools to rethink their functioning and pedagogical models and their future relations with AI solutions and their owners. We consider that there is a prerequisite for research based on the ethical implications of the current control to support the developments in AI. Using machine learning methods such as regression and clustering, we can create the best model of AI which would help in education.

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