Lecture 4 Note

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Artificial intelligence in education (AIED)

#ILE #lecture

From Artificial intelligence in education (AIED)

1. Artificial Intelligence History:
   We can hardly say that AI is a new thing because it started 1940s.
   We can consider AI as a fashion. It comes and goes wavily.
2. #Applications-of-AI : for governments for media for healthcare and et cetera
3. Where we use AI when we are using technologies?
   for example, in Instagram filters, charts, boards, Amazon, Netflix, Google translate and so on
4. #AI-in-Education started in 9080s and it's interested about how it could support people to learn.
   Do you remember the story of Sidney Pressy? Sidney didn't like his teacher's way and how he was teaching him, so he invented a machine that implements multiple choices tests. If you press a button, the machine will not go forward until you answer correctly
5. #Simon-and-Newell : they were the founders of HCI human computer interaction. They also did a lot of work on the logic theories, so it's a computer program which were able to prove mathematics, theories or theorem, the logic theorem where the first AI
6. #ACI computer assistant instruction: refers to things that are using computers in order to support students.
7. #LOGO was a language that was particularly teaching kids programming based on visualisation
8. John Anderson, was the founder of cognitive architecture, that's been used for the students models in developing intelligence tutoring systems.
   LISP: It's a programming language like Fortran, used for mathematical programming and cognitive tutoring systems.
9. AI in education in 2000s #tutoring-systems : for example, Andes, Auto-tutor, Bettys and Duolingo.
10. What are the premises of AI in education:
    - learning with AI: how we use AI to support people to learn

- learning about AI: it's like teaching AI
- preparing for AI: how we prepare society to interact with AI.

11. #learning-with-AI : we will focus on this field. We can split it in three parts:
    1- Learner supporting AI
    2- Teacher supporting AI
    3- Institution supporting AI
12. #Learner-supporting-AI : one of very important vision in learner AI systems is how we can automate teacher functions? If I don't have a teacher, how can we still find a way to support students in case the teacher is not available.
    We don't want to replace teachers -> we want to help learners , the idea here is we would make the human teacher the golden standard. The human teacher is the expert who is responsible for the outcome (it's like supervisor)
    From previous lectures, we learnt that people learn in different ways because they have different needs.
13. How the AI system do measurements of students performance and activities?
14. #Applications-of-Learner-supporting-AI :
    - Students models: about student performance
    - Adaptive learning tools: like recommendation systems
    - Immersive learning environments: like a VR and AR systems
    - Chatbots: that provides feedback
    - Open learner models: like dashboards, where practically try to make sense reflecting and changing the practice based on info they get from the model.
15. #Teacher-supporting-AI : -> not replacing teachers but find a way to support them.
    - Dashboards: by visualising information from collected data
    - Content creation: helps teacher finding materials for a specific topic -> appropriate materials
    - Planners: AI systems that helps teachers plan, a course over a period of time like a semester.
    - Assessments: ex, if you submit a report and the teacher doesn't have time to read it , the automatic assessments will provide a notification to the teachers what's might be wrong things that are copied from somewhere from the Internet, paragraphs that don't make sense and etc.., then the teacher who knows the students better will decide the grades.
16. #Institution-supporting-AI : we have three main categories:
    - Admissions: when you provide your CV and cover letter experiences and so on to apply to a university the AI system of the side if you are fulfilled their requirements or not
    - Communication support: like chatbots that answer your question 24/7 :)
    - Resources allocation: to plan what is the course goes to which classroom based on the number of students they predicted to have
17. #AI-Methods-in Education:

- Content oriented analysis methods: aim to analyse learners-created artefacts like texts assignments and so on, and then they get an idea about what students have learned by using for example NLP. When we write an article or draw a diagram this consider as evidence about what we have learned that's why we doing assignments :)
- Process-oriented analysis methods: aim to explore and document how people learned what kind of process they follow to learn? ex, How often you log in Moodle? what are the actions that you did in Moodle?
- Network analysis methods: aim to shade some light and give insights about how you learn in your social environment. -> People don't learn just by interacting with artefacts or practicing, but they learn also from other people.