AI in Education

Seminar outline

Summer Semester 2024

Date/Time: 3-4 September 2024, (both days 9.15-17.30)
Location: Schneiderberg 50 (3109-411)

Assessment
Assessment of student performance is based on group work and the expert assessment of group projects in the following way:

- Project plan (25%)
- Project plan presentation (3 mins) (5%)
- Prototype concept and first, rapid implementation (30%)
- Presentation of the prototype and lessons learned (10 mins) (20%)
- Contribution to teamwork (20%)

ECTS: 3

Instructors

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Learning Objectives

- Understanding important concepts, opportunities and challenges of contemporary education supported by Artificial Intelligence, with a focus on personalization, Open Educational Resources (OER), and open software
- Applying machine learning, text mining, and other AI related software technology in order to solve an educational problem
- Developing cooperation skills with people from different disciplinary background in order to achieve a common goals in educational software and didactical concept development
- Ability to work and evaluate an educational AI software concept in a limited time frame
- Learn how to set up an AI project in the educational domain and share tasks and responsibilities for rapid development
- Sharpen presentation skills

Structure of the seminar
The seminar follows a hackathon structure with strong emphasis on discussions and interdisciplinary collaboration. In the beginning of the seminar teams are built to work on an AI challenge and a software prototype to address that challenge. Teams will need to discuss their initial objectives towards their software concept, have an interim plenary discussion about their progress, and finally present their outcomes. Feedback on the progress is given by the instructors on an on-demand basis.

The consecutive phases of the hackathon are built on each other, so participants need to make sure that they attend the whole seminar.

Students also need to bring their own laptops and/or devices they use to work..

The hackathon will consist of 4 phases in total.

Phase 1 - Setting the stage
Plenary discussion of the state of the art in AI and Education, especially in the light of the hackathon challenge.

1. Why is the challenge important for learning and education?
2. What is the current state of the art? What solutions are there? What are their benefits and what are the current bottlenecks and problems?
3. What are the key points to focus on in the future?

In order to participate in this discussion and ideation, participants should consult the Seminar's eDoer learning Journey, in order to get informed about the current state of the art, the knowledge and the technology to be used for this hackathon.

Phase 2 - Goal setting
Based on the discussion on the state of the art, we create teams, which will work together in the remaining duration of the Hackathon. Each group will need to define their names and a concrete challenge to work on. Teams also need to set goals and targets towards their envisaged output, which addresses the challenge.

Phase 3 - Concept and prototype development
Groups need to run their requirements analysis for their software concepts and also come up with their own evaluation criteria (qualitative and quantitative) and methods. Teams need to work on the following objectives

- Create a plan for your project
    - What is the problem you are going to solve?
    - Why is this problem important?
    - How are you going to approach the problem? It means how you decompose your solution into meaningful components (e.g., similar solution analysis, conceptual planning, data collection, data analysis, method development, ...)
    - What is your timetable toward implementing your solution?
    - How are you going to use the different skills of your team members?
- Create a conceptual model (abstract-level solution), which includes:
    - What are the most important data-sets in solving the challenge?
    - How can we collect the required data-sets?
    - What are the key features in finding a solution?
    - How should we extract and combine the features to achieve a better solution?
    - What are the limitations of your proposed conceptual plan? And how can you face these challenges?
    - What resources do you need in order to implement your conceptual plan?
- Build, visualise, and evaluate a prototype of your solution, using the dataset provided or the dataset you collect

Phase 4 - Presentation and reflection
Teams have to present their concept and prototype to all seminar participants (5 mins), which is followed by constructive feedback and discussion (5 mins) with the involvement of all participants.

Seminar schedule

	Day 1	**Day 2**
9.15 -10.45	Problem discussion How to approach the problem? Team formation / Team Names Preliminary planning	Group work Goal setting and planning the day Conceptual model and prototyping
9.45 - 11.00	Break	
11.00 -12.30	Group work Brainstorm a solution on the challenge Create a plan for the project Defining the achievable goals of the project until tomorrow 15.00	Group work Conceptual model and prototyping
12.30 - 13.30	Lunch Break	
13.30 - 14.00	Group work Preparing for the presentations	Group work Creating the final presentation of the conceptual model and the prototype
14.00 - 15.00	Presentations of the project plans (3 minutes per team)	
13.00 - 15.30	Break	
15.30 - 17.00	Group work Conceptual model and prototyping	Presentation and discussion of the results (10 minutes per team)
17.00 - 17.30	Wrap-up, questions, feedback	Reflections on the process Wrap-up, questions, feedback