Machine Learning for Education

Introduction

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House rules

- Full names
- Camera on (if you have one)
- Question -> Raise hand
- Apology for mandatory lectures
- Problem -> ask me, write e-mail or contact me via Moodle

Learning objectives

- Students know **essentials of machine learning**.
- Students learn **essentials of**  **programming**.
- Students gain knowledge **how to process and analyze (educational) data**.
- Students gain knowledge of **essentials of educational domain and learning analytics**.

Agenda

Order	Date	Topic	Type
1	17. 04. 2024	Introduction	L
2	24. 04. 2024	Introduction to Machine Learning; Introduction to R & RStudio	S
3	01. 05. 2024	Holidays	
4	08. 05. 2024	Machine Learning cycle; Data manipulation in R - Tidyverse	S
5	15. 05. 2024	Martin Hlosta: Virtual Reality analytics in Education	L
6	22. 05. 2024	Unsupervised methods; Clustering (kmeans)	S
7	29. 05. 2024	Benjamin Paaßen: Knowledge Assessment Models	L
8	05. 06. 2024	Supervised methods; Caret & k-Nearest Neighbours	S
9	12. 06. 2024	Fernando Marmolejo-Ramos: GAMLSS as a framework for statistical learning	L
10	19. 06. 2024	Supervised methods; Naïve Bayes & Perceptron	S
11	26. 06. 2024	Clara Schumacher: Pedagogical Perspectives on Learning Analytics	L
12	03. 07. 2024	Supervised methods; Classification and Regression Tree, Random Forest	S
13	10. 07. 2024	Essay writing	C
14	17. 07. 2024	Essay writing	C

Deadline for assignment submission

(L)ecture, (C)onsultation, (S)eminar

Deadline for essay submission

Lectures are mandatory

Requirements for the assessment

1. **Programming assignments**
   Submission of working solution to the programming assignments of acceptable quality. You need to submit at least 3 (50 %) assignments.
2. **Essay**
   Submission of the short essay (1000 – 1500 words) on selected topic.

Programming assignments

- Code is working – 30 points
- Code is well written (unified notation, using one coding style and writing style, comments!) - 30 points
- Code is producing correct results - 40 points

- Each assignment is scored 0-100 points, you need to achieve at least 50 points from each.

- No extensions for submissions.

Essay

- Write an essay (state-of-the-art) on selected topic
- There will be 5 topics based on the external lectures and additional 5 topics
- Each topic will have limit on number of students
- Use proper referencing
- Your arguments needs to be supported by existing literature
- 1000 – 1500 words
- Deadline 17. 7. 2024. No exceptions.

Course resources

Moodle

https://moodlelab.hu-berlin.de/course/view.php?id=50

Key: ML4EDSOSE24

Zoom

https://hu-berlin.zoom-x.de/j/62840548572?pwd=NXUxa0E2citJQndtTWdTQjRoM3BmUT09

Contact

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Questions?