Lecture Information

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Machine Learning for NLP 1

General information and Requirements

- Lecture expenditure: 6 ECTS points, i.e. 150 hours of work in total expected
- Requirement I: Basic knowledge in statistics and probability theory
- Requirement II: Programming skills in Python
- Master students with a focus on Natural Language Processing
- We are quite a diverse crowd from Computational Linguistics and Informatics.

Booking deadlines of CL modules (Faculty of Arts and Social Sciences)

- Book/Cancel until Tuesday 11.10.2022 23:59:59; ( Different from Faculty of Economics)

Olat Course and Teaching Materials

Campus course

https://lms.uzh.ch/auth/RepositoryEntry/17272537247

"22HS 521-505a Machine Learning for Natural Language Processing 1"

- Literature: mandatory reading electronically available in OLAT "Material/literature" or shared via Links

  If not freely available, the material may only be used in this lecture and may not be passed on.
- Jupyter notebooks for tutorial and lecture will be published via Google Colab
- Slides: PDF slides published after lecture.
- Text version of slides with concept back-of-the-book index available before the exam

Please give me feedback on errors/inconsistencies/problems on my slides (e.g. commented PDF).

1 Written Exam (75%) and 6 Assignments (25%)

Written onsite exam: 75% of the final grade

- Monday, 8.1.2024 14-15:10 (70 minutes)
- Theory test with focus on essential concepts; 1 A4 cheatsheet allowed
- In English
- Content: script, mandatory readings, tutorial material, exercises

6 Assignments (AS): 25% of the final grade

- 5 practical exercises (starting from week 3) in teams of two partners
- Partly with sample solutions, but also with discussion in the tutorial
- Grading via peer assessment on OLAT (supervised by TAs)
- EITHER 10 minute short live presentation/screencast OR 1 research paper dissection; can be submitted in January 2024
- Each AS gives 0, 0.25, 0.5, 0.75, or 1 point
- Grading: Number of points = grade

Learning Objectives and Concept of the Lecture

Learning objectives

- know about relevant machine learning techniques in NLP
- understand concepts for (semi/un-)supervised learning and linguistic structure prediction
- gain practical experience in applying ML to NLP problems

Concept for lecture

Classical lecture with additional and mandatory reading before/after the lecture. Ask questions and let us discuss live or in the forum!

Concept for tutorial

Monday 16:15-17.30h by Michail Andrianos and Patrick Haller: explanation and deepening of the lecture's content, introduction and discussion of exercises, technical assistance for hands-on while you solve the exercises.

Software/Hardware for Exercises

- Exercises must be programmed in Python; we will use PyTorch, Huggingface, Tensorflow/Keras
- Anaconda environments (Win, Mac, Linux)
- Work with your own laptop/computer; small models can be calculated on CPU
- Google Colab with CPU/GPU: "Colaboratory is a free Jupyter notebook environment that requires no setup and runs entirely in the cloud."
  We try to adapt the dataset sizes for the exercises so that they can be run on Colab without hacks.
- UZH ScienceCloud VM: For the last exercise, you can use a (shared) ScienceCloud VM with GPU (prepares you for experiments in ML4NLP 2 course infrastructure)
- AWS Studio Lab, Azure, Google Cloud(as a new user you get a $300 credit), Saturn Cloud
- If you know any other good option, let us know:-)

ChatGPT, CoPilot, Anaconda Assistant, etc.

- Useful helpers for explaining code snippets, improving documentation, add type hints, cleaning ...
- Don't get addicted! Always think yourself!
- Don't annoy your peers by submitting raw AI generated content in the exercises! We might deduct points for this behavior.
- For each exercise, there must be a short declaration of the involved use of generative AI (required by the Faculty of Arts)