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Fachpraktikum Artificial Intelligence: Deep Learning Lab

Prof. Dr. Steffen Staab, 
Amin Totounferoush, 
Yuqicheng Zhu, 
Yunjie He

Target Group

This seminar targets students interested in Artificial Intelligence and Machine Learning, with an emphasis on the application of the Deep Learning method.

The Topic

This lab aims to teach the best available practices to solve problems of the machine learning’s main tracks, such as natural language processing and signal processing, using the deep learning method. We provide various real-world examples with sufficient training data. Students can use these test cases to implement what they learn in the lab. The participants will select one of the provided topics, and build the prediction models using deep learning libraries (e.g. Pytorch).

Students are expected to work in groups and learn the fundamental steps in developing accurate (thus effective) deep neural networks for predictions. This includes improving the overall pipelines through dataset fetching optimizations, data pre-processing, and enhancing model predictions through customizing the network architectures. Furthermore, students are encouraged to come up with their ideas and practices to further improve the quality of their code. At the end of the course, students are expected to prepare a scientific report and give a presentation of the developed models, where the discussion with their peers would be established.

Procedure

At the beginning of the lab, the structure of their software codes, presentations, and reports will be discussed with the lecturers. Participants then report and discuss their progress weekly. At the end of the Lab, students give their final presentations. The final report must be submitted before the final presentation. More details will be provided in the first and weekly meetings.