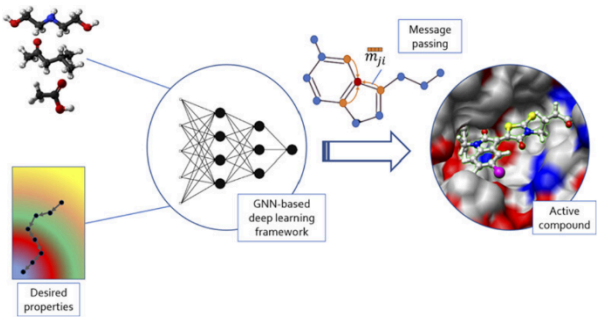
University of Stuttgart | Department of Analytic Computing

Forschungspraktikum Winter Semester 2025-26

"Deep Learning Lab"

Prof. Dr. Steffen Staab
M.Sc. Mojtaba Nayyeri

First Meeting: To be defined
Further Meetings: To be defined



Target Group

This lab targets students interested in the application of the advances in Deep Learning. Prior knowledge is machine learning is mandatory.

The Topic

This lab aims to teach the best available practices to solve problems of the main machine learning Tasks. This includes, but is not limited to, natural language processing and graph analysis, 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. 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 develop 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 a 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. Hence, the reports must be handed in before the final presentations and the end of the summer term.

Contact

If you have any questions regarding the lab, please feel free to contact us via email: mojtaba.nayyeri@ki.uni-stuttgart.de