

Hauptseminar Winter 2025/2026

## “Machine Learning with Graphs”

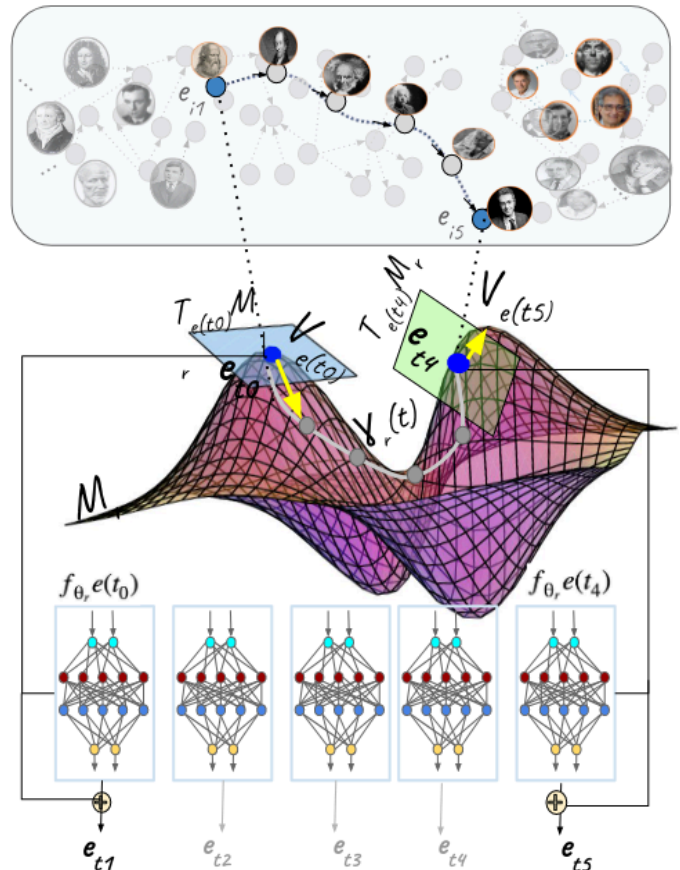
Prof. Dr. Steffen Staab  
Dr. Daniel Hernandez  
Cosimo Gregucci

### Target Group

Participants are expected to have completed the course “Machine Learning” or a related course in the field of machine learning. Familiarity with knowledge graphs is a plus.

### The Topic

Nowadays, applications from multiple domains use graphs to store their data. Graph databases have been shown to be suitable for storing data of citation networks, proteins, social networks, circular economies, and general knowledge. Interesting problems like fraud detection and driver intention prediction can be formulated as graph machine learning problems like entity classification and link prediction, and then solved with techniques like graph neural networks, graph embeddings, and transformers.



In this English-speaking Hauptseminar (presentations and seminar reports will have to be delivered in English) we will survey current approaches for applying machine learning on different graphs for different tasks.

### Process

After an introduction on the topic, participants will work on a technical report about a chosen topic. The report will be peer-reviewed by other participants. Students will give a talk about their topic and hand in their technical report.