The Autonomous Vision Group is looking for a highly motivated PhD student interested in basic research at the intersection of natural language processing, computer vision and machine learning. The PhD student will work on state-of-the-art research in these areas. The conducted research is expected to highly impact both science and industry in the short and long term.

The body of scientific literature is growing at an ever-increasing rate. Especially in the field of artificial intelligence (AI) and machine learning (ML), the number of publications is growing every month with a doubling rate of about 24 months. As a result, it is increasingly difficult for researchers to keep an overview with the consequence that nearly identical research is often advanced in parallel, references are overlooked, or important connections between methods are not made. This hinders scientific progress and leads to a suboptimal usage of resources including research funds, compute, energy and intellectual capacity.

While a number of tools (Google Scholar, Semantic Scholar, Connected Papers, Research Rabbit, Toronto Paper Matching, Arxiv Sanity) simplify literature retrieval today, they often use simple document representations (e.g., TFIDF, Co-Citation) and are limited to high-level analysis in the form of graphs or publication lists. Missing is a deep semantic analysis of scientific articles which allows scientists to easily establish connections between the most relevant new ideas and the researcher’s own interests. Due to the rapid progress in the field of deep neural networks and natural language processing, machine learning opens up new possibilities to better understand, analyze and structure scientific work and thus make research more efficient across disciplines.

Within this project you will contribute towards an intelligent scholar inbox (of which we have a prototype) that provides researchers with personalized recommendations about new publications on a daily basis and analyzes them in relation to their own research. The goals of this project are to:

- Develop novel and better document representations for both textual and graphical content using supervised and unsupervised learning, processing large amounts of scientific corpora
- Develop new methods for automatic abstraction and summarization of scientific documents
- Develop models to semantically analyze similarities and differences between articles
- Develop models for automated discovery of scientific trends
- Deploy the developed algorithms on our server platform to serve the community

The University of Tübingen is one of Germany’s excellence universities with an excellence cluster on machine learning, the Tübingen AI Center and an ELLIS Unit. Embedded in the interdisciplinary research environment of CyberValley, the Autonomous Vision Group conducts curiosity-driven fundamental research, providing researchers access to unique research facilities. Our culture is international, inclusive and collaborative. We are looking forward to your application!

Your application: To apply, please send your application materials including your research statement, transcripts, CV and names of referees to a.geiger@uni-tuebingen.de.