

## Final thesis

### Design and construction of a deep learning pipeline for use in computer vision research

#### Project description:

A large number of process steps are necessary for the development of a deep learning model. All datasets must be generated or collected and then annotated. Often the data sets to be used are available in different formats. Moreover, different deep learning architectures are trained on different preprocessed data. This can quickly lead to a lack of overview. To prevent this problem, a variety of open source tools are available, e.g. the ONNX format, annotation tools, simulators for data generation, deep learning frameworks like Tensorflow, PyTorch or Keras, Git for code versioning, DVC for model versioning and mlflow for model tracking. For use in my Computer Vision for Intelligent Mobility Systems (CVIMS) research group, an MLOps pipeline will be built.

#### Your tasks:

- > You research, test and evaluate different open source tools from the MLOps area
- > You compare different tools scientifically
- > You set up an end-to-end pipeline and implement missing interfaces
- > You test the pipeline using different problems from the research group

#### Job Requirement:

- > You study computer science, artificial intelligence, flight and vehicle informatics, or business informatics
- > You have machine learning knowledge
- > You like to deal with system architectures
- > You are interested in MLOps
- > You are interested in Computer Vision

**Starting date: Up until now**

#### Contact:

Prof. Dr. Torsten Schön

E-Mail: [torsten.schoen@thi.de](mailto:torsten.schoen@thi.de)

Phone: +49 (0) 841 9348 – 2335

