

Student thesis



Master thesis

Assessment of Deep Learning Architectures for Multi-Object Detection and Tracking in Infrastructure Sensor Data

Topic and goal of the thesis

Camera sensors and 3D laser scanners (LiDARs) enable high-precision detection of the environment. In addition to their use in automated vehicles, these sensors can also be used in Intelligent Transport Systems Stations (ITS-S) for traffic detection.

Due to the large number of currently published deep learning architectures for multi-object detection and tracking of road users, it is not immediately obvious for the user which architecture is best suited. In addition, different usage backgrounds also place different requirements on the measurement data output. For this reason, a tool for a holistic evaluation of Deep Learning architectures for the given use case shall be developed.

Tasks

- Literature research on suitable methods to implement the task
- Development of a tool for a holistic evaluation of Deep Learning architectures
- Implementation of selected Deep Learning architectures for extracting object information from camera and LiDAR data
- Evaluation of the tool on a test data set

Your profile

- Good English and German language skills
- Basic programming experience or previous knowledge in Python is an advantage
- Reliability, commitment and enjoy working independently

Department

Vehicle Intelligence & Automated Driving

Contact



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Language

German and English

Entry Date

Earliest possible date

Prior knowledge

Basic programming experience, Python