Specialized Evaluation Metrics for Perception Tasks in Autonomous Driving

Bachelor / Master Thesis

The scope is designed for a Master Thesis. For a Bachelor Thesis, we can customize it.

Autonomous Driving | Path Planning | Perception | Simulation

The Topic

• You will perform state-of-the-art research on evaluation metrics for the task of autonomous driving
• You will implement a vanilla version of a path planner for the autonomous vehicle in the CARLA simulation environment
• You will represent the world in a 3D voxel space
• You will develop a method that assigns a weight to each voxel, enabling any perception task (object detection, anomaly detection, …) to receive a weighted version of their output, adapted to the driving task
• You will create appealing image and video visualizations

What We and I Offer

• You get exciting insights into our research and gain valuable practical experience
• We use the latest hardware and software. Together with us you work in first-class laboratories (on-site or remotely)
• Regular and extensive support: Weekly 1:1 meetings, bi-weekly student group meetings, monthly 1:1 strategy meetings
• Collaboration with other students to get tips, learn together, and fix issues quickly
• High-quality theses will be published on KITopen, with the code on GitHub
• We aim to publish this work in an IEEE paper with shared first authorship

Application

• Start: Immediately
• Shoot me an e-mail at daniel.bogdoll@kit.edu with your CV, grades, and a few sentences why you are interested. No cover letter necessary 😊