Anomaly Detection with World Models for Autonomous Driving

Bachelor / Master Thesis

The Topic

- You will perform state-of-the-art research on current world models with latent state representations and world-model based anomaly detection methods
- You will use camera and lidar data from the CARLA simulation engine as training data
- You will detect anomalies based on reconstruction errors, prediction errors, and latent space evaluation with a single pass of your world model
- You will map found anomalies in a 3D voxel representation

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 😊