

Student thesis



Master thesis

Model Predictive Control for Simulation of Traffic Scenarios

Topic and Goal of the Thesis

Simulations are increasingly used as a substitute for validation of automated vehicles in road traffic. Complex functions like highly automated driving require complex traffic scenarios as test cases. In this thesis a method is to be developed in which all entities in a scenario are controlled by a central control unit with respect to their task in the scenario.

Working Points

- Literature research on scenario-based testing and model predictive control
- Development of a method for translating a traffic scenario into a cost function
- Implementation of a global control algorithm for realization of traffic scenarios with multiple entities in simulation
- Application and Evaluation of developed method

Requirements

- Good English or German language skills
- Reliability, commitment and enjoyment of working independently
- Programming experience (C++, Python or MATLAB)
- Experience with model predictive control is an advantage (not a must)

Department

Vehicle Intelligence /
Automated Driving

Contact



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Language

German or English
German
English

Entry Date

Earliest possible date

Prior knowledge

Automotive Engineering,
Automatic Control,
Programmierung