

## Student thesis



Bachelor / Master thesis

### Synthetic generation of complex driving scenarios

## Topic and Goal of the Thesis

Vehicles are increasingly automated. But how can we prove that these vehicles are safe?

This is the key question to assure safety of automated vehicles. Since real data for testing is expensive and only available to a limited extent, driving scenarios are increasingly being generated synthetically. However, the generation is currently limited to the interaction of two road users with each other and is not sufficient to face the complexity in urban areas.

In this thesis, a methodology for realistic scenario generation of multiple road users shall be developed. For this purpose, individual descriptions of vehicles can be put in relation to each other and the interaction between them can be analysed to combine multiple road users to complex scenarios.

## Working Points

- Literature research on the topics of scenario generation and combination of driving scenarios
- Development of a methodology to model causal relations of interaction between road users on intersections
- Synthetic generation and simulation of driving scenarios on intersections based on the developed methodology and real world data
- Validation of the developed methodology

## Requirements

- Good English or German language skills
- Reliability, commitment and enjoyment of working independently as well as methodically
- Experience with python
- Affinity for building models

## Department

Vehicle intelligence and automated driving

## Contact



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## Language

German or English

## Entry Date

Earliest possible date

## Prior knowledge

Python