

Master's Thesis

Modeling driver behaviors based on driving scenarios

It is a long way to reach the state of fully autonomous driving cars. Tesla and other car manufacturers have already implemented such driving functions, however, to let autonomous cars behave like a human driven car is still a long way to go. Therefore, understanding and modeling driver behavior is helpful to reach the goal of autonomous vehicles. The aim of this master's thesis is to identify and learn pattern of driver behaviors and in a second step these identified driver behaviors need to be modeled to utilize them for autonomous driving.



Furthermore, the following two research questions need to be investigated:

Furthermore, the following two

- Identifying existing driver behavior modeling methods in different driving scenarios, e.g. scenarios like car-following, cut-in and lane-change (see figure above).
- Learning the driver behavior patterns in certain driving scenarios and modeling driver behavior in the given driving scenarios.

To achieve the goal of the master's thesis LiangDao will provide access to high-quality traffic data from the real world including:

- vehicle CAN-Bus data
- the motion status of the surrounding objects, e.g. speed and the type of the object (car, truck, van, motorcycle etc.)
- the relationship between the vehicle and the surrounding object, e.g. relative speed and distance.

About LiangDao:

LiangDao is a fast-growing young startup since 2018 with 70 team members focusing on developing LiDAR based applications for autonomous driving as well as for smart cities in China and Germany. With the engineering knowledge of integrating multiple high precision sensors into vehicle and the permission to collect real world traffic data in China and Europe, LiangDao has built up a big data and software development center for ground truth generation using LiDAR algorithms, scenario detection and analysis as well as traffic simulation for development, testing and validation of autonomous driving.

Location: Chair of Cartography; LiangDao GmbH;
 Supervisor: Dr. Mathias Jahnke; Dr. Xiaohan Li
 Room: 1769
 Telephone: 089 289 23997
 Email: mathias.jahnke@tum.de; xiaohan.li@liangdao.de