



Master Thesis

Simulation/Programming

Development of a driver assistance system for decision support

Conditions:

Duration:	6 Months
Requirements:	Experience in Matlab/SIMULINK Programming experiences with C
Language:	English
Target groups:	Master students (Maschinenbau, ISE)

Content:

A driving simulator is applied in the Chair of Dynamics and Control (SRS) to study and to model the interactions between driver, vehicle, and driving environment. Driver Assistance Systems are systems developed to assist the human driver and therefore to make driving safer and better.



The usual researches are only considered one specific driving scenario. However, an ideal driving assistance system should be applicable in various driving scenarios. The goal of this thesis is to develop a driver assistance system to realize a safe and efficient driving. The focus is to recognize the actual driving situations, to predict driving behaviors, and to ensure correct decision making. Furthermore, the efficiency of the driving should also be improved. The results which are calculated from existing model should

be validated the warnings and suggestions to increase the safety and efficiency driving.

The steps related to this work can be summarized as:

- 1) Literature review about intention prediction and study of previous works
- 2) Implement real-time intention recognition using the previous models, driving simulator, and eye tracker
- 3) Combination of the results from intention recognition, situation recognition, and driving efficiency optimization in different driving scenarios
- 4) Design to switch to autonomous driving mode in dangerous case to avoid risk or accident
- 5) Validation of the previous models with experiments
- 6) Complete and detailed documentation/presentation of the research results

Supervisor: Prof. Dr.-Ing. Dirk Söffker / Qi Deng, M. Sc. / Foghor Tanshi, M. Sc.
Office: MB 350 / MB 361
Telefon: 0203 / 379-1445 / 203 / 379 -1743
E-Mail: qi.deng@uni-due.de / foghor.tanshi@uni-due.de