

Joint HH/VTEC Master thesis proposal

Generic Traffic Simulation Environment for Heavy Vehicles

Background

Recent advances in sensing and vehicle technologies have enabled significant progresses in the area of the active safety of passenger cars. Safety systems, assisting the driver in complex accident avoidance maneuvers, are of high interest and expected to be in the market soon.

Different sensors and sensor fusion algorithms have been developed to provide information to describe the traffic situation for active safety functions. However, development of active safety functions requires clear understanding and insight of the sensor performance and dynamics. This motivates the idea of a *Generic traffic simulation environment* which can facilitate development of active safety systems (ADAS).

PreScan is an example of simulation environment for ADAS development. This is a tool which allows us to simulate sensors, sensors performance and also traffic scenarios (see www.tno.nl for more information). However, PreScan was not developed to support heavy vehicle simulations.



Description of thesis work

The aim with this projet is to develop an environment which covers all interesting scenarios for active safety systems. This includes genralizing the environment for deffirent heavy vehicle configurations.

Two main outcomes are expected from this master thesis: integration of the already developed vehicle model (in the form of a Simulink library) with the PreScan environment with an interface for different heavy vehicle configurations, and a case study in active safety function design using the developed integration. The latter requires a graphical interface for creating scenarios and animations in an environment to run the scenario.

We are searching for

Two highly motivated students with a strong background in computer science and programming, preferably with some prior exposure to automotive engineering. The work will be performed in Matlab and Simulink, so previous experience with these tools would be very beneficial.

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