

Bachelor/Semester/Master/IDP

Finding the Limit: Performance Evaluation of AV-Actuators



Autonomous Driving is one of the megatrends of our time. It offers the possibility to increase the safety on our roads, the fairness of our mobility-system and the time spent driving can be used better. But even though autonomous vehicles promise those incredible advantages, they still are not deployed on public roads, because these systems cannot guarantee safe operation in all traffic situations. One of the hurdles on the way to full autonomy is the actuation of the vehicle. It needs to be highly precise and responsive to effectively navigate complex and dynamic environments. Any delay or imprecision in actuation can lead to accidents or missed opportunities for safe maneuvering.

The goal of this work is to evaluate the performance of the actuation in a research vehicle for autonomous driving. First step is to put the interfaces needed for interacting with the actuation into operation. Following this an evaluation process for the actuation needs to be defined and suitable metrics need to be selected. Working on the vehicle, the work is concluded by precise measurements of the systems performance considering its accuracy, responsiveness and dynamic rang. In order to evaluate reliability of the actuation, durability and failure test are conducted.

The work is done within the [EDGAR-Project](#), you will collaborate with other students and highly motivated PhDs will supervise you. The goal is to implement a system that can be used on the vehicle on public roads, therefore you will gain hands-on-experience on a state-of-the-art research vehicle.

Experience with programming languages such as C++ or Python, familiarity with Robotics (ROS2), experience with CAN, or prior exposure to Autonomous Driving are advantageous. The thesis can be written in German or English.

I am looking forward to receiving you application with your CV and your Transcript of Records!

Contact

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