



Bachelor/Master Thesis

Enhancement of a Steering Control System for Automated Driving Functions

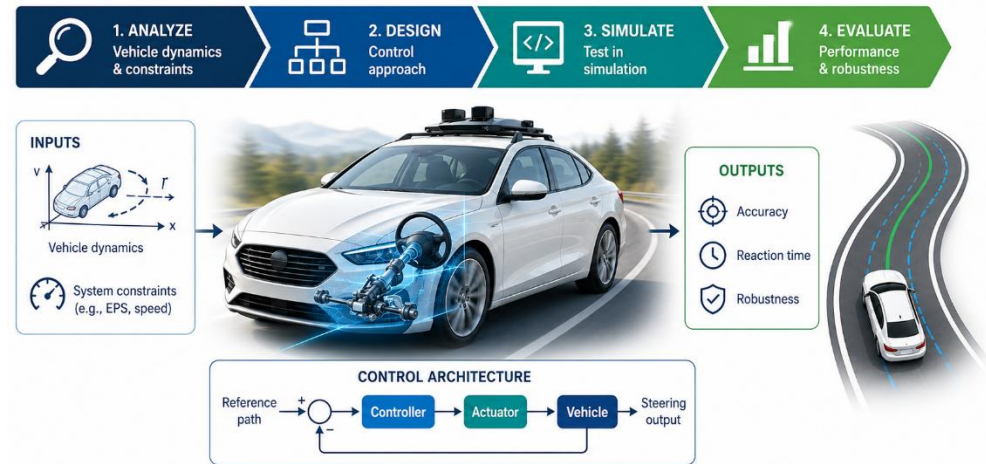
The objective of this thesis is to review what control methods for a steering control system for automated driving already exist and then to extend existing approaches considering vehicle dynamics and system constraints. The developed methods should be evaluated in simulation.

Automated driving functions, e. g., for Advanced driver assistance systems (ADAS) require precise, robust, and situation-aware steering control. The interaction with existing vehicle systems – especially electric power steering (EPS) – as well as speed-dependent behavior introduces significant challenges for control design. Within this thesis, a test vehicle equipped with a servomotor for active steering actuation and an onboard computing unit is available. The goal is to design, implement, and validate a steering control system under real driving conditions. *The master's thesis is being carried out in cooperation with the Chair of Communications Engineering based on the CARAI research vehicle.*

Task description*

- Extensive literature review: Review and analyze existing steering control approaches and strategies for automated steering, in particular, PID control and its extensions
- System analysis and modeling
- Analysis of results and evaluation (KIP definition like accuracy (RMSE), reaction time, ...)

Prerequisites: Background in Control/Communications/Electrical/Mechanical Engineering
Start: As soon as possible
Contact: control@etit.tu-chemnitz.de



* Depending on your interests and background, subtasks can also be selected.