Institute of Automotive Technology
TUM School of Engineering and Design
Technical University of Munich

Bachelor-/Semester-/Master-Thesis

Resilient and Safe Automated Driving – The Next Big Thing

McKinsey claims that remote operation of automated vehicles is the next big thing in mobility services. In the future valet parking, shuttles, car sharing, deliveries and many more will be remote operated. Join one of the word leaders in remote operation here at FTM in this highly impacting field to achieve resilience and safety for automated and teleoperated driving.

Background

In this thesis you will contribute to resilience and safety in remote automated driving. Resilience is a concept that includes two steps:

1. Detect an unsafe behavior that you don't want in your system
2. recover into safe behavior again

While theoretically well described, this concepts lacks practical application, especially in remote driving. We need your help to change that! Together with other students you will work on a resilience concept that is at the end of your thesis applied to our real world vehicle EDGAR. You may contribute via one of the following topics:

- Scenario Testing for Resilience KPIs for Remote Operation
- Network Emulation Framework for Resilience
- Case Studies of Use Cases for Resilience in Remote Operation
- Refinement of an Ability Awareness Protocol
- Research towards Explainability of Resliience Mechanisms
- Steady State Analysis of a Teleoperation Software Stack

Your Role

- Literature research: Review of literature on Resilience, Remote Operation and your particular focus
- Development & implementation: Development & implementation of your concepts in a real-world teleoperation software stack
- Analysis and Validation: Analyse and discuss your results scientifically

Was should you bring along?

- Strong interest & motivation for autonomous driving
- Initiative & independent way of working
- Programming skills, e.g. C++/Python

Language

English/German

If interested, please send us a grade sheet with your CV!

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