

Situation Recognition for Remote Operator Support

Master's Thesis

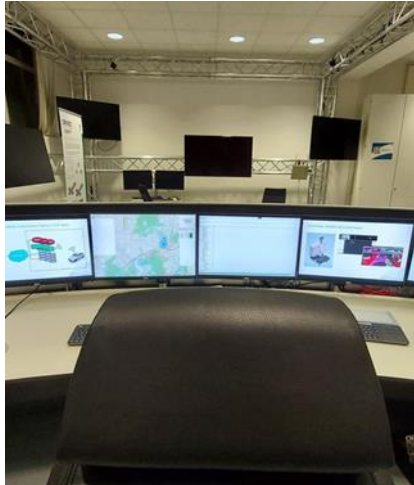
Autonomous Driving

Situation Recognition

Safety

Remote Operation

Autonomous Driving in public traffic is more present than ever. Autonomous public transport shuttles or even self-driving consumer cars are nothing new. In public transport applications a remote operator is still necessary to support the vehicle in special situations. Such situations might be, for example, blocking obstacles with no safe overtaking option. The vehicle should only request support in these special situations. Therefore, a recognition of situations, that are beyond the vehicle's capabilities, is necessary.



The Topic

- By taking part in test drives with our shuttle buses in real traffic, you get an idea of the vehicle's capabilities
- You will then define situations, that require support by the remote operator and specify the sensor data needed for their recognition
- With the help of an extensive literature research, you will develop a (deep) learning-based method for recognizing such situations with the appropriate sensor data
- You plan the recording of the necessary sensor data in different situations
- In further test drives you will then record sensor data according to your plan
- You will evaluate your method based on the recordings

Your Skills

- You study Computer Science or a related discipline
- You are deeply interested in topics such as Autonomous Driving, Robotics, Planning, Statistics/Probabilistics
- You are able to read and write scientific texts in English
- Programming (e.g. in Python) and Linux isn't new to you
- You show an above-average degree of initiative and commitment as well as a thorough way of working

What You Get

- You get exciting insights into our research and gain valuable practical experience
- We use the latest hardware and software. Together with us you work in first-class laboratories (on-site or remotely)
- Regular and extensive support: Weekly 1:1 meetings, short term support if needed and participation at test-drives with our autonomous shuttle buses
- High-quality theses will be published on KITopen, with the code on GitHub
- We plan on publishing the results in an IEEE journal with shared first-authorship

How To Apply

- Start: Immediately
- Write me an email at orf@fzi.de with a short CV, your grades and a few sentences why you are interested and why you think this topic should be yours
- On acceptance, we will have a face-to-face or remote meeting to discuss details and to form the topic to your needs