



Technische Hochschule
Ingolstadt

Fakultät Elektro-
und Informationstechnik

Master of Applied Research (MAPR)

„Detection and Tracking of Traffic Participants with Connected Mobile Sensors“

Research Project:

In an era of advancing technology and a growing emphasis on road safety and traffic management, detection and tracking of traffic participants has emerged as a pivotal area of research. With the rapid proliferation of mobile sensor technologies, such as cameras, Lidar, and radar, there is a compelling opportunity to revolutionize the way we understand and interact with the dynamics of urban mobility. This field holds the promise of enhancing traffic safety, optimizing transportation systems, and efficiency.

Objectiv:

Focus of this project is the development of detection and tracking algorithms to fuse information obtained from camera and radar sensor. In particular, fusion algorithms enabling consistent decentralized fusion of tracking data from various mobile sensor boxes or vehicles will be investigated. The work will be conducted within the scope of a public founded research project in close cooperation with industrial partners and the Fraunhofer application center for connected mobility and infrastructure in Ingolstadt.

Tasks:

- Designing, implementing, and evaluating algorithms and methods for road user detection and tracking
- Training of AI algorithms
- Collecting and analyzing data to validate and improve tracking algorithms
- Conducting algorithm evaluations with ground truth benchmarking

Profile:

- Bachelor degree in engineering or computer science
- Strong programming skills (Python/ROS)
- Experiences in Machine Learning and AI are a plus
- Ability to work independently in a scientific environment
- Fluent in German and/or English

Supervisor: Prof. Dr.-Ing. Klaus Kefferpütz

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