

IS IT POSSIBLE TO STUDY AND GAIN PROJECT EXPERIENCE
AT THE SAME TIME?

YES.

We'll show you how at Fraunhofer.

CAN YOU IMAGINE SHAPING THE FUTURE OF MOBILITY WITH US? DO YOU WANT TO USE AND EXPAND YOUR PROGRAMMING SKILLS AND MACHINE LEARNING ABILITIES IN PRACTICE? THEN COME START YOUR CAREER WITH US AT FRAUNHOFER IVI BY WRITING A

THESIS (MASTER) IN INGOLSTADT:

BETTER SAFETY FOR PEDESTRIANS THROUGH APP-BASED 5G-V2X COMMUNICATIONS

Background

The fast-growing 5G technology enables traffic safety and efficiency to be enhanced by IoT concepts. In this context, the **Fraunhofer Application Center »Connected Mobility and Infrastructure«** focuses on the research and deployment of V2X solutions. Through combining sensor, communication, cloud and AI technologies, we aim to develop and deploy high-definition infrastructure-based traffic safety systems and matching software applications in order to increase the safety of traffic participants.

Goal

Pedestrian safety is a cause for concern, as they are especially vulnerable in the traffic environment. The interconnection of smartphones carried by pedestrians and other traffic participants via 5G network can improve the visibility of pedestrians. With appropriate traffic information filtering algorithms and V2X protocols, 5G communication performance can be optimized further.

Tasks

- Design of pedestrian protection concept in the context of Internet of Vehicles (IoV)
- Development of sensor interface and specifications based on smartphones
- Optimization of protocols for pedestrian information sharing in 5G environment
- System evaluation by simulation with corresponding criteria and metrics
- (Prototypical implementation and validation of complete system in 5G test field)

Your profile

- High motivation for V2X and 5G technologies, passion for research.
- Basic knowledge in traffic systems or connected autonomous vehicles
- Skills and experience in app programming
- Good programming skills in Python, Java, C++, etc.
- Experience in communication simulation is preferable
- Good grades
- Ability to work independently, maturely and resourcefully

What you can expect

- Versatile and practical projects
- Professional supervision
- Motivated teams in an open-minded working atmosphere
- A modern research infrastructure and
- Flexible working hours

Fraunhofer is the largest organisation for application-oriented research in Europe. Our thematic fields are oriented towards people's needs: Health, safety, communication, mobility, energy and the environment. We are creative, we shape technology, we design products, we improve processes, we open up new paths.

The Fraunhofer Institute for Transportation and Infrastructure Systems IVI in Dresden employs more than 100 scientists in four departments. The institute cooperates closely with the TU Dresden, the TU Bergakademie Freiberg and the Ingolstadt University of Applied Sciences.

The Fraunhofer Application Center »Connected Mobility and Infrastructure« in Ingolstadt as a new structural unit of the Fraunhofer IVI was founded in 2019 and uses the existing synergies from the competences of the THI and the Fraunhofer IVI, especially in its start-up phase. The plan is to develop further fields of technology in the coming years in the areas of autonomous systems, digitalisation in transport and vehicle and road safety.

If you are interested, please contact us, quoting the reference number IVI-Hiwi-00675

Rui Song
rui.song@ivi.fraunhofer.de
Phone +49 (0) 172 5169897

Fraunhofer Application Center »Connected Mobility and Infrastructure«

Visting address
Stauffenbergstrasse 2a
85051 Ingolstadt

Postal address
Technische Hochschule Ingolstadt
Esplanade 10
85049 Ingolstadt

www.ivi.fraunhofer.de