

IS IT POSSIBLE TO STUDY AND BUILD A CAREER AT THE SAME TIME?

**YES.**

We'll show you how at Fraunhofer.

MOBILITY IS YOUR PASSION AND WORKING INDEPENDENTLY IS YOUR STRENGTH? DO YOU WANT TO USE AND EXPAND YOUR PROGRAMMING SKILLS AND YOUR MACHINE LEARNING ABILITIES IN PRACTICE? THEN COME START YOUR CAREER WITH US AT FRAUNHOFER IVI BY WRITING A

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## THESIS (MASTER) IN INGOLSTADT

### ALGORITHM DEVELOPMENT FOR IN-FIELD

### SHARPNESS MEASUREMENT USING TRAFFIC SIGNS

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At the **Fraunhofer Application Center »Connected Mobility and Infrastructure«**, we investigate and develop concepts to design the mobility of the future in a safer, more efficient and resource-saving way. We are dedicated to current research questions on automated and cooperative driving and combine a wide range of competencies in the fields of sensor technology, communication and artificial intelligence. In the process, we use synergies with local industry and work closely with the city of Ingolstadt and its partners.

For our current research projects, we are looking for motivated students who would like to write their final thesis in the field of machine learning/computer vision. The primary goal of this master's thesis is to develop an algorithm that can accurately and efficiently evaluate the sharpness of images captured by automotive cameras, with focus on traffic signs. Given the increasing reliance on car cameras for applications ranging from autonomous driving to traffic surveillance, ensuring optimal image clarity is crucial. Traffic signs, with their standardized design and critical importance for navigation, are ideal reference points for this process.

#### Your profile

- enrolled in one of the following or related fields of study: Data Science, Electrical and Information Engineering, Physics, Aeronautical and Automotive Engineering, Computer Science, Mathematics or Mechanical Engineering
- strong background in machine learning, deep learning and/or computer vision
- good programming skills in Python (and C++)
- basic knowledge of optics including concepts like PSF, MTF, sharpness, aberrations etc.
- motivation and ability to work in a team
- initiative and creativity
- very good grades

### 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 Europe's largest application-oriented research organization. Our research efforts are geared entirely to people's needs: health, security, communication, energy and the environment. We are creative. We shape technology. We design products. We improve methods and techniques. We open up new vistas.

At the institute's sites in Dresden, Ingolstadt and Berlin, Fraunhofer IVI's researchers are developing technologies and concepts for mobility, energy, as well as safety and security – from forward-looking preliminary research to practical applications in everyday use. The institute collaborates closely with TU Dresden, TU Bergakademie Freiberg and Technische Hochschule Ingolstadt.

**Interested in working with us? Please register at the career portal of the Fraunhofer-Gesellschaft and send us your meaningful application. We look forward to meeting you!**

[Career Portal](#)

**If you have any questions, please contact us stating the reference number IVI-Hiwi-00714.**

### Contact

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