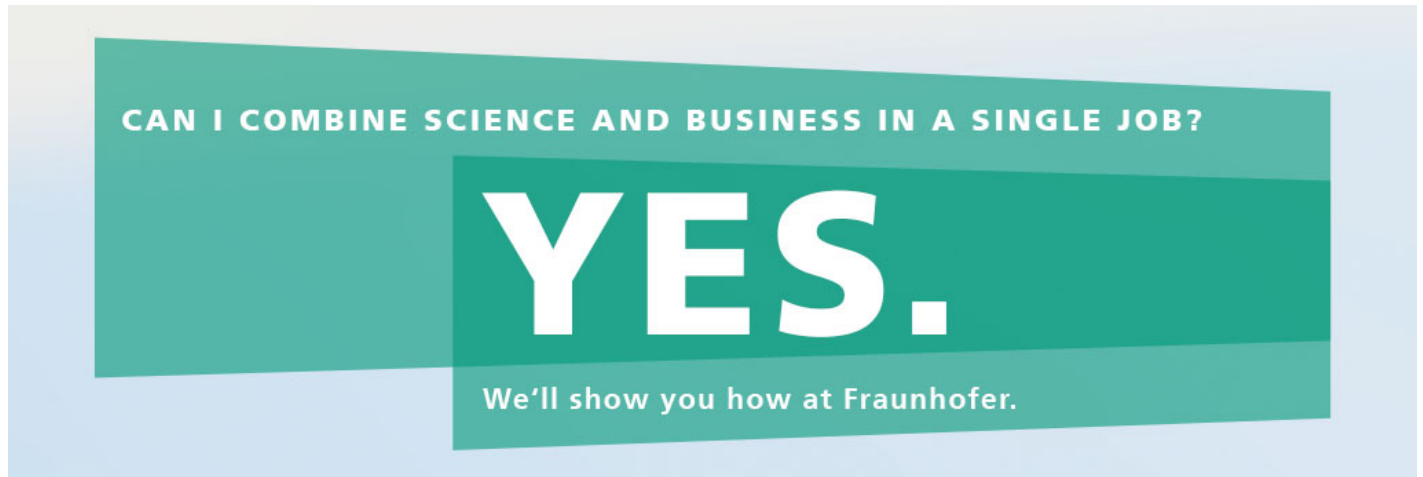


Stellenbezeichnung: Student Assistant Development and application of multimodal imaging systems (IOF-2022-118)



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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. As a result, the work undertaken by our researchers and developers has a significant impact on people's lives. We are creative. We shape technology. We design products. We improve methods and techniques. We open up new vistas.

The Fraunhofer Institute for Applied Optics and Precision Engineering in Jena conducts applied optics research on behalf of industry and as part of publicly funded research projects. The range of services includes system solutions, starting with new design concepts, through technology development, manufacturing and measurement methods to the construction of demonstrators and pilot series for applications. Fraunhofer IOF is also pioneering applied quantum technology, providing innovative solutions to science and industry wherever quantum optical phenomena may lead to revolutionary applications.

The "Imaging and Sensing" department is looking for a student assistant, who will work on the development and application of multimodal imaging systems. Our multimodal imaging systems are based on multi-aperture cameras with micro-optical filter arrays and enable the spatially resolved simultaneous determination of the spectral properties of substances/objects. The number, shape and distribution of spectral channels of multi-aperture cameras with micro-optical filter arrays determines the possible application, such as the determination of spectral indices in agriculture and forestry, the shelf life monitoring of food, the determination of vital parameters up to the detection of substances in sorting processes. In close cooperation with other departments, we develop multimodal imaging systems and transfer them into applications for industry, biology, medicine as well as in daily life.

What you will do

- Realization of a simulation model for the applicability and design of the spectral properties of multi-aperture cameras with micro-optical filter arrays
- Investigations:
 - for the metrological determination of the system properties of multi-aperture cameras with micro-optical filter arrays
 - on calibration and raw data correction methods
 - on spectral value determination, correction, and extension methods
 - on spatially resolved color value determination methods using multi-aperture cameras with micro-optical filter arrays
 - on spatial value, interpolation and extension methods
 - on the application of multi-aperture cameras with micro-optical filter arrays for the acquisition and visualization of 3D surfaces and shape features
- Algorithmics and programming (MATLAB, Python, C++)
- Recording, area evaluation and presentation of measured data for scientific publications
- Documentation and presentation of the results

The subject area can be further specified and worked on in the context of an internship, a student assistantship or in the course of writing a thesis.

For further questions regarding, please feel free to contact Mr. Paul-Gerald Dittrich: paul-gerald.dittrich@iof.fraunhofer.de

What you bring to the table

- You are a student of photonics, physics, electrical engineering, engineering science or a similar course of study or
- Alternatively: you are a student at a technical secondary school, a vocational high school, a higher vocational school or a technical school with a focus on information technology, chemistry or biotechnology
- Basic knowledge of working in laboratories, with scientific equipment, and in digital data processing
- Motivation to learn how to control modern technologies, methods and processes in the field of imaging and sensor technology
- Very good knowledge of German or very good knowledge of English (at least C1)
- Independent and systematic way of working, creative and analytical thinking as well as willingness to work, team orientation and communication skills
- A friendly, reliable and open manner

What you can expect

- collaboration in challenging research and development projects
- a collegial, open-minded and friendly team
- a variety of activities in a modern and well-equipped working environment
- flexible working hours that allow you to balance your studies and on-site experience
- extensive professional support from scientific mentors
- excellent connections to public transport

Depending on the employment relationship, remuneration is paid in accordance with the general works agreement on the employment of scientific assistants or in accordance with the trainee remuneration. The weekly working time is 39 hours in the context of an internship and in the context of the preparation of a thesis. In the context of a student assistant activity, this is discussed individually, but comprises a minimum of 15 hours/week.

We value and promote the diversity of our employees' skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity. Severely disabled persons are given preference in the event of equal suitability.

Interested? Apply online now. We look forward to getting to know you!

Fraunhofer Institute for Applied Optics and Precision Engineering IOF
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Requisition Number: 61129

Application Deadline: 12/15/2022

