Stellenbezeichnung: Thesis Measurement technology for optimizing microlens array production (IOF-2022-97)

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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 of the Fraunhofer Institute for Applied Optics and Precision Engineering IOF is looking for a student assistant, who will be realizing a demonstrator for swarm-based optical manufacturing. The starting point is the high accuracy requirements (down to < 1 nm) faced by large-scale and/or segmented optics (e.g., for telescopes for satellite and quantum communication, earth observation, astronomy or remote sensing). Their production currently follows a linear process chain with strong interaction between characterization and manufacturing. The effort caused by setup times and component handling as well as the overall process time is to be minimized by developing a robot ensemble for parallelized polishing as well as surface roughness and shape characterization. The "3D Sensors" group contributes to this goal by developing a real-time sensor technology using deflectometric methods.

What you will do

- setup of industrial optical sensor technology for the detection and localization of markers
- investigation of the alignment/positioning accuracy based on given samples
- development and optimization of an image analysis algorithm for the reliable detection of the sample center (Python, OpenCV, C++)
- optimization of the achievable and reproducible accuracy for workpiece positioning
- acquisition, evaluation, and presentation of measurement series for scientific publications

What you bring to the table

- You are a student in the field of photonics, physics, engineering or a similar study program.
- You have basic knowledge of working in laboratories, with scientific equipment, and in digital data processing.
- You are motivated to learn how to control modern technologies, methods, and processes in the field of optical sensors.
- Your strengths include an independent and systematic approach to work, creative and analytical thinking as well as commitment, team orientation, and communication skills.
- A friendly, reliable and open manner completes your profile.

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

The weekly working is 39 hours. The position can also be filled on a part -time basis. Remuneration according to the general works agreement for employing assistant staff.

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
www.iof.fraunhofer.de

Requisition Number: 54793 Application Deadline: 09/27/2022