Ferdinand-Braun-Institut gGmbH

The Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH) is an application-oriented research institute in the fields of high-frequency electronics, photonics and quantum physics. It researches and realizes electronic and optical components, modules and systems based on compound semiconductors. These devices are key enablers that address the needs of today's society in fields like communication, energy, health, and mobility. At FBH we excel in the development of laser diodes for a wide range of high-tech applications. Vertical Cavity Surface Emitting Lasers (VCSEL) are a particular type of laser diode used in data communication and sensing applications, e.g. face recognition, LIDAR and altitude control in satellites. VCSELs show a characteristic white-light reflectance response, from which the fundamental operating wavelength can be deduced. Algorithmic extraction of those features is common practice, but very often suffers from hitting edge cases where manual parameter adjustments are required. The ultimate goal of this master's thesis is to find a more robust solution based on machine learning (ML).

Master thesis: Machine Learning in VCSEL Epitaxy – 10/26

Stadt: Berlin; Beginn frühestens: Frühestmöglich; Vergütung: 14,84 €/ h;
Kennziffer: 10/26; Bewerbungsfrist: 30.04.2026

Aufgabenbeschreibung

- Analyze white-light reflectance (WLR) measurements and work with the corresponding data
- Select, review, evaluate, and prepare suitable WLR datasets for use as training data
- Train a neural network using an ML framework of your choice (preferably Python-based)
- Test and benchmark the model with trained and untrained data
- Compare the ML models with traditional feature extraction methods and evaluate their success rate

Erwartete Qualifikationen

- Enrolled in a master's program in Physics, Electrical Engineering, Computer Science, Photonics or a related field
- Prior knowledge in machine learning, data science, measurement technology, optoelectronics
- Interest in working with data combined with experimental work and innovative technologies
- structured working style, as well as team spirit
- Start date: earliest possible

Unser Angebot

- Flexible working hours that are compatible with your study program
- An open and supportive team always available to offer guidance and assistance
- A modern workplace in Berlin Adlershof with excellent public transport connections
- Exciting insights into practical applications and the opportunity to gain valuable experience

Bewerbung

Does it sound interesting? Then we look forward to receiving your online application. To apply, please click on "Apply online" and submit your complete application documents by April 30, 2026.

If you have questions, please contact Dr. Andre Maaßdorf, Tel.: 030 6392-2672, E-Mail: andre.maassdorf@fbh-berlin.de

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Angebot sichtbar bis 30.04.2026