

CAN I COMBINE SCIENCE AND BUSINESS IN A SINGLE JOB?

YES.

We'll show you how at Fraunhofer IIS.

Bachelor/Master Thesis –

Investigation of phase noise influence on TDOA localization systems in IOT

The Fraunhofer-Gesellschaft (www.fraunhofer.com) currently operates 76 institutes and research institutions throughout Germany and is the world's leading applied research organization. Around 30 000 employees work with an annual research budget of 2.9 billion euros.

The Fraunhofer IIS in cooperation with the TU Ilmenau set up a testbed to enable the localization of mobile endpoints using the LPWAN standard mioty for application in current research topics like IOT. The localization is based on time difference of arrival measurements (TDoA). This promises high accuracy, but places very high demands on the temporal synchronization of the basestations. Another core component of localization accuracy is precise knowledge of the underlying phase noise in the frontend of the basestations.

Within the scope of this thesis further knowledge about the underlying phase noise process shall be gained for achieving a higher accuracy of the localization when it comes to compensation of the phase noise.

The results achieved in the thesis are to be presented extensively in a written elaboration. The program source code must be sufficiently commented. The DFG rules for good scientific practice are to be respected in the preparation of the thesis. The execution of the work can be done in English as well as in German language.

What you will do

- You research literature for phase noise and its modelling
- You develop an experimental setup for the measurement of phase noise
- You measure the phase noise in field using the existing testbed
- You investigate the measured phase noise and work out possible approaches of modelling the phase noise
- You simulate the modelled phase noise and examine methods on its compensation

What you bring to the table

- You are currently studying electrical engineering, communication engineering or a related field
- You have good knowledge in signal processing
- You know the basics in python

What you can expect

- **Flexible** working hours
- **Open** and **friendly team work**
- Exciting **seminars** and **events**
- **Networking** with scientists
- **Active contribution** in applied research
- **Interesting** an **innovative** projects
- Mentoring program »**josephine@**« for talented female students

The thesis will be assigned and carried out in accordance with the rules of your university. For this reason, please discuss the thesis with a professor who can advise you over the course of the project. The duration for the thesis should be 6 months.

Weekly working hours are determined by agreement. You can reduce your hours before exams and increase them during semester breaks. You can flexibly determine the working days. After your studies, you have the option of working with us full or part time.

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.

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Fraunhofer-Institute for Integrated Circuits IIS

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Requisition Number: 50146

Application Deadline: none

Location: Nürnberg

