

## **PAID MASTER'S THESIS**

### ***Signal Preprocessing in Pharmaceutical Optical Coherence Tomography (OCT) Applications***

***Ref.Nr. DA132***

To dedicated students of electrical engineering, physics, mathematics or related disciplines, we offer an opportunity to write a paid Master's thesis.

#### **OBJECTIVE:**

This Master's thesis is in the area of signal processing, investigating new ways for raw signal processing in Optical Coherence Tomography (OCT). Within the scope of this work lies finding appropriate processing chains from the sensor level up to an optimal OCT image. Among the tools commonly used are apodisation, modified FFT approaches, as well as several filtering methods which may be applied to improve the final output. The resulting image should be quantified in an appropriate way so that a comparison among methods can be achieved. The outcome of this thesis provides an overview of methods used and their effect on OCT images.

#### **REQUIREMENTS:**

- Bachelor's degree in electrical engineering, physics, mathematics or related
- Solid understanding of mathematics (e.g. FFT, signal processing)
- Experience with at least one advanced programming language like C++ or Python
- Ability to work mostly independently
- Enthusiasm for signal processing and image generation and processing
- Fluency in English

#### **WITHIN THE FRAMEWORK OF THIS MASTER'S THESIS WE OFFER THE FOLLOWING:**

- Extensive participation in a top-level and industrially relevant research project in an international environment
- Supervised training in the task
- Assistance of experienced staff with the implementation of innovative ideas
- Access to highly modern infrastructure on campus of Graz University of Technology
- Assistance with the publication of results
- Adequate compensation and opportunities for personal and professional development

#### **FINANCING:** Compensation on the basis of a service contract

If you are interested in writing your thesis at the interface between university research and industry/business and to contribute to the optimization of product and process development in the pharmaceutical industry, please contact us indicating the reference number

#### **Research Center Pharmaceutical Engineering GmbH**

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