The Research Center Pharmaceutical Engineering (RCPE) is an interdisciplinary research institute in the area of pharmaceutical process- and product-development in Graz, Austria. Our goal is to establish technology to transform current product and processes development approaches in the pharmaceutical and diagnostics industries into a science-based endeavor together with our partners.

PAID MASTER'S THESIS
Machine Learning Methods for Optical Coherence Tomography (OCT) Image Segmentation
Ref.Nr. DA133

To dedicated students of computer science, 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 image processing. The goal is to automatically recognise pharmaceutical products, such as tablets or multiparticulates in Optical Coherence Tomography (OCT) images. Based on initial suggestions, a survey of various machine learning methods used for image segmentation should be done. These should be applied to existing OCT images with attention to choosing parameters accordingly. Quantifying the outcome should allow for an automatic evaluation and hence a comparison among methods. A broad range of machine learning and related methods, such as neural networks, clustering etc. can be applied. The result should be an evaluation of methods with a recommended approach for various image types.

REQUIREMENTS:

- Bachelor's degree in computer science, mathematics or related
- Basic understanding of machine learning methods, ideally within image processing (such as a university class)
- Good understanding of mathematics
- Experience with at least one advanced programming language, e.g. Python or C++
- Ability to work mostly independently
- Enthusiasm for image 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.

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