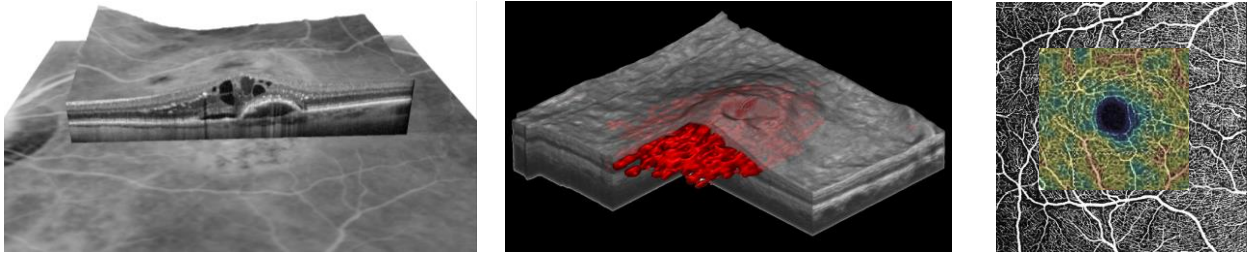


Master Thesis on Deep Learning for Retinal Image Analysis

Laboratory for Ophthalmic Image Analysis (OPTIMA) is an interdisciplinary research group at the Department of Ophthalmology, composed of retinal specialists, computer scientists, software engineers, and image annotators. We are developing innovative computational image analysis methods based on state-of-the-art machine and deep learning methods in order to achieve precision medicine in ophthalmology.



We offer:

- **Wide range of topics** suited to different prior knowledge, from practical oriented to deep-dive analyses in
 - Image segmentation, and object detection
 - Automated diagnosis from OCT and image quality assessment
 - Multimodal image registration
 - Generative modeling and synthetic data
- **Close supervision** and tight integration with the international research group where MSc students work closely with PhD students and PostDocs.
- Access to a **large set of longitudinal and annotated ophthalmic images** (2D and 3D) acquired with multiple state-of-the-art imaging modalities (OCT - optical coherence tomography) and OCT angiography (OCTA).
- The MSc thesis is expected to contribute to **real-world use cases** in clinical research. OPTIMA also collaborates with multiple industrial partners from pharmaceutical and imaging device sector.
- Access to a high-performance GPU **computing cluster**.

Example of topics:

- Domain adaptation for image segmentation across OCT device manufacturers
- Diffusion models for retinal image generation and anomaly detection
- OCTA image quality evaluation and/or OCT denoising

Qualifications:

- Good programming skills and basic knowledge of machine learning and statistics
- Good written and oral communication skills in English

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