

22 July 2022

PhD position in OCT – guided eye surgery instrumentation

A PhD position in Optical Coherence Tomography (OCT) – guided eye surgery instrumentation is available at the Maisonneuve-Rosemont Hospital Research Center (CR-HMR). The successful candidate will join the laboratory of Dr. Boutopoulos (Biomedical applications of lasers).

Project description

Surgical manoeuvres aiming to repair the retina, a thin, light-sensitive membrane that lines the back of the eye and converts light into neural signal, are frequent in eye surgery. Due to the small retinal thickness (0.1-0.35mm), the physiological limitations of surgeons (i.e., hand tremors, reaction time) can compromise the therapeutic outcome of the surgery. In animal models requiring surgical interventions, researchers face additional challenges due to the relatively smaller eye compared to humans. The successful candidate will focus on the development and validation of OCT-guided instrumentation for eye surgery. These systems will be based on biomedical imaging (OCT) and will integrate fiber optics, robotics, as well as guidance, risk detection and decision-making algorithms to help surgeons and / or researchers to perform eye surgery procedures with improved safety, accuracy, and efficiency.

The successful candidate will have an opportunity to join an interdisciplinary research environment and to acquire solid training in biomedical engineering.

Student profile:

- She/he is willing to work with *in-vivo* models.
- She/he is self-motivated and comfortable with interdisciplinary/collaborative work.
- Previous experience in any of the following fields will be considered an asset: OCT, fiber optics, laser instrumentation, robotics.
- Background: biomedical engineering, physics, or relevant field.
- Good communication skills in English. Knowledge of French is an asset.

Salary: According to the CRHMR salary range for graduate students.

Application: For additional information, please contact Dr. Boutopoulos by email. For applying, send us your CV and university transcripts by email.

Application deadline: open until filled.

Relevant material: <https://boutopoulos-udem.ca/positions/>

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