

# MASTER'S PROJECT INVITATION

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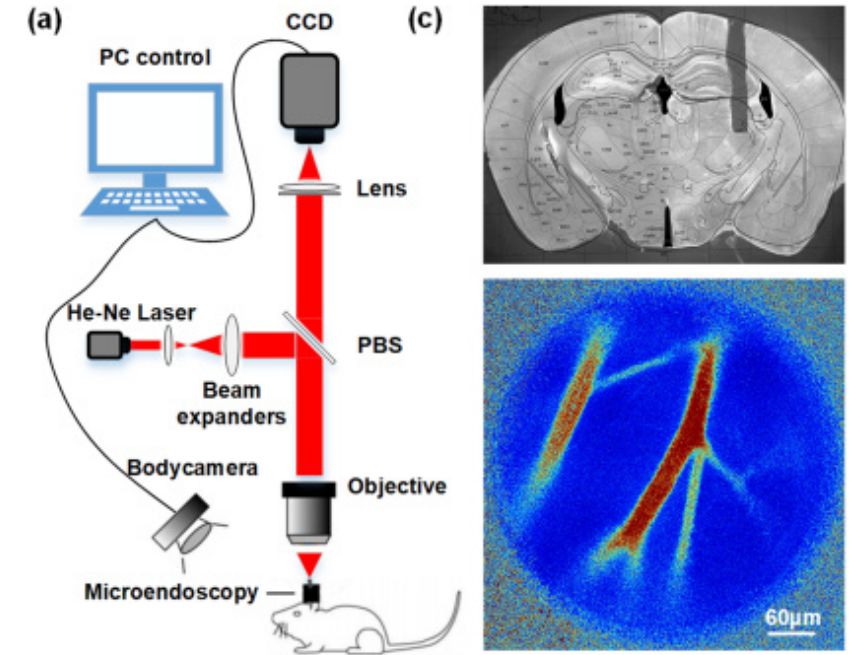
**Project title:** Design and development of a light-based imaging tool for tracking microrobots inside human body.

**Background:** The use of microrobots in novel medical techniques has the potential of transforming the way physicians interact with human body. Imaging and tracking of microrobots inside the body has been one of the hot topics of the last years. Amongst the technologies usable for this task, light is still not sufficiently investigated. Our goal is to explore the possibility of using light to image microrobots inside anatomical cavities while controlling their motion with magnetic fields.

## Tasks:

- Literature search and review to study state-of-the art methods and identify suitable light-based techniques.
- Cultivate background in optics and optics-based diagnostic techniques
- Design of optical set-up
- Design and implementation of a software interface to control the imaging set-up
- Experiments *in-vitro* and/or *in vivo*

Suited for: BME, ME



Ming Chen, Dong Wen, Songlin Huang, Shen Gui, Zhihong Zhang, Jinling Lu, and Pengcheng Li, "Laser speckle contrast imaging of blood flow in the deep brain using microendoscopy," Opt. Lett. 43, 5627-5630 (2018)

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