

Master Thesis Proposal

Modular platforms for multifunctional fiber connectorization and control electronics

Introduction

Optogenetics enables targeted excitation or inhibition of neurons via light with higher spatiotemporal resolution than electrical stimulation. Combining optical stimulation with electrodes for recording allows for the investigation of neuronal populations.

The EIC Pathfinder project Move2Treat (<https://move2treat.org/>) focuses on the development of soft, multifunctional, fiber-based neural devices for investigating how movement is generated in the brain and spinal cord. One of the main challenges for such multifunctional fibers is reliable connectorization. This work aims to develop components for a modular connectorization system for optical, electrical, and fluidic contacts.



Objectives

Developing platform module for fiber connectorization to control electronics and tethered connections to external equipment

Your tasks

- Literature research
- Develop and evaluate reliability of a platform for modular connectorization to external equipment connections
- Design and evaluate electronic modules for headstage electronics

Your profile

- You are interested in the field of neurotechnology and optical stimulation
- You have taken courses in electrical engineering and are familiar with circuit design
- You are creative and adapt easily to challenges

Logistics

- Location: Institute for Machine-Brain Interfacing Technology (IMBIT)
- Earliest start date: January 2025 (can be discussed)
- Maximum thesis duration: 6 months

Contact

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Intelligent Machine-Brain Interfacing
Technology