



Open Master Thesis Project

BIROMED-Lab

Department of Biomedical Engineering

Project background:

You will join the BIROMED-Lab at the University of Basel, which performs medical and rehabilitation robotics research under the lead of Prof. Dr. Georg Rauter. As part of the **FLOAT** team, you will work on improving the transparency and control of the robot, making it more intuitive in different rehabilitation scenarios for both patients and therapists.

Project description: Sensor Integrated Harness for Body Weight Support Robot, the FLOAT

The FLOAT is a ceiling-mounted robot that provides body-weight support across a room-scale workspace for overground gait rehabilitation. Additional sensors such as Inertial Measurement Units (IMUs) can be used to understand a user's pose while they are using the FLOAT. However, the current FLOAT harness and these sensors can interfere with each other in the current set-up.

This thesis addresses this issue by: (i) defining the requirements for a sensor integrated FLOAT harness; and (ii) producing and testing a harness prototype.

The work is structured into the following tasks:

- Define the functional, ergonomic, and technical requirements for the harness.
- Develop and evaluate design concepts that address the identified requirements, and manufacture a functional prototype.
- Assess the prototype with respect to wearability, usability, and the quality of the acquired sensor data.

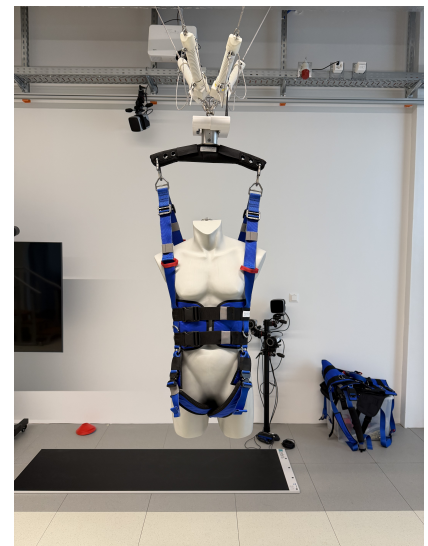
Your profile:

We are looking for a candidate with:

- A background in biomedical engineering, mechanical engineering, robotics, product design, or a related field.
- Experience or a strong interest in wearable systems, sensor integration, and prototype development.

Software and tools you might work with: Python, MATLAB, Qualisys, Git.

Start Date: As soon as possible.



Ready to advance rehabilitation robotics? We are.

Apply for this project by email sending us the following materials:

- CV
- Diplomas and course transcripts



Want to know more about us? check out www.dbe.biomed.unibas.ch and contact us for a lab visit.



**University
of Basel**

Department of
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