

# Building GELU, a Patient and Physician UI for Motor Rehabilitation Tracking

*Internship for Master Student*

## Contacts

Please, reach out to both of the following people if you are interested in joining us as an intern at the *Chair of Healthcare and Rehabilitation Robotics (Department of Informatics)*:

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## Project Abstract

As part of a data collection effort for upper limb movements of motor-neuron impaired subjects (e.g., certain multiple sclerosis patients, stroke patients, and patients with ALS), our group seeks to develop GELU, a UI suite that comprises two user interfaces, one each for physicians and patients. Their aim is to display data from (i) biosensors (e.g., EEG/EMG, pulse) which are worn by the patient, and (ii) motor performance measurement devices, i.e. external devices that are used to record different aspects of motor performance.



## Background and Motivation

In total, 1.5 million Europeans suffer a stroke each year, with a forecasted increase of 34% until 2035. While rehabilitation efforts focus mostly on lower limbs, the affected upper limbs of stroke patients are often neglected in the current rehabilitation standard of care. This often leads to a chronic impairment, with patients requiring permanent assistance to manage even the simplest tasks. Therefore, we are currently researching ways to improve the rehabilitation of upper-limb motor-impaired stroke patients.

## Task Description

**Part of your internship will be to closely collaborate with the other team members, as all of your works have many interdependencies.** We will provide co-location spaces and amenities for an optimal collaboration. The tasks for this project are to (1) compile a comprehensive list of requirements that the UIs need to satisfy, based on patient and physician interviews; (2) develop a mobile UI for patients (e.g. using Flutter); (3) develop a mobile UI for physicians (e.g. using Flutter); (4) Write an API that accesses the relevant data in the data lakes of the LRZ and integrate it with GELU's patient and physician UIs; (5) Validate GELU's functionality through tests with able-bodied subjects at TUM. *Optional step: gamify GELU's UX to support patients with their rehabilitation.*

## Technical Requirements

The intern needs to be familiar with Java Script, ideally having worked on app development projects before. Experience in building apps with Flutter or Swift is welcome but not mandatory.