



## Thesis Project Form

**Title (tentative):** Electrophysiological correlates of voluntary movements of the upper limb

**Thesis advisor(s):** Chiappalone Michela, Marianna Semprini (marianna.semprini@iit.it)

**E-mail:** michela.chiappalone@unige.it

**Address:** Via Opera Pia 13, 16145 Genova

**Phone:**

### Description

#### Motivation and application domain

Functional evaluation of voluntary movements is fundamental for assessing the level of impairment in case of injury, as well as to evaluate the effects of a rehabilitation therapy. In clinical settings, this is traditionally performed using clinical scales, however, several metrics based on electrophysiological measurements are advancing and may provide more objective metrics for functional assessment.

#### General objectives and main activities

This thesis work will contribute to implement in the Rehab Technologies Lab of IIT, tools for a global assessment of recovery, which considers the different facets of functional recovery. The work includes electrophysiological data collection during voluntary movements executed with and without the aid of robotic devices developed in the lab, as well as the analysis of collected dataset.

#### Training Objectives (technical/analytical tools, experimental methodologies)

The thesis will allow training in neuroengineering, experimental neuroscience, neurophysiology, data analysis, and code writing.

**Place(s) where the thesis work will be carried out:** Istituto Italiano di tecnologia, via Morego 30, Genova

### Additional information

**Pre-requisite abilities/skills:** Coding expertise is recommended for the data analysis part

**Maximum number of students:** 1