



Thesis Project Form

Title (tentative): An experimental apparatus and musculoskeletal model to assess whole body movements during interaction with a robot

Thesis advisor(s): Sanguineti Vittorio, Ludovica Viola

E-mail: Vittorio.Sanguineti@unige.it

Address: Via All'Opera Pia, 13 - 16145 Genova

Phone: (+39) 010 33 56487

Description

Motivation and application domain

Stroke survivors improve their motor functions through two main mechanisms: reduction of the impairment and development of compensatory strategies. Disentangling these mechanisms and tailoring assistance to individual needs requires detailed descriptions of patients' whole body movements.

General objectives and main activities

The general objectives of this activity are (i) to develop a novel experimental apparatus which includes a set of inertial measurement units (IMUs) and a planar manipulator, to be used as assessment and rehabilitation tool; (ii) to define an analysis pipeline that allows to create a personalized musculoskeletal model of the patient and to use it to accurately reconstruct whole body movements.

Training Objectives (technical/analytical tools, experimental methodologies)

Motion capture and robot control
Musculoskeletal modeling

Place(s) where the thesis work will be carried out: Bioengineering Lab, DIBRIS

Additional information

Maximum number of students: 1