Dibris

Thesis Project Form

Title (tentative):   A comprehensive assessment and a tailored rehabilitation for Low Back Pain

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Description

Motivation and application domain

Low back pain (LBP) is a global health concern, affecting 619 million people worldwide in 2020, with projections estimating a rise to 843 million cases by 2050 due to population growth and aging. LBP is the leading cause of disability globally and a condition where rehabilitation can benefit a significant number of individuals. It can occur at any age, with most people experiencing LBP at least once in their lives.

For both assessment and rehabilitation, robotic technologies have emerged as potential game-changers. While their effectiveness has been well-established in the neurological field, their impact on LBP remains less certain. Studies and evidence regarding the benefits of robotic devices in LBP rehabilitation are limited and require further exploration.

General objectives and main activities

The general objective will be to define a comprehensive assessment for a deep characterization of the performance for people with LBP. The assessment will be used to define a rehabilitation program both with and without a robotic technology to compare the efficacy of the two approaches.

Training Objectives (technical/analytical tools, experimental methodologies)

- Use a certified robotic medical robotic device
- Run experiments with human participants, coordinating with different specialists
- Data analysis with python
- Statistical analysis with statistical software

Place(s) where the thesis work will be carried out: DIBRIS, via all'opera pia 13 and Casa della Salute,

Multedo, via Multedo di Pegli

Additional information

Maximum number of students: 1