Multi-function lifting robot development

Record number : OPR-614

Overview

RESEARCH DIRECTION

Alexandre Girard, Professeur - Department of Mechanical Engineering

INFORMATION

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ADMINISTRATIVE UNIT(S)

Faculté de génie
Département de génie électrique et de génie informatique
Département de génie mécanique
Institut interdisciplinaire d'innovation technologique (3IT)

LEVEL(S)

2e cycle
3e cycle
Stage postdoctoral

LOCATION(S)

3IT - Institut interdisciplinaire d'innovation technologique

Project Description

Arjo and Université de Sherbrooke are partnering to develop collaborative-robotic technologies for the next generation of transfer devices used in hospitals and long-term care units. The goal of this Alliance project is to develop lifting robot assistants and an eco-system of devices for a smart hospital room concept that would release caregivers of time-consuming, low-value tasks and empower patient with mobility assistance features. The proposed assistance technology aims to address these two societal problems: 1) improving the caregivers' health and work-conditions with assistance scheme limiting the physical efforts during patient transfers and 2) improving the patients' care quality by facilitating occasions for them to move out of their bed.

The first step in the project, which will be entrusted to a graduate student supported by an engineering team at 3IT, is to develop a mechanical design suitable for robotic lifting devices capable of the following tasks: 1) transfering patient with force assistance, 2) performing rehabilitation sessions and 3) helping patient for walking in the room and various movements. The project will consist in studying various mechanical concepts of articulation configuration and actuation, and then designing, manufacturing, and testing the chosen concept.

Keywords: Mechanical design, robotics, biomechanics, mechatronics

Website: https://alexandre-girard.ca/research/students/

Starting date : January 2023

Discipline(s) by

Funding offered

Yes

Partner(s)

Arjo

sector

Sciences naturelles et génie

Génie électrique et génie électronique,
Génie mécanique

The last update was on 22 June 2026. The University reserves the right to modify its projects without notice.