

Development of cuffless blood pressure measurement devices

Record number : OPR-902

Overview

RESEARCH DIRECTION

Céderick Landry, 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

LOCATION(S)

3IT - Institut interdisciplinaire d'innovation technologique

Project Description

PROJECT

The last decade has seen a tremendous increase in the number of people wearing fitness trackers and smartwatches for health monitoring. Despite adoption by the public, there still exists a chasm between medical grade health monitors and wearable devices. A glaring example is the cuffless blood pressure monitor, which aims to provide continuous blood pressure measurement, therefore providing a more complete picture of the patient's state. However, the European Society of Hypertension does not recommend the clinical adoption of cuffless devices due to poor accuracy and lack of robust validation in representative situations.

The research program, which encompasses several research projects, aims to develop the next generation of medical grade cuffless blood pressure monitors. The research projects involve, among other things, the design of mechatronic devices, analytical and numerical modeling of artery mechanics, data-driven modeling, as well as machine learning. Additionally, all projects require a validation aspect involving human subjects, potentially in collaboration with the Faculty of Medicine and Health Sciences.

TEAM AND ENVIRONMENT

The student will be part of the Createk research group (www.createk.co), which consists of 9 professors, 15 professionals, 1 technician, and over 80 students, all passionate about developing new technologies for the machines of the future. On a day-to-day basis, the work will be conducted at the Institut Interdisciplinaire d'Innovation Technologique (3IT), where you will have access to advanced tools for simulation, design, manufacturing, measurement, and control.

Discipline(s) by

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.