Artificial intelligence - Machine learning for cuffless blood pressure measurement devices

Record number : OPR-1009

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)

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 PhD project consists of developing a machine learning algorithm that will continuously estimate blood pressure from wearable sensors/mechatronic devices developed in Sherbrooke. Additionally, the algorithm must be able to determine when recalibration is necessary.. Additionally, the project requires 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

Funding offered

To be discussed

sector

Sciences naturelles et génie

Génie électrique et génie électronique,
Génie mécanique

The last update was on 24 July 2026. The University reserves the right to modify its projects without notice.