Development of Next-Generation AI Optical Computing Engines

Record number : OPR-1067

Overview

RESEARCH DIRECTION

Julien Sylvestre, Professeur - Department of Mechanical Engineering

INFORMATION

julien.sylvestre@usherbrooke.ca

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

In close collaboration with our partner IBM Canada, this exciting new project aims to develop next-generation AI computing engines, based on advanced optoelectronic devices and manufacturing processes.

We have multiple fully-funded positions open for graduate students at the M.Sc. and Ph.D. levels, as well as for postdoctoral researchers. Through this project, candidates will be exposed to advanced and broadly applicable concepts and tools, including machine learning techniques, computer-aided design, micro-fabrication technologies, numerical simulation methods (finite elements, high performance computing) and characterization techniques. Depending on their specific project, they will also acquire high-level, specialized knowledge in electronics manufacturing, optoelectronics, optical computing, automation, data mining or programming, for instance.

Given the multi-disciplinary nature of the project, we are looking for candidates coming from all relevant fields, such as mechanical engineering, electrical engineering, physics, material science and optics.

The work will be conducted under the supervision of Professor Julien Sylvestre at the Institut interdisciplinaire d'innovation technologique (3iT) in Sherbrooke,QC. This institute is host to a state-of-the-art, 1600 m² nanofabrication and characterization research facility, including 430 m² of class 100 clean room spaces. Through collaboration with our industrial partner, candidates will also have the opportunity to use the advanced facilities of the C2MI in Bromont, QC.

We invite interested candidates to contact us with a resume and academic transcript at julien.sylvestre@usherbrooke.ca.

Candidates will be selected on the basis of academic excellence, motivation, background and experience, in consultation with our industrial partner. Everyone is welcome to apply; we embrace diversity and strive to create conditions that provide everyone with an equal

opportunity to thrive.

Discipline(s) by sector

Sciences naturelles et génie

Génie électrique et génie électronique,
Génie mécanique

Funding offered

Yes

Partner(s)

IBM Canada Ltée.

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