Post-Doctoral Fellow position for the
Net-Zero Navigator project

Designing high-performance, low-energy, comfortable, cost-effective, robust and climate resilient buildings requires a new generation of computational tools to effectively address these challenges. These will blend aspects of physics-based building energy simulation, black-box optimization, machine learning and design space visualization. The Net-Zero Navigator project will develop advances in all these areas, which will be combined into an online platform to be used by practitioners in industry and policy-makers in government to deliver better building designs that meet stringent new targets in British Columbia.

This post-doctoral position will conduct and manage the research aspects of the project, which include surrogate modelling applied to building energy, robust optimization of building designs, and visual exploration of the design space.

The position will be supervised by Dr Ralph Evins (Imperial College London, ETH Zurich), who’s Energy Systems and Sustainable Cities research group is pioneering the use of advanced computational techniques to deliver the low-energy buildings, cities and energy systems of the future. The work will be carried out in the stimulating multi-disciplinary environment of the Institute for Integrated Energy Systems (IESVic) at the University of Victoria in beautiful British Columbia.

Responsibilities

The core tasks of this project include:
- Conducting research on the methods and models underpinning the tool, focussing on building energy simulation but also encompassing optimization, machine learning for surrogate modelling and visual design-space exploration.
- Assistance with the supervision of graduate students working on the above research topics.
- Close coordination with the software development team building the tool, to manage the implementation of features based on the above research.
- Other research tasks, including supervision of undergraduate projects, assistance with teaching, project finances, research administration, and the preparation of journal and conference papers and technical reports.
- Working to develop additional funded projects related to this development.
Requirements
- A PhD in engineering, computer science, mathematics or physics is required.
- A good working knowledge of Python is required. For an exceptional candidate, an expert level in another programming language could be acceptable instead.
- Experience with building energy simulation is required. Familiarity with at least one of machine learning and/or meta-heuristic optimization is highly desirable.
- Experience of software development (e.g. working with Git and Agile) is highly desirable.
- Mastering the English language is required.

The University of Victoria is an equity employer and encourages applications from persons with disabilities, visible minorities, Aboriginal Peoples, people of all sexual orientations and genders, and others who may contribute to the further diversification of the University.

Timeline
Start date: Flexible (specify in your cover letter when you are available).
Duration: initially for 1 year, renewable for 1 further year depending on performance.

Funding
This position is funded at a level commensurate with NSERC post-doctoral fellowships. Holders of such fellowships will be eligible for top-up funding.

How to apply
Interested candidates should email iesvic.admin@uvic.ca with the subject Evins Postdoc, attaching the following items:
- a 1 page cover letter explaining your fit for the position and describing programming expertise and previous research experience
- a detailed curriculum vitae
- names and contact information of at least two professional or academic references.

Applications not following these instructions will not be considered. Review of applications will begin in mid-September, though later submissions will be considered.