

MASc or PhD position in Visualization of multi-dimensional building data



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. This position focusses on developing effective data visualization approaches that are needed to derive meaning from data, simulations and machine learning models related to building energy use. Building data is highly multi-dimensional, and design optimization adds another level of complexity to this, requiring tools that aid users in interactively exploring the data. This project will research the usability of interactive visual exploration tools, including analysis of unique data collected on how such tools are used in practice.

The position will be supervised by [Dr Ralph Evins](#) (Imperial College London, ETH Zurich) in his [Energy Systems and Sustainable Cities research group](#) together with [Dr Charles Perin](#), expert in data visualization. The work will be carried out in the stimulating multi-disciplinary environment of the [Institute for Integrated Energy Systems](#) (IESVic) and the new green [Civil Engineering department](#) at the [University of Victoria](#) in beautiful British Columbia, Canada.

Research objectives

The core tasks of this project include:

- Developing a suite of innovative interactive visualization tools for the exploration of building design energy performance data.
- Working together with the software development partner to implement these.
- Assisting users in developing custom visualizations and dashboards for specific tasks.
- Conducting A/B testing of the effectiveness of different data visualizations.

Requirements

- For a PhD position, a Master's degree (MAsc or MEng) in engineering, computer science, mathematics or physics is required.
- For an MAsc position, a Bachelor's degree (BSc or BEng) 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.
- Mastering the English language is required.
- Familiarity with building energy data or data visualization is desirable, as is experience with visualization using JavaScript.

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: ideally January 2020 but earlier or later is possible - specify in your cover letter when you are available.

Duration: 2 years (MAsc) or 3 years (PhD).

Funding

This position is funded at a level commensurate with NSERC [Masters](#) or [Doctoral](#) scholarships. 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 Visualization, 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 references.

Applications not following these instructions will not be considered.

Review of applications will begin in mid-September, though later submissions may be considered.

Do not apply for more than one position; indicate interest in other positions in your cover letter.