



Posting Date: 28 September 2017

Department of Civil Engineering
Faculty of Applied Science and Engineering
University of Toronto

JOB POSTING – POSTDOCTORAL FELLOW

Areas of Research: Civil engineering construction, sustainability, life cycle assessment, structural engineering, geotechnical engineering, greenhouse gas (GHG) assessment

Overview of the position:

Applications are invited for a Postdoctoral position in the Reducing GHG Emissions from Large-Scale Infrastructure (InfraGHG) research group at the University of Toronto. The position is available immediately.

The InfraGHG research group has recently been established to develop a decision support toolset to drive GHG reductions in the capital emissions associated with design and construction of large-scale infrastructure. The research program is led by Prof. Heather MacLean and includes four other professors of civil engineering, Prof. Brenda McCabe, Prof. Daman Panesar, Prof. Daniel Posen and Prof. Shoshanna Saxe. The objective of the research is to drive rapid, large-scale reductions in the GHG intensity of the design and construction of infrastructure. A large team of academic researchers will be working in collaboration with industrial partners, led by a major construction services company, to address the complex challenge of changing how the built environment is designed and constructed. This research includes:

1. Analysis of detailed case studies of large-scale infrastructure projects.
2. Evaluation of construction management processes
3. Evaluation of construction materials
4. Translation of research findings into practice through appropriate decision support frameworks

We are seeking two postdoctoral fellows with a research and/or practice background working on the construction of large civil engineering structures to work as part of a team in developing this decision support tool and associated research activities. The candidates will be lead contributors to peer reviewed publications, technical reports, and conference proceedings; assist in the supervision of students; and participate in meetings with academic, industrial, and government partners.

Description of duties:

The candidates will be responsible for:

- Conducting an extensive literature review on the state of the art in infrastructure design and construction decision support for GHG reductions
- Designing and executing a data collection plan from both ongoing and historical projects - this will include residencies on construction sites
- Analyzing the qualitative and quantitative data collected to determine best practices for forecasting future GHG impacts at different stages of project design and construction
- Analyzing the qualitative and quantitative data collected to determine best practices for reducing future GHG emissions in infrastructure design and construction
- Assisting with the supervision of PhD and Master's candidates working with the InfraGHG program

Salary: \$57,000/ year

Please note that should the minimum rates stipulated in the collective agreement be higher than rates stated in this posting, the minimum rates stated in the collective agreement shall prevail.

Required qualifications:

- PhD degree in engineering, or related field awarded within the past 5 years;
- Experience with construction documents, software programs and construction sites;
- Familiarity with Revit, Autocad, Microstation and similar software
- Advanced statistics and probability
- Programming or Machine Learning skills are desirable
- Demonstrated awareness of sustainability and GHG emissions
- Experience managing large datasets containing confidential data;
- Excellent verbal and written communication skills in English;
- Demonstrated ability to work independently and as part of a team and a drive to create own novel research direction.

Application instructions

All individuals interested in this position must submit a single electronic file consisting of a cover letter, detailed CV, a one-page statement of research interests, and the names and addresses of three references to Prof. Shoshanna Saxe (s.saxe@utoronto.ca) by the closing date. Please use **Application for InfraGHG Construction Postdoctoral Position** as the email subject.

Closing date: October 20, 2017. The search will continue until the positions are filled.

Supervisors: Heather MacLean, Shoshanna Saxe and Brenda McCabe

Expected start date: Immediately

Term: 1 year with potential for renewal

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Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement.

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The normal hours of work are 40 hours per week for a full-time postdoctoral fellow (pro-rated for those holding a partial appointment) recognizing that the needs of the employee's research and training and the needs of the supervisor's research program may require flexibility in the performance of the employee's duties and hours of work.

The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.