Civil & Mineral Engineering
UNIVERSITY OF TORONTO

Posting Date: April 2024

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

JOB POSTING – Postdoctoral Fellow: Integration of Carbon Dioxide Utilization with Energy System Modelling

Areas of Research: Energy systems optimization, Carbon capture & utilization (CCU), carbon conversion technologies, life cycle assessment, techno-economic modeling, technology deployment, alternative fuels and chemicals

Location: University of Toronto or University of Calgary (as preferred by the candidate)

Overview of the positions:
Applications are invited for a postdoctoral fellow (PDF) position to integrate CCU technologies into a macro-scale energy system model, and to investigate how deployment of CCU technologies interacts with the broader energy system.

The successful applicant will work under the supervision of Profs. Daniel Posen (University of Toronto) and Sylvia Sleep (University of Calgary) as part of a larger collaborative project (ACCT) involving other experts in life cycle assessment and techno-economic assessment as well as government agencies to evaluate the possible future roles and risks of specific carbon conversion technologies (CCTs). Project partners include Profs. Joule Bergerson, Sean McCoy, Heather MacLean and Brad Saville, as well as government partners from Natural Resources Canada. This specific position will work both to a) generate stand-alone insights about the role of CCTs, their associated resource use and desirability under various future conditions, and b) to improve the representation of CCTs in the TEMOA-based Canadian Open Energy Model.

Description of duties:

- Proposing and conducting novel research related to the areas described above
- Developing new frameworks, techniques, and tools and disseminating results via publications and conference presentations.
- Supporting development of the Canadian Open Energy Model
- Supporting student supervision, including definition of research directions, review of abstracts and manuscripts, and assistance with analytical methods

Required qualifications:

- PhD degree in chemical engineering, civil engineering, mechanical engineering, environmental science, physics, economics or related field awarded within the past 5 years.
- Experience with life cycle assessment, techno-economic analysis, optimization, data analysis, energy systems modeling and/or integrated assessment modeling;
- Some programming experience (e.g., Python, MATLAB, R) is strongly recommended;
- Prior experience with carbon utilization technologies is a strong asset;
- Strong verbal and written communication skills in English, including ability to communicate with multidisciplinary audiences;
- Ability to build relationships and collaborate with others, both internally and externally

Salary: **$55,000-75,000 / year + benefits, depending on qualifications and experience**

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.

Supervisors: Daniel Posen and Sylvia Sleep

Expected start date: The position is available starting in Summer 2024, but start date is flexible.

Term: 1 year with potential for renewal

FTE: 1
Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement.

This job is posted in accordance with the CUPE 3902 Unit 5 Collective Agreement.

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.

See next page for application instructions.

Application instructions

Applicants should upload the information below using the following link, and notify Daniel Posen (daniel.posen@utoronto.ca) and Sylvia Sleep (sylvia.sleep@ucalgary.ca) once you have done so. Please use "PDF Application ACCT" as the subject of your email.

1. A single electronic file consisting of:
    a. A cover letter;
    b. Detailed CV;
    c. The names and contact information for three references.
2. Copies of up to 3 relevant publications

In your cover letter, please indicate how you heard about this position. The cover letter should then discuss reasons for your interest in the position and describe your past research experience or skills and their relevance to this opening. Optionally, you may also include a 1-2 page research proposal, however this is not required at the time of initial application.

Research group websites:

- https://sustainablesystems.civmin.utoronto.ca/prospective-students/
- https://profiles.ucalgary.ca/sylvia-sleep
- https://www.acctnetwork.ca/
- https://sustainablesystems.civmin.utoronto.ca/canadian-open-energy-canoe-model/

Closing date: June 14, 2024

Applications will be considered on a rolling basis. Interviews may commence prior to the closing date, and will likely continue into July. Preference will be granted to applications received prior to the closing date, however late applications can also be considered. The search will continue until the position is filled.

The University of Toronto is strongly committed to diversity and intentional inclusion within its community and encourages applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, and LGBTQ2S+ persons.