



**DALHOUSIE
UNIVERSITY**

WE'RE HIRING!

Postdoctoral Fellow: Computer Science

EMAIL YOUR RESUME, COVER LETTER, TWO
SAMPLE PUBLICATIONS, AND TWO
REFERENCES TO DALTRAC2@DAL.CA
BY FEBRUARY 15TH, 2024

**Climate Action and Awareness Fund (CAAF): Development of a Bottom-up, Activity-based
Transport Network and Emissions Modelling System
Postdoctoral Fellow: Computer Science**

Dalhousie University, located in Halifax, Nova Scotia, is one of Canada's top research-intensive universities, pioneering research in a wide array of disciplines. Dalhousie University houses the Dalhousie Transportation Collaboratory (DalTRAC), a CFI-sponsored multidisciplinary research facility dedicated to advancing transportation engineering and planning research.

DalTRAC is leading a multi-year project sponsored by Climate Action and Awareness Fund (CAAF) that advances a theoretical and empirical foundation for multi-scale integration of transport and emission models within urban systems modelling for multiple Canadian cities. The project will combine cross-cutting expertise from scholars and practitioners to advance data-driven, integrated urban systems modelling techniques for emissions estimation, a critical next step yet to be fully materialized to develop a standardized transport and emission modelling approach. The data, methods and tools developed in this project will provide a geo-temporally resolved understanding of emissions and inform policymaking to achieve Canada's goal of net-zero GHG emissions by 2050. More information on DalTRAC's research projects and publications can be found at: <https://www.dal.ca/sites/daltrac.html>

Overview of the Position:

DalTRAC is seeking candidates for a two-year Postdoctoral Fellowship appointment (with the potential to renew). The successful candidate will act as a technical project coordinator and contribute to primary research and mobilization activities for the CAAF project, under the supervision of Dr. Ahsan Habib. The PDF will have office space at the DalTRAC research facility on Sexton Campus, and the opportunity to mentor graduate students, present in conferences, and publish in reputed journals. Additionally, the PDF will be able to collaborate with participating scholars from our partner universities for the CAAF project, including the University of British Columbia, McMaster University, and the University of Toronto. Responsibilities of this position include (but are not limited to):

1. Developing software and computational architecture to advance the automation and computation of urban systems modelling,
2. Developing of a prototype integrated transport and emission model and replicate in multiple Canadian cities,
3. Advancing innovative agent-based modelling techniques, parallel computing, optimization, and coupling mechanisms for integrated models,
4. Organizing and classifying large amounts of data and develop data visualization tools,
5. Exploring newer methods, including machine learning and artificial intelligence for data processing and operational integrated urban systems modelling,
6. Conducting primary research and literature review in the realm of candidate's research area and regularly publish in reputed journals,
7. Leading projects and scientific activities as part of a research team comprising civil engineers, planners, programmers, and students/scholars/practitioners from other disciplines,
8. Assisting the scientific director in exploring newer research streams for Dalhousie Transportation Collaboratory.
9. Writing grant proposals, project management, and reporting to private and public organizations.

Required Qualifications:

Suitable candidates for the advertised position:

- PhD in computer science, industrial engineering, operations research, or transport engineering, or a related field.
- Experience of computational architecture and software development, object-oriented programming, microsimulation and modeling, operations research, computational intelligence, data science, and data analytics.
- Experience working in a fast-paced and multi-task environment, and ability to work independently.
- A proven record of publications/patents.
- Experience in mentoring graduate students.
- Fluent in English, both verbal and written.

We offer:

1. *Duration:* A two-year full-time appointment (renewable based on satisfactory performance)
2. *Expected start date:* September 2024 (negotiable)
3. *Salary:* CAD \$45,000-55,000, plus mandatory benefits (depending on experience)
4. A separate *travel grant* will be offered for conference presentations.

Application Instructions:

Thank you for your interest in joining the Dalhousie University community. Dalhousie University commits to achieving inclusive excellence through continually championing equity, diversity, inclusion, and accessibility. The university encourages applications from Indigenous persons (especially Mi'kmaq), persons with a disability, racialized persons, including persons of Black/African descent (especially African Nova Scotians), women, persons of a minority sexual orientation and/or gender identity, and all candidates who would contribute to the diversity of our community. For more information, please visit www.dal.ca/hiringfordiversity.

Please apply by sending your CV, cover letter, two sample publications, and the names of two referees. Send all documents to: **Sophie Marchant (daltrac2@dal.ca)**, Project Coordinator, Dalhousie Transportation Collaboratory (DalTRAC). The subject line of your email should be: **DalTRAC PDF Computer Science Firstname Lastname. Review of applications will start on February 15th, 2024 and will continue until the position is filled.** We thank all applicants for their interest; however, only shortlisted candidates will be contacted for interviews.