Graduate Student Positions in Industrial Engineering

Coastal Community Resilience to Shipping Disruptions

Many coastal communities are heavily dependent on maritime transportation for the ingress and egress of people and resources. Major disruptions to maritime transportation services can have significant impacts on the safety, health, and wellbeing of coastal populations, and have important economic implications. Effective planning of preparedness and response is essential for successful emergency management.

To facilitate planning of coastal community resilience to shipping disruptions, an integrated systems-level approach is needed. In particular, models for maritime transportation routes can provide insights in their suitability as critical nodes for ingress and egress of populations and resources, in case of a major disruption such as a catastrophic earthquake event. Closely linked to this is the modeling and evaluation of the capacity and function of marine port infrastructure and services under such a major disruption. Also the wider upstream and downstream impacts of shipping disruptions, and the evaluation of alternative transportation modes, need consideration.

The development of approaches applicable to the problem described above, their implementation to specific case studies, and the evaluation of their utility and relevance, are important for answering societal needs. This research will focus on the maritime transportation network along the British Columbia, Washington State and Alaska coastline, with specific focus on areas near Victoria and Vancouver. Selected smaller-scale case studies will also be considered for maritime and coastal areas in Nova Scotia. Throughout the research implementation, strong interaction with stakeholders is envisaged through analytic-deliberative processes.

POSITIONS AVAILABLE

Our Industrial Engineering Department has two open graduate positions with an interest in Coastal Community Resilience to Shipping Disruptions. Preference is initially given to Master of Applied Science students, but also doctoral students may be considered. The graduate students are expected to have an important role in the research implementation, which will primarily involve systems modeling, analysis, and evaluation. The students will join a dynamic, dedicated group working with Prof. Floris Goerlandt and Prof. Ronald Pelot at Dalhousie University, and collaborate also with Prof. Stephanie Chang from the University of British Columbia and Prof. David Bristow from the University of Victoria as necessary. The successful candidate will work closely with the project team to: (i) contribute to planning the research; (ii) collect, integrate and manage data for the model development; (iii) develop the integrated model for the selected geographical areas; and/or (iv) assess its relevance and utility.

The graduate students will be employed by Dalhousie University (www.dal.ca), and must be physically based in Halifax, Nova Scotia. Due to the significant focus on the Canadian West Coast in the case studies, short-term research visits to the University of British Columbia (www.ubc.ca) in Vancouver, British Columbia, may be considered. Field visits to stakeholders in British Columbia or Nova Scotia, depending on the focus of the case study, may be necessary for successful implementation of the work.

The graduate students will have the opportunity to develop their research skills in a leading maritime risk management research group, participate in research training within the group and through the MEOPAR Network, and extend his or her professional network through the MEOPAR Network and through field visits, and workshops with the project stakeholders.

FUNDING

The position is available from October 1, 2018, or as soon as possible thereafter, for a maximum duration of 24 months. Salary will be according to common salary ranges for engineering graduate students at Dalhousie University, commensurate with qualifications and experience. This position is co-funded by Emergency Management British Columbia (EMBC) and the Marine Environmental Observation Prediction and Response (MEOPAR) Network of Centres of Excellence (www.meopar.ca).

QUALIFICATIONS

Interested candidates should carefully check the admission requirements for the graduate program at the Faculty of Engineering: https://www.dal.ca/faculty/engineering/programs/graduate-studies.html

Furthermore, the ideal candidate will be someone who:

- Holds a bachelor or masters degree in a relevant field (e.g., industrial engineering, risk analysis and management, transportation engineering, or a closely related field);
- Has interest in quantified vulnerability and risk analysis, and/or transportation modeling;
- Has interest in conducting interdisciplinary, applied research, in the field of maritime transportation, coastal community resilience, and disaster mitigation;
- Has the interest and ability to learn new research methods as needed for attaining the objectives;
- Has experience in using relevant software, or the capability to learn these as necessary to perform the research tasks (e.g. simulation modeling, statistical analysis,…);
- Is comfortable conducting interviews and surveys for data collection;
- Is skilled in working with large datasets;
- Has interest in contributing to the scientific literature through peer-reviewed publications;
- Has strong time management and organizational skills;
- Works well both independently and as part of an interdisciplinary team.

APPLICATION

Interested applicants are encouraged to contact Prof. Floris Goerlandt (floris.goerlandt@dal.ca). Applications will be considered from September 1, 2018, until the positions are filled.