Canada Research Chair Tier 1 in Digital Twin Engineering for Ocean Industries

Position Details

Position Information

Position Title	Canada Research Chair Tier 1 in Digital Twin Engineering for Ocean Industries
Posting Number	F655P
Type of position	Tenure Stream
Department/Unit	Industrial Engineering
Location	Halifax, Nova Scotia, Canada
About the opportunity	The Department of Industrial Engineering within the Faculty of Engineering at Dalhousie University in Halifax, Nova Scotia, Canada, invites applications for a Tier 1 NSERC Canada Research Chair (CRC) in "Digital Twin Engineering for Ocean Industries". The Canada Research Chair Program was established by the Government of Canada with the purpose of attracting outstanding researchers to the Canadian university system. Tier 1 Chairs, tenable for seven years and renewable once, are for outstanding researchers acknowledged by their peers as world leaders in their fields. More information on the CRC Program and eligibility can be found at **www.chairs.gc.ca**.

About the Opportunity

Dalhousie University is a world leader in ocean research, complementing a thriving ocean industry sector and research facilities in the region, including **COVE**, the **PIER**, and **Ocean Supercluster**. In particular, the Ocean Frontier Institute (OFI), established in 2015 and headquartered at Dalhousie University, is a global leader for innovative ocean research. OFI was recently awarded a $155M+ award from the Canada Research Excellence Fund, for **Transforming Climate Action** (TCA), a major investigation into climate change and the ocean, with a focus on mitigation and adaptation solutions.

The Chair will perform cutting-edge research to develop advanced Decision Support Systems (DSS) to support sustainable human uses of ocean spaces. This will require new conceptual and technical research, advancing the state of the art in Digital Twin Engineering in Ocean Industries by applying industrial engineering methodologies including operations research, systems engineering and simulation to offshore technologies, including those which help mitigate climate change such as offshore wind farms. Applying and advancing AI techniques such as Deep Learning (ANN), Reinforcement Learning (RL), and Deep Reinforcement Learning (DRL) would be beneficial. Based on ocean sensor network inputs, the developed DSSs will support the monitoring, prediction, environmental impacts and technical engineering management of sectoral manufacturing and logistics activities in ocean industry design, planning, and operations in application areas such as offshore wind, aquaculture, tidal energy, and hydrogen production and distribution. The Chair is expected to provide a scientifically groundbreaking, practice-oriented, and fruitful research program, in collaboration with TCA projects, and related industry and government initiatives.

The Candidate

The successful candidate will bring a record of leadership in multidisciplinary and collaborative research achievements in Industrial Engineering, preferably with an ocean focus, or related skills in operations research, systems engineering, and/or simulation of industrial systems. The assessment of candidates will be based on research excellence as reflected in the quality and impact of outputs, previous success securing external research funding, demonstrated impact in knowledge mobilization, leadership within the international academic community, experience collaborating with industry, and other evidence of impact. The outputs considered include, but are not limited to, published journal articles, software, commercialization of results, societal outcomes, and policy changes resulting from research. In addition, the successful candidate must show evidence of successful teaching, including mentorship, and have the potential to attract, develop, and retain excellent trainees, students, and future engineers and researchers. The successful candidate will have an earned doctorate in Industrial Engineering or a closely related field (such as Systems Engineering or Operations Research). Candidates must be registered professional engineers in Canada or be eligible for and committed to professional registration in Nova Scotia. The Chair must be qualified to teach in areas such as operations research, AI applications using big data and/or data analytics, or system simulation.

About the Department of Industrial Engineering

Founded in 1969, the Industrial Engineering program at Dalhousie University is the second oldest in Canada. We have strong undergraduate and graduate programs, and the Department supports a rich research environment organized into three main clusters: **Maritime Risk and Safety**; **Sustainable Production, Analytics and Remanufacturing Exploration**; and **Health Care Operations Research**. Our research is interdisciplinary, and we are strongly linked with other faculties, universities, and industry.

Dalhousie is the leading graduate and research university in Atlantic Canada, with more than 20,000 students, including 3500 in graduate programs, from 115 countries. We are located in Kjipuktuk (Halifax), a friendly, energetic, ocean-side city. The city and surrounding areas host a wide range of cultural activities and opportunities. Excellent schools, sports facilities, and outdoor activities are also available locally.

Application Process

Application review will begin on October 21, 2024 and continue until the position is filled. It is anticipated that the position will begin on July 1, 2025. Please note that the offer of this tenured position is conditional on a successful Tier 1 Canada Research Chair in "Digital Twin Engineering for Ocean Industries" application.

 A complete application must include a cover letter, a curriculum vitae, a research statement, a teaching statement, the names and contact information for three referees, and three sample publications. All applications are to be made through the following link: **https://dal.peopleadmin.ca/postings/17349**. Enquiries can be addressed to **Kaitlyn.Farrell@Dal.ca**.

Canada Research Chair appointments are open to Canadian researchers as well as researchers from other countries, working in Canada or elsewhere. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Dalhousie University commits to achieving inclusive excellence through continually championing equity, diversity, inclusion, and accessibility. In keeping with the principles of employment equity and the CRC program's equity targets, this position is designated to candidates who self-identify in one or more of the following groups: racialized women, racialized gender minorities, Indigenous women, or Indigenous gender minorities. Dalhousie recognizes that candidates may self-identify in more than one equity-deserving group, and in this spirit, encourages applications from candidates who, in addition to belonging to one or more of the groups mentioned above, also identify as persons with a disability, Mi'kmaq, persons of Black/African descent (especially African Nova Scotians), persons identifying as members of 2SLGBTQIA+ communities, and all candidates who would contribute to the diversity of our community. The application process has clear processes and instructions to allow applicants to self-identify in one or more groups to demonstrate eligibility for this position. (See **www.dal.ca/becounted/selfid** for definitions of the equity-deserving groups.)

Dalhousie recognizes that career paths can be diverse and that career interruptions may occur. Applicants are encouraged to include, in their cover letter, an explanation of the impact that any career interruptions may have had on their record of research achievement.

If you require any support for the purpose of accommodation, such as technical aids or alternative arrangements, please contact ken.rice@dal.ca to let us know of these needs and how we can be of assistance. Dalhousie University is committed to ensuring all candidates have full, fair, and equitable participation in the hiring process. Our complete Accommodation Policy can be viewed **here**.

Posting Detail Information

Open Date

Close Date   10/20/2024

Open Until Filled   Yes

Quick Link for Direct Access to Posting   https://dal.peopleadmin.ca/postings/17349

Documents Needed to Apply

Required Documents

1. Résumé / Curriculum Vitae (CV)
2. Cover Letter
3. Teaching Statement
4. Research Statement
5. Sample Publication(s)
6. List of referees

Optional Documents