

DOCTORAL FELLOWSHIP OPPORTUNITY – January 2022

POSTING DATE: June 14, 2021
CLOSING DATE: OPEN UNTIL FILLED

PhD Fellowship Faculty of Computer Science

POSITION SUMMARY:

Applications are invited for an Ocean Graduate Excellence Network (OGEN) Doctoral Fellowship within the Faculty of Computer Science at Dalhousie University in the research area of deep learning for fish detection and classification, under the appointment of Professor Chris Whidden. While all applicants with a background in machine learning or deep learning will be considered, candidates with prior experience in underwater video or acoustic analysis will be given special attention.

The objective of this project is to develop new machine learning models, analysis software, and best practices to detect and classify fish by species using a combination of video and acoustic data, collected as part of collaborative research to measure effects of seismic exploration on commercial fishing. The science tools to conduct this research combines video data (from 100 cameras), acoustic telemetry tracking, and acoustic sonar (ship-board and bottom mounted transducers), as part of before/after/controlled/impact experiments in the Newfoundland offshore.

This project will be completed in partnership with the Department of Fisheries and Oceans (DFO), National Research Council Canada (NRC), and academic and commercial partners. As collaborator on this multi-year project, the candidate will work in close relationship with the NRC to support DFO processing video data and develop the necessary tools required to analyse those large and novel datasets. This work is important to support ocean industries while ensuring ocean health, resource sustainability, and economic prosperity

The anticipated starting date is January 1, 2022, with the possibility of an earlier start date. Funding is available for 4.5 years. While the student will ultimately be expected to move to Halifax, Nova Scotia, there is the possibility that the current global public health crisis makes moving to Canada effectively impossible until after the start of the fellowship so the fellowship can begin remotely.

Review of applications will begin immediately and will continue until the position is filled. Applicants must submit the following material via email: 1) cover letter; 2) curriculum vitae, 3) a short research statement detailing the applicant's scientific interests, accomplishments and future research strategies, and 4) list of references.

Dalhousie University is a member of the U15 group, Canada's leading research-oriented universities. Dalhousie is located in Halifax, Nova Scotia, a city known for its excellent quality of life, being the most vibrant and populated in the Canadian Maritimes, as well as a major economic center in the Atlantic Canada.

OGEN is a Program of the Ocean Frontier Institute. The [Ocean Frontier Institute](#) (OFI) is a transnational hub for marine research, exploring the ecosystems of the North Atlantic and Canadian Arctic Gateway to discover innovative solutions that strengthen the economy and protect the environment. Through education, training, and communication — and by sharing talent, resources, and information — OFI generates ocean knowledge and opportunity.

Dalhousie University is committed to fostering a collegial culture grounded in diversity and inclusiveness. The university encourages applications from Aboriginal people, persons with a disability, racially visible persons, women, persons of minority sexual orientations and gender identities, and all candidates who would contribute to the diversity of our community. For more information, please visit www.dal.ca/respect

DeepSense unites the next generation of AI and machine learning experts with companies that want to harness the potential of data and lead the smarter ocean economy. The fellow will have the opportunity to engage with DeepSense training opportunities, computing facilities and interact with fellows students and researchers.

What we offer

- Funding to pursue research ideas and a possibility to conduct research in a new research group at a leading university that creates knowledge and expertise for a sustainable future. The funding includes salary, tuition, and an equipment and travel fund for 4.5 years.
- A network of colleagues and peers with high ambitions in an open, curious, and dynamic environment.
- OGEN Fellowship Students enrich their academic experience with individualized training programs improving job-readiness (e.g., entrepreneurship, international networking, internships, summer schools).
- An international workplace and environment.

Requirements and Qualifications:

The PhD student must meet the standard Dalhousie University Faculty of Computer Science admission requirements including:

- A strong Grade Point Average (GPA) in a master's degree in Computer Science or a related technical discipline
- Evidence of research experience, such as publications and thesis summaries
- A PhD, Post Bachelor is reserved for outstanding graduates of a four-year program with demonstrated research experience and/or excellent research potential

In addition, the ideal student will have:

- Evidence of machine learning skills and experience, such as publications, course projects, or internships
- Experience with the Python programming language and a machine learning framework such as Tensorflow or Pytorch
- Basic knowledge of data science skills including reading data, cleaning data, data analysis, and graphing the results of data analysis
- Excellent writing and presentation skills
- Knowledge or experience with classifying fish, acoustic analysis, or other related experience is ideal but not required

Salary Range: \$33,334 CAD per year + tuition + \$3000 equipment and research travel fund

Start Date: The anticipated start date is Jan 1, 2022 but this is flexible and can be earlier

Duration of funding: 4.5 years

Deadline for application: Review of applications will begin immediately and continue until the position is filled

Interested parties should forward a cover letter, current CV, research statement, sample publications (or links to sample publications) and contact information of 2-3 references to:

Dr. Chris Whidden
cwhidden@dal.ca

Please use the subject line "OGEN PHD FELLOWSHIP APPLICATION".

We thank all applicants, however, only candidates selected for an interview will be contacted.