Data-driven Modeling and Learning for Onboard Supporting of Maritime Operations

Type of scholarship: degree seeking PhD

Period of the scholarship: August 2022 – August 2025 (36 months)

Short description of the scholarship:

The industrial internet of things (IoT) is of high importance for maritime operations. Taking into account the historical sensor data collected in the past operations, how to mine massive data, analyze operation modes, and identify operation patterns has attracted more and more attention from academia and industry. To date, there have been various maritime applications fall into this category, such as ship motion prediction, sea state estimation, ship components diagnoses and prognosis, and ship route optimization. Mining data and modeling the knowledge extracted from data will be fundamental to achieving onboard support of maritime operation.

This project aims to develop methodology towards data-driven modeling for onboard support of maritime operations. NTNU Aalesund has built an IoT solution for sensor data transmission and storage from the Gunnerus research vessel to a remote control center. This PhD will use related facilities and focus on data-driven methods for developing tools to support marine operations.

Qualification and requirement:

- A master’s degree in automation, computer science or maritime related engineering related with good grades, with an average grade B or better in NTNU’s grading scale, or an education at the equivalent level.
- The candidate should have knowledge on data analysis, such as PCA, sensitivity analysis and uncertainty analysis; and good knowledge on machine learning, like SVM and neural network.
- The candidate should have programming skills, especially having experience in use of various open source tools for machine learning, e.g., PyTorch and TensorFlow.

In addition, for all applicants the following applies:

- Fluent English language, both written and spoken with certificates of TOEFL minimum 95 or IELTS minimum 6.5
- Chinese citizenship documents (copy of his/her passport or national ID of P.R. China
- CV
- A motivation letter
Deadline for submission of application: 15th Feb 2022

Scholarship: 17000 NOK/month for a period of up to 36-48 months (degree seeking PhD)

According to the NTNU-CSC agreement
CSC will provide a living stipend, currently 12,500 NOK per month for a period of up to forty-eight (48) months, and a round-trip international airfare between China and Norway. NTNU will provide a monthly additional funding for a period of up to forty-eight (48) months, which combined with the CSC living stipend ensures the sufficient income (currently minimum 17,000 NOK per month) required by NTNU. No tuition fees will be charged for PhD candidates at NTNU.

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