Ship behavior analysis and modeling for on-board support of marine operations

**Type of scholarship:** degree seeking PhD

**Period of the scholarship:** August 2020 – August 2023, NTNU Ålesund

**Short description of the scholarship:**
The recent years have seen an increasing interest in developing and employing digital twins, big data and cloud computing for ships in marine operations. There are various sensors installed on a ship, some of which are used in real time for maneuvering and related actions, and some of which are placed in sensitive areas like propeller blade to collect the data for future purpose such as system diagnosis. This project will take advantages of historical/ real-time sensor data from ships and focus on analyzing ship behavior and generating corresponding models for on-board support of marine operations. How to effectively dig into the data set using data analytics and machine learning for providing on-board supporting will be the main concern of this PhD position.

NTNU Aalesund has built a research level of simulation center to test technology, methodology and procedure for on-board support of autonomous ships at Norwegian Maritime Centre (NMK), Ålesund, Norway. This PhD will use related facilities in the simulation center, and focus on data processing and analysis of on-board sensor data, as well as design and development of on-board support system for the autonomous ship.

**Qualification and requirement:**
- A master’s degree in automation, or computer science 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 experience on machine learning, like SVM, decision tree and neural network.

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:** 14th February 2020
**Scholarship:** 17000 NOK/month for a period of up to 36 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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