



Jobbnorge ID: 231422
Deadline: 10/16/2022
Website: <https://uit.no/startside>
Scope: Fulltime
Duration: Fixed Term

Faculty of Science and Technology

PhD Fellow in “Leveraging Machine Learning and Historical AIS Data to Support Marine Icing Risk-Informed Decisions in the Arctic Waters”

The position

The [Department of Technology and Safety](#) (ITS) at UiT the Arctic University of Norway has a three-year PhD position in “Leveraging Machine Learning and Historical AIS Data to Support Marine Icing Risk-Informed Decisions in the Arctic Waters” vacant for applicants who wish to obtain the degree of Philosophiae Doctor (PhD). The position is affiliated with the “Risk, Crisis, and Societal Security” research group. The PhD Candidate will also have close collaboration with the Laboratory of Signal and Risk Analysis (LASAR) at the Department of Energy at the Politecnico di Milano, Italy.

The workplace is at UiT in [Tromsø](#), Norway. The Department is organised under the Faculty of Science and Technology and is located at two campuses: Tromsø and Harstad. The department has approximately 90 employees and approximately 500 students. It offers undergraduate, master's, and PhD degree programmes as well as research in the areas of nautical science, aviation, societal safety, environment, and international preparedness.

The position is for a period of three years. The objective of the position is to complete research training to the level of a doctoral degree. Admission to the PhD programme is a prerequisite for employment, and the programme period starts on commencement of the position.

You must be able to start in the position within a reasonable time after receiving the offer. Information about the application process for admission to the PhD programme, application form and regulations for the degree of Philosophiae Doctor (PhD) are available [here](#).

The project

The PhD position is a part of a research project called “Leveraging AIS Data and Field Knowledge for Making Spray Icing Risk-Informed Decisions ([SPRISK](#))” funded through the Arktis2030 scheme.

A major safety-related issue for the maritime activities and shipping in the Arctic waters is the accumulation of sea spray ice (also known as marine icing) on vessels, that eventually threatens the safety of the crew as well as the vessel instability. Available standards and codes are mainly technical instruments, and do not adequately address making decisions with regards to the risks of navigating in Arctic harsh weather conditions from the perspective icing events.

The main goal of this PhD project is to use machine learning (ML) tools in order to leverage historical AIS data to develop a risk-informed decision-making framework. The framework also incorporates meteorological and oceanographic parameters, spray icing estimations, Arctic offshore harsh weather conditions, and field knowledge.

To this aim, this project:

- explores computational intelligence methods and develops AI-based models for studying and predicting vessel behaviour using AIS data and then detect vessel behaviour anomalies with respect to meteorological and oceanographic conditions.
- integrates the identified vessel behaviours at corresponding time junctures with the rate and severity of icing events estimated by utilising existing spray icing models (e.g., MINCOG developed jointly by the Norwegian Meteorological Institute and UiT), and existing operational knowledge in order to propose decision sequences given various icing event scenarios.
- finally proposes a decision-making framework informed by the risks of harsh weather conditions and icing events for navigating in Arctic waters.

Contact

Further information about the position is available by contacting

- Associate Professor Masoud Naseri, +47 77660327, email: masoud.naseri@uit.no, or
- Associate Professor Bjørn-Morten Batalden, +47 77660329, email: bjorn.batalden@uit.no

Qualifications

This position requires a Master of Science in Engineering, mathematics, statistics, nautical science, or a master's degree with relevant knowledge and education in the area of, maritime operations, risk and safety analysis. The Master's degree should be recognised as equivalent to a 2-year Norwegian Master's degree.

It is highly desirable if the candidate has good knowledge and experience within following fields:

- Machine learning and data science
- Probabilistic risk analysis
- Computer Programming (preferably MATLAB/Python/C++/Fortran)
- Decision-making

Applicants must document fluency in English and be able to work in an international environment.

Qualification with a master's degree is required before commencement in the position. If you are near completion of your master's degree, you may still apply and submit a draft version of the thesis and a statement from your supervisor or institution indicating when the degree will be obtained. You must document completion of your degree before commencement in the position. You must still submit your transcripts for the master's degree with your application.

In the assessment, the emphasis is on the applicant's potential to complete a research education based on the master's thesis or equivalent, and any other scientific work. In addition, other experience of significance for the completion of the doctoral programme may be given consideration. We will also emphasize motivation and personal suitability for the position. We are looking for candidates who:

- Have good collaboration skills
- Have good communication and interaction with colleagues and students
- Wants to contribute to a good working environment

As many as possible should have the opportunity to undertake organized research training. If you already hold a PhD or have equivalent competence, we will not appoint you to this position.

Admission to the PhD programme

For employment in the PhD position, you must be qualified for admission to the PhD programme at the [Faculty of Science and Technology](#) and participate in organized doctoral studies within the employment period.

Admission normally requires:

- A bachelor's degree of 180 ECTS and a master's degree of 120 ECTS, or an integrated master's degree of 300 ECTS.
- A master's thesis with a scope corresponding to at least 30 ECTS for a master's degree of 120 ECTS.
- A master's thesis with a scope corresponding to at least 20 ECTS for an integrated master's degree of 300 ECTS.

In order to gain admission to the programme, the applicant must have a grade point average of C or better for the master's degree and for relevant subjects of the bachelor's degree. A more detailed description of admission requirements can be found [here](#).

Applicants with a foreign education will be subjected to an evaluation of whether the educational background is equal to Norwegian higher education, following national guidelines from [NOKUT](#).

If you are employed in the position, you will be provisionally admitted to the PhD programme. Application for final admission must be submitted no later than two months after taking up the position.

Inclusion and diversity

UiT The Arctic University of Norway is working actively to promote equality, gender balance and diversity among employees and students, and to create an inclusive and safe working environment. We believe that inclusion and diversity are a strength and we want employees with different competencies, professional experience, life experience and perspectives.

If you have a disability, a gap in your CV or immigrant background, we encourage you to tick the box for this in your application. If there are qualified applicants, we invite at least one in each group for an interview. If you get the job, we will adapt the working conditions if you need it. Apart from selecting the right candidates, we will only use the information for anonymous statistics.

We offer

- Involvement in an interesting research project
- Good career opportunities
- A good academic environment with dedicated colleagues
- Flexible working hours and a state collective pay agreement
- Pension scheme through the state pension fund
- More practical information for working and living in Norway can be found here: <https://uit.no/staffmobility>

Application

Your application must include:

- Cover letter, explaining your motivation and research interests

- CV (containing a complete overview of education, supervised professional training and professional work)
- Diploma for bachelor's and master's degree
- Transcript of grades/academic record for bachelor's and master's degree
- Explanation of the grading system for foreign education (Diploma Supplement if available)
- Documentation of [English proficiency](#)
- List of 2-3 references (name, relationship with the candidate, email address, and telephone number)
- Master's thesis or any other (published or unpublished) academic works or articles

Qualification with a master's degree is required before commencement in the position. If you are near completion of your master's degree, you may still apply and submit a draft version of the thesis and a statement from your supervisor or institution indicating when the degree will be obtained. You must still submit your transcripts for the master's degree with your application.

All documentation to be considered must be in a Scandinavian language or English. Diplomas and transcripts must also be submitted in the original language, if not in English or Scandinavian. We only accept applications and documentation sent via Jobbnorge within the application deadline.

General information

The appointment is made in accordance with State regulations and guidelines at UiT. At our website, you will find more [information for applicants](#).

A shorter period of appointment may be decided when the PhD Fellow has already completed parts of their research training programme or when the appointment is based on a previous qualifying position PhD Fellow, research assistant, or the like in such a way that the total time used for research training amounts to three years.

Remuneration for the position of PhD Fellow is in accordance with the State salary scale code 1017. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted.

We process personal data given in an application or CV in accordance with the Personal Data Act (Offentleglova). According to the Personal Data Act information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure. You will receive advance notification in the event of such publication, if you have requested non-disclosure.

UiT - Developing the High North

UiT is a multi-campus research university in Norway and the northernmost university of the world. Our central location in the High North, our broad and diverse research and study portfolio, and our interdisciplinary qualities make us uniquely suited to meet the challenges of the future. At UiT you can explore global issues from a close-up perspective.

Credibility, academic freedom, closeness, creativity and commitment shall be hallmarks of the relationship between our employees, between our employees and our students and between UiT and our partners.

The Department of Technology and Safety (ITS) at UiT the Arctic University of Norway is an interesting and exciting workplace with a focus on a good working environment for employees and a good learning environment for students. The department has an important role as a knowledge provider for the labor market in the region, through education, research and continuing education. Our students appreciate that the department works closely with the industry during the study program.

Additional information

Place of service:

UiT in Tromsø 9019 Tromsø (Tromsø - Romsa Municipality)