2 PhD positions on Spatio-Temporal Statistics for Marine Robotics and Ocean Observations

About the positions

The PhD fellowships have workplace at the Department of Mathematical Sciences, Trondheim. The positions are part of the project "Maritime Autonomous Sampling and Control" (MASCOT), funded by the Research Council of Norway (RCN). Successful candidates will be offered a three-year position. The Department of Mathematical Sciences, NTNU, may offer a twelve-month extension as a teaching assistant.

Main duties and responsibilities

The primary aim of the MASCOT project is to expand current knowledge on sampling for the global ocean in a multi-disciplinary manner through the enabling sciences of mathematics, statistics and autonomous systems. The ocean holds extremely important resources for the Norwegian society, and new knowledge to sustain this environment while being innovative in developing new domains of the changing economy is of the utmost importance.

In addition to the Department of Mathematical Sciences, NTNU, project partners in MASCOT include the Department of Engineering Cybernetics, NTNU, Sintef Ocean and the Underwater Systems and Technology Lab at Porto University. There will be inter-disciplinary collaboration among partners.

The PhD candidates in the MASCOT project will use satellite and physics-based data to develop realistic spatio-temporal statistical models and methods for environmental sampling with autonomous robotic platforms. The developed methods will take advantage of recent advances in computational and spatial statistics and be coupled with new ideas for robotics and AI-based control systems. This research aims to advance embedded decision-making using scalable methods that run onboard autonomous robotic vehicles for oceanographic sampling. In particular, the aim is to increase our knowledge of dynamic environments like the upper water-column, by the design of observational strategies in spatio-temporal domains that enable autonomous platforms to decide where and when to make measurements. While the project's main focus is methodological advancements and development of computationally feasible algorithms that exploit these advances, a secondary goal is to impact the science of oceanography. This secondary goal will be achieved by leveraging complex oceanographic models on shore to validate statistical models and strategies for sampling, and then embed these onboard autonomous marine vehicles.

Qualification requirements

We are looking for highly motivated candidates with strong backgrounds in quantitative modeling and methodologies that have interests in multidisciplinary-driven scientific work.

Suitable candidates for the PhD positions should have a Master's degree in Mathematical Sciences, Statistics, Artificial Intelligence, Control Systems, or equivalent. The candidates should have a solid background in mathematics, computing and multivariate statistics. Experience with data assimilation, spatial statistics, embedded systems or other large-scale uncertain systems is an advantage.

The applicant must satisfy the requirement for entering the PhD program at NTNU (see http://www.ntnu.edu/ie/research/phd). The admission to a PhD program requires an average grade of A or B within a scale of A-E for passing grades (A best) for the last two years of the Master degree, and C or higher for the Bachelor degree.

Students who expect to complete their Master degree studies by summer 2020 are encouraged to apply. Employment will then start when the Master degree is finished.

It is possible to apply for an integrated PhD position for students at the Faculty of Information Technology and Electrical Engineering, NTNU. Students can then start on their thesis work before delivering the MSc degree (https://www.ntnu.no/ie/forskning/integrertphd).

The applicants who do not master a Scandinavian language must document a thorough knowledge of English (equivalent to a TOEFL score of 600 or more).

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and national guidelines for appointment as PhD, post doctor and research assistant.

NTNU is committed to following evaluation criteria for research quality according to The San Francisco Declaration on Research Assessment - DORA.

Personal characteristics

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, in terms of the qualification requirements specified in the advertisement.

We offer
Salary and conditions

PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 479,600 per annum before tax. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years with no teaching, but the Department may offer a 4th year with teaching and other duties for approximately 25% of the entire 4-year period.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months, please see http://www.ntnu.edu/ie/research/phd for information about the PhD programme at NTNU.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criterias in the latter law will be prohibited from recruitment to NTNU. After the appointment you must assume that there may be changes in the area of work.

General information

Working at NTNU

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (Offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

The national labour force must reflect the composition of the population to the greatest possible extent, NTNU wants to increase the proportion of women in its scientific posts. Women are encouraged to apply. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life (http://trondheim.com/). Having a population of 200 000, Trondheim is a small city by international standards with low crime rates and little pollution. It also has easy access to a beautiful countryside with mountains and a dramatic coastline.

Questions about the position can be directed to Jo Eidsvik (jo.eidsvik@ntnu.no) or Geir-Arne Fuglstad (geir-arne.fuglstad@ntnu.no).

About the application:

The application must include the following:

- CV which includes information about education background and work experience.
- Certified copies of relevant transcripts and diplomas. Candidates from universities outside Norway are kindly requested to send a Diploma Supplement or similar documentation, which describes in detail the program of study, the grading system, and the rights to further studies associated with the degree obtained.
- Contact information for two references.
- Documentation of fluency in the English language.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applications submitted elsewhere will not be considered. Diploma Supplement is required to attach for European Master Diplomas outside Norway. Chinese applicants are required to provide confirmation of Master Diploma from China Credentials Verification (CHSI): http://www.chsi.com.cn/en/.

Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number 2020/5637 when applying.

Application deadline: 17.03.2020.

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Mathematical Sciences

We are Norway’s largest university environment in mathematical sciences. The Department has a particular responsibility for all basis education in mathematical sciences for engineering and natural science students at NTNU. We focus on long-term basic research and applied research at a high international level.

Our aim is to meet the society's needs for mathematical and statistical expertise in business and public administration as well as in the research and education sector. The Department of Mathematical Sciences is one of seven departments in the Faculty of Information Technology and Electrical Engineering.

Jobbnorge-ID: 182977, Søknadsfrist: 17. mars 2020