

**Jobbnorge ID:** 232688  
**Deadline:** 10/15/2022  
**Website:** <http://www.ntnu.no>  
**Scope:** Fulltime  
**Duration:** Temporary

The Department of Marine Technology has a vacancy for a

## PhD Candidate in Cooperation with SINTEF Ocean, Kongsberg Maritime, Aker Biomarine and Institute of Marine Research

### This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 42,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process [here](#).

Video: <https://youtu.be/Xt-yHCN5QS0>

### About the position

We have a vacancy for a PhD candidate at the [SFI HARVEST](#), [Department of Marine Technology, NTNU](#). The position is for three years. One additional year of teaching assistant duties may be agreed upon, and belongs to

#### [SFI HARVEST](#)

SFI Harvest is a research-based innovation centre for developing new technology aimed at solving the global challenges of securing enough food for a growing population, in a sustainable way. Targeted research and innovation challenges are:

Continuous, unattended sampling of the concentrations of zooplankton, mesopelagic fish species and marine plastic litter/microplastic.

Surveying and monitoring biomass and plastic concentrations using data-driven data collection strategies.

Currently, autonomous vehicles such as autonomous underwater vehicles (AUVs), gliders and autonomous surface vehicles (ASVs) are being used for environmental assessment, geophysical surveys, and ecosystem assessment, but they are rarely used in marine resource research and hardly at all by fisheries. Autonomous surveys are usually pre-programmed and monitored by an expert user. A targeted research challenge for the vacant position is operation of ASVs in harsh environments with extreme waves, wind, and possible ice floes. We will in this project study improved autonomy in terms of sensing performance, endurance, and resilience by strengthening situational awareness and adaptive sampling strategies integrated into autonomous guidance, navigation, and control systems for ASVs.

The PhD will be conducted in collaboration with [SINTEF Ocean](#), [Kongsberg Maritime](#), [Aker BioMarine](#) and [Institute of Marine Research](#).

For a position as a PhD Candidate, the goal is a completed doctoral education up to an obtained doctoral degree.

The position will report to Supervising Professor Asgeir J. Sørensen.

### Duties of the position

- The main mission considered for the ASV is ocean mapping using various payload sensors. The prime sensor is acoustics for classification and characterization of pelagic biomasses. Adaptive sampling relies on onboard analysis for planning and replanning of the route for the ASV. In conjunction with physical oceanography and ecosystem models hybrid data and model driven machine learning models will be studied.
- For the ASV being able to cope with large variations in operational and environmental conditions we consider supervisory-switched control methods inspired by hybrid control. A supervisory will take input from the data-model driven models when conducting switching between various control modes.
- The PhD position is for candidates that enjoy working in an interdisciplinary setting combining control theory, AI, and marine science applied on marine robotics.

### Required selection criteria

- You must have a professionally relevant background in Marine Cybernetics, Underwater technology, Control Engineering/Robotics, Applied Mathematics, Physics, Marine Biology, or Computer Science
- Your education must correspond to a five-year Norwegian degree program, where 120 credits are obtained at master's level
- You must have a strong academic background from your previous studies and an average grade from the master's degree program, or equivalent education, which is equal to B or better compared with NTNU's grading scale. If you do not have letter grades from previous studies, you must have an equally good academic basis. If you have a weaker grade background, you may be assessed if you can document that you are particularly suitable for a PhD education
- Master students in their final year are also invited to apply. Employment will then be postponed until the master's degree is finished
- You must meet the requirements for admission to the faculty's doctoral program (<https://www.ntnu.edu/studies/phiv>)
- Our research has civilian objectives. However, equipment restricted by export licenses and ITAR (International Traffic in Arms Regulations) is being used in the research project. Applicants that are citizens of Norway, Australia, Japan, New Zealand, Switzerland, EU or NATO countries are eligible. Other applicants are required to provide evidence of eligibility to use such equipment for their application to be considered/in their application
- Applicants who do not master a Scandinavian language and do not have English as mother tongue, 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 [Regulations concerning the degrees of Philosophiae Doctor \(PhD\) and Philosodophiae Doctor \(PhD\) in artistic research national guidelines for appointment as PhD, post doctor and research assistant](#)

## Personal characteristics

- Intrinsic curiosity and open-minded attitude to work in an interdisciplinary research environment
- Independent working style
- Very good communication and collaborating skills

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

## We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and [inclusive work environment](#) with dedicated colleagues
- favourable terms in the [Norwegian Public Service Pension Fund](#)
- [employee benefits](#)

## Salary and conditions

As a PhD candidate (code 1017) you are normally paid from gross NOK 501 200 per annum before tax, depending on qualifications and seniority. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years (with possible additional teaching duties of one year to be agreed upon).

Appointment to a PhD position requires that you are admitted to the PhD programme in Engineering (<https://www.ntnu.edu/studies/phiv>) within three months of employment, and that you participate in an organized PhD programme during the employment period.

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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 criteria 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.

It is a prerequisite you can be present at and accessible to the institution daily.

## About the application

The application and supporting documentation to be used as the basis for the assessment must be in English.

Publications and other scientific work must follow the application. Please note that your application will be considered based solely on information submitted by the application deadline. You must therefore ensure that your application clearly demonstrates how your skills and experience fulfil the criteria specified above.

The application must include:

- A motivation letter (0.5-2 pages), indicating how the applicant envisages her/his contribution within the project.
- CV which includes information about education background and work experience.
- Certified copies of transcripts from Bachelor & Master degrees. Candidates from universities outside Norway are expected to send a Diploma Supplement or similar documentation, which describes in detail the program of study, the grading system and the rights for further studies associated with the obtained degree.
- Contact information for two references (including email addresses and telephone number)
- English language proficiency documentation (e.g. TOEFL, IELTS, etc.). This requirement is waived for applicants whose mother tongue is English, as well as for applicants from Scandinavian countries.

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both bachelor's and master's education, in addition to other higher education. Description of the documentation required can be found [here](#). If you already have a statement from NOKUT, please attach this as well.

We will take joint work into account. If it is difficult to identify your efforts in the joint work, you must enclose a short description of your participation.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

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

## 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.

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**The city of Trondheim** is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

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As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you want to reserve yourself from entry on the public applicant list, this must be justified. Assessment will be made in accordance with [current legislation](#). You will be notified if the reservation is not accepted.

If you have any questions about the position, please contact Professor Asgeir J. Sørensen, email [asgeir.sorensen@ntnu.no](mailto:asgeir.sorensen@ntnu.no). If you have any questions about the recruitment process, please contact Marit Gjersvold, e-mail: [marit.gjersvold@ntnu.no](mailto:marit.gjersvold@ntnu.no)

Please submit your application electronically via [jobb norge.no](http://jobb norge.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.

If you are invited for an interview you must include certified copies of transcripts and reference letters. Please refer to the application number **IV-176/22** when applying.

**Application deadline: 15.10.2022**

## NTNU - knowledge for a better world

### NTNU - knowledge for a better world

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

### Department of Marine Technology

We develop methods and technology related to the blue economy: oil and gas extraction at sea, ship technology and the equipment industry, fisheries and aquaculture. We also have a strong commitment to the development of sustainable solutions for offshore renewable energy, coastal infrastructure, and marine robotics. Marine technology helps to solve major global challenges related to the environment, climate, energy, food and efficient transport. [The Department of Marine Technology](#) is one of eight departments in [the Faculty of Engineering](#).

## Additional information

### Place of service:

Department of Marine Technology 7050 Trondheim (Trondheim Municipality)