Jobbnorge ID: 218986
Deadline: 2/11/2022
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Marine Technology have a vacancy for a

PhD Candidate within robotics underwater and in outer space

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

The Department of Marine Technology has a vacancy for a position as PhD Candidate within “Robotics underneath sub-zero waters and outer space”. The position is financed by the research program SubZeroSpace.

The objective of SubZeroSpace is to progress the state of the art within robotics, autonomous underwater vehicles (AUV) and model-based artificial intelligence based on hydroacoustic datasets for both terrestrial and extra-terrestrial operations by studying core artificial intelligence methodologies applicable for both AUVs on earth and acoustic sensors in space.

The project will seek synergies between robotics and communication research required to explore both the earth and ocean worlds in space to develop technology to explore the oceans of our solar system. The project will contribute multifaceted research benefiting the robotics-, artificial intelligence- and autonomy communities. The primary challenges will be autonomous guidance and control both under water and through ice. The project will create a system for the autonomous robot(s) to detect targets for navigation and control. Sensor fusion modelling for deciding sensors priority will be addressed. The project consists of a consortium bringing together space agencies, industry, research institution and academia to provide to solutions for exploration of ocean worlds.

The primary theme of this PhD position will be robot localization, 3D structure mapping and autonomous navigation. Based on sonar system, algorithms for efficient navigation and mapping will be developed both for absolute and relative navigation solutions. The project also includes development of procedures for in mission planning and obstacle avoidance to enhance autonomous operations. This will include control, localization, planning global trajectories, and implementing t sequencing of tasks and required autonomous behaviors.

The position reports to the Head of Department.

Duties of the position

The research study for the available PhD position is within the following topics:

- Underwater robot localization and navigation
- 3D structure mapping
- Autonomous missions for AUVs

Required selection criteria

- You must have a professionally relevant background in Marine Cybernetics (with a Marine Technology basis), or in Engineering Cybernetics or Control Engineering
- Your education must correspond to a five-year Norwegian degree programme, 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.
- You must meet the requirements for admission to the faculty's doctoral program (Doctoral Programme - PhD - Faculty of Engineering Science - NTNU)

- Good written and oral English language skills is required

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and 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

Preferred selection criteria

- Relevance of MSc topic
- Other relevant experience
- Good written and oral Norwegian language skills

Master students graduating summer 2022 can apply.

Personal characteristics

- Strong analytical skills
- Flexible and dependable
- Collaborative
- Innovative and open minded

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 491 200 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.

Appointment to a PhD position requires that you are admitted to the PhD programme in Engineering within three months of employment, and that you participate in an organized PhD programme during the employment period.

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.

The position is subject to external funding.

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

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 applications are only evaluated based on the information available on the application deadline. You should ensure that your application shows clearly how your skills and experience meet the criteria which are set out above.

The application must include:

- CV, certificates and diplomas
- transcripts and diplomas for bachelor's and master's degrees. If you have not completed the master's degree, you must submit a confirmation that the master's thesis has been submitted.
- A copy of the master's thesis. If you recently have submitted your master's thesis, you can attach a draft of the thesis. Documentation of a completed master's degree must be presented before taking up the position.
- Project proposal
- Research plan
- Name and address of minimum two references
- If you have publications or other relevant research work

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.

Joint works will be considered. If it is difficult to identify your contribution to joint works, you must attach a brief 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.

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.

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.

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.

In accordance with The Public Information Act (Offentleglova), your name, age, position and municipality may be made public even if you have requested not to have your name entered on the list of applicants.

If you have any questions about the position, please contact Martin Ludvigsen, email martin.ludvigsen@ntnu.no. If you have any questions about the recruitment process, please contact Marit Gjersvold, e-mail: marit.gjersvold@ntnu.no

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).

If you are invited for interview you must include certified copies of transcripts and reference letters. Please refer to the application number **IV-50/22** when applying.

Application deadline: 11.02.2022

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 7052 Trondheim (Trondheim Municipality)