

Jobbnorge ID: 231776
Deadline: 9/22/2022
Website: <http://www.ntnu.no>
Scope: Fulltime
Duration: Temporary

The Department of Electronic Systems has a vacancy for a

PhD Candidate in Small Satellite Remote Sensing and Data Distribution

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

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

The PhD-student will be associated with the HYPSCI project. The project's overall objective is to show that hyperspectral imaging from small satellites, in combination with low altitude and in situ observations from buoys, ships and autonomous vehicles, provide a highly effective approach to marine ecosystem research relevant from pole to pole and in different temporal and spatial scales. The project aims to demonstrate the potential of this disruptive concept of an observational pyramid by leveraging NTNU's unique satellites with hyperspectral imagers (HYPSCO) and NTNU's long-term research and infrastructure within its Center of Excellence on Autonomous Marine Operations and Systems (AMOS).

The project brings together a team of leading scientists with expertise in remote sensing, autonomous systems, hyperspectral imaging, small satellite systems, ocean modelling, bio-optics, bio-geo-chemistry and ecology.

The physics and biology - for instance, algal blooms - of the ocean can be simulated using ocean models. However, models are uncertain, and better accuracy can be achieved by using observations to correct their state.

The HYPSCO-1 satellite (launched January 2022) is a unique new source of measurements that can be used to observe ocean color and map phytoplankton, zooplankton, minerals and pollution in the oceans. This position is for a phd-student that research methods how to transform end-users need for observation of a given target into operational tools and procedures to deliver information of high quality. Satellite data shall be fused with data from other sensor agents, in an efficient workflow. The student will thus contribute to operation, integration, use and distribution of hyperspectral data from the current HYPSCO-1 and future HYPSCO-2 satellites as a member of the HYPSCI team.

Your immediate leader is the Head of Department.

Duties of the position

The PhD-candidate will work on research tasks associated with systems for acquisition, distribution and use of hyperspectral images from small satellites, in particular the HYPSCO-1 satellite. In addition, the PhD candidate will work with systems and data from other platforms for ocean observations, such as other satellites, drones and autonomous surface vessels. Many of the projects will involve close collaboration within the department, students, other parts of NTNU, external research partners, industry and end-users.

Typical responsibilities and research tasks will include:

- Research on integrated mission planning in a system-of-systems operational context, including development of tools, software and systems for data acquisition, processing and distribution.
- Developing a pipeline for distribution of hyper-spectral data, processed and corrected at the required level for different the data products.
- Research on concerted observations consisting of different types of sensor agents together with fellow researchers at the NTNU SmallSatLab and NTNU UAV Lab.
- Support the operation of the HYPSCO-1 satellite and the development of the HYPSCO-2 satellite.
- Publication, dissemination, and public outreach.

Some traveling must be expected, in relation to field operations and testing.

Required selection criteria

- You must have a professionally relevant background in electronics, telecommunications, cybernetics or similar.
- 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.
- You must meet the requirements for admission to the [faculty's doctoral program](#).
- You must have very good communication skills in English, both written and orally.

The appointment is to be made in accordance with [Regulations concerning the degrees of Philosophiae Doctor \(PhD\) and Philosophiae Doctor \(PhD\) in artistic research national guidelines for appointment as PhD, post doctor and research assistant](#)

Preferred selection criteria

Useful qualifications for candidates are:

- Solid background with programming (e.g. C, Python, Matlab) for embedded and integrated computer systems.
- Experience with operations of micro/nano- satellites or CubeSats.
- Experience with development of micro/nano- satellites or CubeSats.
- Knowledge about satellite remote sensing, for example, hyper-spectral-imaging, radio frequency monitoring or similar.
- Valid driver's license in Norway equivalent to class B is a plus.

Personal characteristics

- Problem solver.
- Team player, focusing on the success of the group.
- Willing to work in a multi-disciplinary team, where professional level range from students to professors, and the will to learn from, and recognize skills from all team members.
- Good communicator.
- Willing to learn and spend time on understanding complicated systems.

Emphasis will be placed on personal and interpersonal qualities.

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 25 % teaching duties pliktarbeid).

Appointment to a PhD position requires that you are admitted to the [PhD programme in electronics and telecommunication](#) 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 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:

- CV and certificates.
- 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.
- Name and contact information of three referees.
- 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.

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](#)

NTNU believes that inclusion and diversity is our strength. We want to recruit people with different competencies, educational backgrounds, life experiences and perspectives to contribute to solving our social responsibilities within education and research. We will facilitate for our employees' needs.

NTNU is working actively to increase the number of women employed in scientific positions and has a number of resources to [promote equality](#).

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.

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 Roger Birkeland, email roger.birkeland@ntnu.no.

If you think this looks interesting and in line with your qualifications, please submit your application electronically via jobb norge.no with your CV, diplomas and certificates attached. Applications submitted elsewhere will not be considered. Upon request, you must be able to obtain certified copies of your documentation.

Application deadline: 22.09.22

NTNU - knowledge for a better world

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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 Electronic Systems

The digitalization of Norway is impossible without electronic systems. We are Norway's leading academic environment in this field, and contribute with our expertise in areas ranging from nanoelectronics, phototonics, signal processing, radio technology and acoustics to satellite technology and autonomous systems. Knowledge of electronic systems is also vital for addressing important challenges in transport, energy, the environment, and health. [The Department of Electronic Systems](#) is one of seven departments in the [Faculty of Information Technology and Electrical Engineering](#).

Additional information

Place of service:

Campus Gløshaugen 7034 Trondheim (Trondheim Municipality)