



**Jobbnorge ID:** 200016  
**Deadline:** 2/28/2021  
**Website:** <http://www.uio.no/>  
**Scope:** Fulltime  
**Duration:** Engagement

## PhD Research Fellowship in Signal Processing for Sonar Applications

### Job description

Position as PhD Research Fellow in signal processing is available at the Group for Digital Signal Processing and Image Analysis, Section for Machine Learning, Department of Informatics, University of Oslo.

The fellowship period is 3 years. Starting date as soon as practical, no later than 01.10.2021. The position is in collaboration with Kongsberg Maritime AS through a [project](#) supported by the Research Council of Norway.

Kongsberg Maritime is a global marine technology company providing innovative and reliable technology solutions for all marine industry sectors including merchant, offshore, subsea and naval. Through the office at [Strandpromenaden](#), Horten Kongsberg Maritime develops and produce sonars and echosounders which provide safe navigation of vessels and updated knowledge about the sustainability of ocean resources for future generations. The candidate will collaborate with the central technology department designing underwater acoustic systems, with leading experts in acoustics, electronics, embedded design and signal processing.

The Digital Signal Processing and Image Analysis research group has five full-time and six adjunct positions. We perform research over a wide range of applications in image analysis and deep learning, as well as in digital signal processing/acoustic imaging. There are about 25 Postdocs and PhD students in the group with financing from a variety of national and international sources, as well as from industry. More information can be found on the [group's homepage](#).

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo.

### Job description

The position is in the Digital Signal Processing and Image Analysis (DSB) group. Your research will focus on developing signal processing for the next generation of sonars and echosounders. The project will build on two recent PhD projects.

Research task examples:

- Development of high-performance signal processing methods for sonars and echosounders.
- Development of advanced beamforming algorithms for sonar arrays.
- Design and use of simulated data to evaluate sonar systems and signal processing algorithms.
- Test and evaluate signal processing methods on state-of-the art Kongsberg Maritime equipment.
- Analysis and characterization of statistical properties to improve beamformer performance.

There will be opportunities to participate in field experiments.

The candidate is expected to publish research results in international peer-reviewed journals in collaboration with the DSB group and its research partners

A detailed research plan for the PhD period will be defined based on both the project objectives and the candidate's background.

### Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition to be among Europe's leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

### Required qualifications

- Applicants must hold a Master's degree or equivalent in signal processing or applied mathematics. Degrees in related fields like physics/statistics/electrical engineering can also be considered.
- Foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system.
- Good programming knowledge and experience are required.
- Fluent oral and written communication skills in English.

This position may require security clearance by the Norwegian National Security Authority. For more information visit [www.nsm.no](http://www.nsm.no).

Candidates without a Master's degree have until 15 August, 2021 to complete the final exam.

It is advantageous to have:

- Experience with beamforming, filter design, numerical mathematics, mathematical modelling, linear algebra.
- Experience from sonars, echosounders or related systems (seismics, radar, medical ultrasound, MR, etc.).
- Ability to apply mathematical techniques in a realistic setting.

#### Personal skills:

- Use a methodical and systematic approach, plan ahead, define clear priorities and allocate resources effectively.
- Analyze complex issues and problems and come up with rational judgments.
- Co-operate well with others, share knowledge, experience, information and support others in the pursuit of team goals.
- Be aware of own strengths and limitations and pursue learning and career development opportunities.

#### Grade requirements:

The norm is as follows:

- the average grade point for courses included in the Bachelor's degree must be C or better in the Norwegian educational system
- the average grade point for courses included in the Master's degree must be B or better in the Norwegian educational system
- the Master's thesis must have the grade B or better in the Norwegian educational system
- Fluent oral and written communication skills in English.
- [English requirements for applicants from outside of EU/ EEA countries](#)

The purpose of the fellowship is research training leading to the successful completion of a PhD degree.

The fellowship requires admission to the PhD programme at the Faculty of Mathematics and Natural Sciences. The application to the PhD programme must be submitted to the department no later than two months after taking up the position. For more information see:

<http://www.uio.no/english/research/phd/>

<http://www.mn.uio.no/english/research/phd/>

## We offer

- Salary NOK 482 200 - 526 000 per annum depending on qualifications and seniority as PhD Research Fellow (position code 1017)
- Attractive [welfare benefits](#) and a generous pension agreement
- Vibrant international academic environment
- A stimulating, flexible, and creative work environment in a research group with strong links both within academia and to industry
- [Career development programmes](#)
- Oslo's family-friendly surroundings with their rich opportunities for culture and outdoor activities

## How to apply

The application must include:

- Cover letter which briefly explain how the applicant's background and education fit the goals and requirements of this project and the motivation for the application.
- CV (summarizing education, positions and academic work, including also a list of scientific publications that the applicant wishes to be considered by the evaluation committee).
- Copies of the original Bachelor and Master's degree diploma and transcripts of records
- Documentation of English proficiency
- List of reference persons: 2-3 references (name, relation to candidate, e-mail and phone number)

The application with attachments must be delivered in our electronic recruiting system, please follow the link "apply for this job". Foreign applicants are advised to attach an explanation of their University's grading system. Please note that all documents should be in English (or a Scandinavian language).

Applicants may be called in for an interview.

## Formal regulations

Please see the [guidelines and regulations](#) for appointments to Research Fellowships at the University of Oslo.

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According to the Norwegian Freedom of Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The University of Oslo has an [agreement](#) for all employees, aiming to secure rights to research results etc.

The University of Oslo aims to achieve a balanced gender composition in the workforce and to recruit people with ethnic minority backgrounds.

## Contact information

For further information please contact:

Tor Inge Birkenes Lønmo, phone: +47 45 22 46 99, e-mail: tor.inge.birkenes.lonmo@km.kongsberg.com or

Andreas Austeng, phone: +47 228 52 741, e-mail: Andreas.Austeng@ifi.uio.no.

For questions regarding the recruitment system, please contact HR Adviser Torunn Standal Guttormsen, phone:+47 22854272, e-mail:t.s.guttormsen@mn.uio.no

## About the University of Oslo

**The University of Oslo** is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

**The Department of Informatics (IFI)** is one of nine departments belonging to the Faculty of Mathematics and Natural Sciences. IFI is Norway's largest university department for general education and research in Computer Science and related topics.

The Department has more than 1800 students on bachelor level, 600 master students, and over 240 PhDs and postdocs. The overall staff of the Department is close to 370 employees, about 280 of these in full time positions. The full time tenured academic staff is 75, mostly Full/Associate Professors..

## Additional information

### Place of service:

Gaustadalleén 23B 0371 Oslo (Oslo Municipality)