Jobbnorge ID: 296174
Deadline: 3/20/2026
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Project

The Department of Circulation and Medical Imaging has a vacancy for a

PhD Candidate in Artificial Intelligence and Medical Imaging

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 43,000 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

Do you want to help shape the future of cardiac diagnostics? We have a vacancy for a PhD candidate in artificial intelligence (AI) and medical imaging at the Department of Circulation and Medical Imaging (ISB), Faculty of Medicine and Health Sciences, NTNU. The position is affiliated with the Ultrasound Research Group at ISB and the research collaboration between NTNU, SINTEF Digital, and the Clinic of Cardiology at St. Olavs University Hospital. The project also involves close collaboration with Oslo University Hospital, Sørlandet University Hospital, and Tromsø University Hospital (UiT The Arctic University of Norway).

The position is funded by the Liaison Committee for Education, Research and Innovation in Central Norway.

The workplace is at the Faculty of Medicine and Health Sciences, NTNU, located at St. Olavs University Hospital in Trondheim.

The main supervisor will be Researcher Andreas Østvik (NTNU/SINTEF Digital). Your immediate leader will be the Head of Department.

About the project

The doctoral work is part of the project “Beyond Images - Multimodal Learning for Improved Assessment of Cardiac Function and Outcome Prediction using Artificial Intelligence and Echocardiography". The project aims to develop novel AI models based on self-supervised learning and multimodal machine learning to improve diagnostics, risk assessment, and prognostication of cardiac disease using echocardiography and other data modalities.

Cardiovascular diseases are the leading cause of death and disability worldwide, and echocardiography is the cornerstone of cardiac imaging. Despite significant advances in AI-based automation of individual measurements, substantial challenges remain in integrated, patient-centered analysis where imaging information is combined with clinical and physiological variables. This project addresses this gap by developing holistic AI frameworks that contextualize echocardiographic findings within the broader physiological and demographic profile of each patient.

The project builds on a unique combination of world-leading technological expertise in AI for echocardiography and access to one of the world's largest curated normative echocardiographic databases (>4,000 subjects from the HUNT and Tromsø population studies), as well as data from multiple clinical studies with patient outcomes (>10,000 patients).

Duties of the position

- Develop and evaluate self-supervised learning models to learn representations of cardiac function patterns from large-scale data
- Design and implement multimodal fusion architectures that integrate echocardiographic representations with clinical variables, time-series data (e.g. ECG, blood pressure), and demographic information
- Develop interpretable and explainable AI models aimed at clinical transparency and user trust
- Validate the holistic AI framework for risk prediction and prognostication across multiple cardiac conditions (heart failure, acute myocardial infarction, aortic stenosis, etc.)
- Publish results in leading scientific journals and present at international conferences in collaboration with the research team
- Be part of an interdisciplinary research environment at the intersection of technology and medicine
- Write a doctoral thesis and publicly defend it
- Complete the mandatory PhD program in Medicine and Health Sciences at NTNU

Be prepared for changes to your work duties after employment.

Required selection criteria

- A completed master's degree (equivalent to a minimum of 120 ECTS credits) in artificial intelligence, medical technology, computer science, physics, applied mathematics, informatics, or a related technical field.
- The applicant must have a strong academic background from his or her previous studies, with an average grade from the master's program, or equivalent education, that is equivalent to a B or better according to NTNU's grading scale. If the applicant does not have letter grades from previous studies, he or she must have an equally good academic foundation. If the applicant has a weaker grade background, he or she may be considered if he or she can document that he or she is particularly suited for PhD education.
- Master's students may apply, but the master's degree must be completed and documented before starting the position.
- Documented experience with programming in Python and relevant machine learning frameworks (e.g., PyTorch, TensorFlow)

The applicant must meet the requirements for admission to the Medical Faculty's PhD program.

Excellent written and oral English skills.

PLEASE NOTE: For detailed information about what the application must contain, see paragraph “About the application”.

The appointment is to be made in accordance with NTNUs guidelines for recruitment positions and Regulations for the degrees philosophiae doctor (ph.d.) and philosophiae doctor (ph.d.) in artistic development work at the Norwegian University of Science and Technology (NTNU)for general criteria for the position.

Preferred selection criteria

- Experience with deep learning for image analysis and/or medical image processing
- Knowledge of self-supervised learning, representation learning, and/or generative models
- Experience with multimodal machine learning and/or data fusion
- Experience with handling and analysis of large datasets
- Published research or documented research experience in a relevant field
- Familiarity with medical imaging and/or echocardiography is an advantage, but not a requirement

Personal characteristics

- Curious, creative, and motivated to solve challenging technical problems
- Ability to work independently and systematically, as well as part of an interdisciplinary team
- Good collaboration and communication skills
- Interest in the intersection of technology and medicine

Personal and interpersonal qualities will be emphasized.

We offer

- Exciting and stimulating tasks in a strong and international academic environment with world-leading expertise in AI, echocardiography and multimodal learning
- Access to unique, large-scale datasets from Norwegian population and clinical studies
- Close collaboration between technologists and clinicians at NTNU, SINTEF, and St. Olavs University Hospital, as well as our collaborators at Oslo University Hospital, Sørlandet Hospital and Tromsø University Hospital.
- Career guidance and follow-up during the PhD period
- An open and inclusive work environment with engaged colleagues
- Favorable conditions in the Norwegian Public Service Pension Fund
- Access to employee benefits and advantages

Diversity

Diversity is a strength, and at NTNU we aim to be an employer that reflects the diversity in society and that makes use of the potential of the population's collective skills. Our vision is Knowledge for a better world and our values are creative, critical, constructive and respectful. We believe that an organization that is equal, diverse and gender-balanced is essential for us to achieve our goals.

We strive to attract employees with different skills, life experiences and perspectives to contribute to even better problem solving of our societal mission in research and education.

If you think this position is relevant and interesting, we encourage you to apply, regardless of gender, functional ability and cultural background, or whether you have been out of work for a period of time.

Salary and conditions

As a PhD candidate (code 1017) you are normally paid from gross NOK 550 800 per annum, 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 without teaching obligations.

For appointment as a PhD candidate, it is a prerequisite that you are admitted to the PhD programme in Medical Technology within three months of starting the position, and that you participate in an organized doctoral programme during the period of employment.

The position is conditional on external funding.

As an employee at NTNU, it is important that you keep yourself up to date with academic and organizational changes and adapt to them.

For the necessary professional and social interaction, it is a prerequisite that you are physically present and available to the institution on a daily basis.

The engagement is to be made in accordance with the principles of the Norwegian State Employees Act, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who, after assessment of the application and attachments, are considered to be in conflict with the criteria in the latter act, will not be able to be employed.

About the application

The application and attachments must accompany the application as these form the basis for the assessment. The documents must be in a Scandinavian language or English.

Please note that the application will only be evaluated based on the information we have by the application deadline. Therefore, ensure that your application clearly demonstrates how your skills and experiences meet the criteria described above. The application and all attachments must be submitted electronically via Jobbnorge.no.

The application must include:

- Transcripts and diplomas for bachelor's and master's degrees
- CV
- Motivation letter
- A copy of the master's thesis. If you have recently submitted your master's thesis, you may attach a draft. Documentation of a completed master's degree must be presented before taking up the position
- Any publications or other relevant research work
- Any certificates
- Names and contact information of two relevant references

If you have completed all or part of your education abroad, we also ask you to attach documentation of the scope and quality of your entire education. A description of the necessary documentation can be found here. If you have a statement from the Norwegian Directorate for Higher Education and Skills (HK-dir), please attach this as well.

We take into account work you have done with others. If it is difficult to identify your contribution in collaborative work, you must include a brief explanation of your involvement.

In assessing the most qualified candidate, we emphasize necessary qualifications such as education, experience, and personal suitability. Motivation for the position, ambitions, and potential for research will also be considered in the evaluation of candidates.

NTNU recognizes a wide range of academic contributions and has committed itself to The San Francisco Declaration on Research Assessment and CoARA (responsible assessment of research and recognition of a greater breadth of academic contributions in accordance with NTNU's social mission).

General information

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you wish to be exempt 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 exemption is not granted.

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If you think this position looks interesting and in line with your qualifications, you are welcome to apply.

If you have any questions about the position, please contact Andreas Østvik, email: andreas.ostvik@ntnu.no

If you have any questions about the recruitment process, please contact HR Advisor Lydia Lamminen, email: lydia.c.lamminen@ntnu.no

Application deadline: 20.03.2026

For practical information about working at NTNU, please visit this webpage.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the tech 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.

NTNU - kunnskap for en bedre verden
Ved NTNU, Norges teknisk-naturvitenskapelige universitet, skapes kunnskap for en bedre verden og løsninger som kan forandre hverdagen.

Fakultet for medisin og helsevitenskap
Fakultet for medisin og helsevitenskap (MH) er et av NTNUs største fakultet med ca. 1800 ansatte fordelt på 1300 årsverk. Fakultetets hovedvirksomhet er utdanning og forskningsvirksomhet, i tett integrasjon med St. Olavs hospital.

Institutt for sirkulasjon og bildediagnostikk
Institutt for sirkulasjon og bildediagnostikk (ISB) har omtrent 250 ansatte, i hovedsak lokalisert i Hjerte- lunge senteret ved St.Olavs hospital, integrert med samarbeidende kliniske avdelinger. ISB er organisert i fagenhetene anestesi, MR, radiografi, trening-sirkulasjon-respirasjon, og ultralyd. Instituttet er også ansvarlig for Medisinsk Simulatorsenter og MR-senteret.

Additional information

Contact person:

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Place of service:

Prinsesse Kristinas gate 3 7030 Trondheim (Trondheim Municipality)