

Jobbnorge ID: 290847
Deadline: 12/19/2025
Website: <http://www.ntnu.no>
Scope: Fulltime
Duration: Temporary

The Department of Marine Technology has a 3-year vacancy for a

PhD Candidate in AI-driven ship design

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

[The Department of Marine Technology at NTNU](#) is looking for a PhD candidate in AI-driven ship design, connected to the newly established [Norwegian Maritime AI Centre](#). The position aims to advance how artificial intelligence support ship design processes that are faster, more knowledge-rich, and capable of delivering solutions with improved commercial, environmental, and technical performance.

You will be part of a world leading, vibrant research community in marine technology, together with more than 60 PhD students from all over the world.

You will explore how emerging AI technologies—foundation models, generative design tools, agent platforms, reasoning engines, and reinforcement learning—can be adapted and extended for maritime design challenges.

Research areas will cover some of the following themes:

- Generative methods for design documentation, including automated creation of tender documents, specifications, and requirement structures.
- 2D and 3D spatial reasoning, including general arrangement exploration, layout optimization, and constraint-aware geometry generation.
- AI-based performance assessment in early design, integrating rapid analysis tools, multi-criteria performance estimation, and surrogate modeling.
- Human-AI collaboration in design, including agent-based platforms, co-creation workflows, and decision support for design teams.
- Reinforcement learning for automated design exploration, where RL agents propose, evaluate, and refine design alternatives.
- Integration of domain knowledge into AI models, combining physics-based modeling, maritime regulations, and operational data with modern AI architectures.
- Evaluation of trust, transparency, and explainability in AI-driven design tool.

Your supervisor will be Professor Stein Ove Erikstad, and your immediate leader will be Head of Department.

About the project

[The Norwegian Maritime AI Centre](#) has recently been awarded to NTNU and partners through the Research Council of Norway. This position is funded directly by NTNU but will be associated with the Centre.

The PhD will contribute to positioning NTNU and the Norwegian maritime industry at the forefront of AI-enabled ship design. The work will help establish new methods, datasets, and prototypes that demonstrate how AI can transform design processes, support sustainability goals, and enable new types of high-performance vessel concepts.

Duties of the position

- Complete the doctoral education
- Carry out research of good quality in collaboration with project partners
- Contribute to the development, implementation, and validation of AI-based design tools and methods relevant to ship design

- Develop academic publications and popular science dissemination
- Participate in the research group [Marine Systems Design](#) at the department
- Participate actively in project meetings and workshops, research stays with relevant project partners, as well as in international conferences.

Be prepared for changes to your work duties after employment.

Required selection criteria

- Master's degree or equivalent academic background within marine technology, engineering design, artificial intelligence, or computer science
- Master students graduating summer 2026 are eligible to apply
- NTNU master students in their last year of study (finishing before summer 2027) can apply, and be admitted as part of an Integrated PhD study plan^[1]
- Good skills in mathematics, programming, and applied AI. Candidates with strong AI and programming skills and a demonstrated interest in maritime applications are encouraged to apply.
- Your master's degree must correspond to a five-year Norwegian master's education, where 120 credits have been obtained at master's level. Master's students can apply, but the master's degree must be obtained and documented before starting the position.
- Strong academic background from your previous studies and have an average grade from your Master's degree study, or equivalent education, which is equal to B or better compared to [NTNU's grading scale](#). If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you have a weaker grade background, you may be considered if you can document that you are particularly suitable for a PhD education.
- Meet the requirements for admission to the Faculty of Engineering doctoral program: [PhD in Engineering](#)
- Very good English skills, both written and oral

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.

^[1] Integrated PhD implies starting on your PhD studies part-time while completing your MSc degree

Preferred selection criteria

- Strong skills in relevant programming languages, particularly python
- Knowledge of, and experience from, the maritime industry
- Knowledge of generative models, reinforcement learning, or geometric deep learning.
- Experience with optimization methods, numerical modeling, or simulation of complex systems.
- Experience with 3D modeling, CAD APIs, or computational geometry is an advantage.
- Experience and abilities for dissemination of knowledge and skills towards industrial and academic partners.

Personal characteristics

To complete a doctoral degree (PhD), it is important that you are able to:

- Work independently while actively contributing to a positive atmosphere in our research environment
- Work in a structured way, set goals, and make plans to achieve them
- Be open, present and discuss your research and innovative ideas with other involved professionals and collaborators
- Interest in interdisciplinary work spanning ship design, AI, and complex socio-technical systems
- Get involved, work hard, and contribute constructively with feedback, also under pressure of time
- Show curiosity and a strong motivation for relevant subjects
- Have a keen interest for good practice in programming, data management, and data analysis

Emphasis will be placed on personal qualities.

We offer

- An exciting job with an important [mission](#) in society
- Developing tasks in a strong and international professional environment
- Excellent facilities and working environment in our brand-new Ocean Technology Center in Trondheim
- Career guidance and [follow-up during the PhD period](#)
- Open and inclusive work environment with committed PhD colleagues and social events
- As a public employee, you have favourable benefits as a member of the [Norwegian Public Service Pension Fund \(SPK\)](#)

As a PhD Candidate at NTNU, you will have access to [employee benefits](#).

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.

At NTNU we want to increase the proportion of women in scientific positions. We have a number of [measures](#) to promote equality.

Salary and conditions

As a PhD candidate (code 1017) you are normally paid from gross NOK 550 800 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.

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 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:

- Transcripts and diplomas for Bachelor's and Master's degrees
- CV
- Copy of Master's thesis. If you have recently 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.
- Short letter of motivation (400 words/1 page)
- Possibly publications etc. other relevant research work
- Names and contact information of three relevant referees

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. If your institution uses "diploma supplement" (normal for most European institutions), you must attach this. A description of the documentation required can also be found [here](#). If you already have a statement from [Norwegian Directorate for Higher Education and Skills \(HK-dir\)](#), 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 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.

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 Professor Stein Ove Erikstad, stein.ove.erikstad@ntnu.no, tel.: +47 93201255. If you have any questions about the recruitment process, please contact HR Consultant Marit Gjersvold, marit.gjersvold@ntnu.no.

Application deadline: 19.12.2025

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 - 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:

Professor J.H.L Vogts vei 1 A 7052 Trondheim (Trondheim Municipality)