Jobbnorge ID: 264278
Deadline: 6/21/2024
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Marine Technology has a vacancy for a

PhD Candidate in Advanced Nonlinear Structural Analysis of FOWTs

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 job

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

This position will focus on the advanced structural analysis of floating offshore wind turbine (FOWT) components such as the tower, floater, blades, and/or mooring line with nonlinear structural mechanics. The aim is to seamlessly simulate the nonlinear structural mechanics and stress distribution in FOWT components. Both material and geometric nonlinearities are of interest in this position with a focus on structural damage and degradation effects (e.g., corrosion, fatigue, collision, buckling, delamination, or creep) on the dynamic response of the system and subsequently environmental loads.

The PhD candidate may use the wave and wind load models developed by the other members of the team or develop their own models. The stochastic nature of the loads will be considered in case of long-term analysis of the system. The project will include detailed finite element analysis of wind turbine components, first without structural damage and then with the damage for comparison. The choice of the damage type depends on the needs of our industrial partners, SINTEF Ocean and DNV, as well as the interests of the candidate. The project may also involve structural damage assessment due to harsh environmental conditions in the pan-Arctic region (ice loads).

Your immediate leader are your supervisor and the Head of the Department.

Duties of the position

- Conduct original, cutting-edge research, including critical literature review to identify the state-of-the-art and research gaps, designing research projects and methodologies, and generating, collecting, and analysing data.
- Publish findings in top-tier journals and present at international conferences.
- Collaborate actively within the project team and with external partners.
- Engage in professional development through attending seminars, lectures, and workshops as well as networking (all supported financially and professionally).

Required selection criteria

- A professional relevant background in Marine, Mechanical, Aerospace or Structural Engineering, or a related discipline.
- 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.
- Master's students can apply, but the master's degree must be obtained and documented by August 2024.
- You must meet the requirements for admission to the faculty's doctoral program (https://www.ntnu.edu/studies/phiv).
- Strong knowledge in continuum and damage mechanics.
- Proficiency in finite element analysis, especially with Abaqus.
- Good command of English both written and spoken.

The appointment is to be made in accordance with Regulations on terms of employment for positions such as postdoctoral fellow, Phd candidate, research assistant and specialist candidate 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

- Constitutive modelling of materials.
- Background in fluid dynamics, including hydrodynamics and aerodynamics.
- Familiarity with OpenFAST and its modules.
- Programming skills in MATLAB, Python, and Fortran.

Personal characteristics

- Self-motivated with intellectual curiosity.
- Strong critical thinking and problem-solving skills.
- Attentive to details.
- Excellent communication, collaboration, and networking abilities.
- Ability to work independently and as part of a team.

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 532 200 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.

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 be attached to 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.
- A cover letter explaining your motivation and qualifications for the position.
- A research proposal aligned with the position's objectives including a brief background and the state-of-the-art, research questions, methodologies, and anticipated outcomes.
- Contact information for three referees.
- Documents indicating research or professional background relevant to the position (publications, project report, etc.).

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 Norwegian Directorate for Higher Education and Skills, 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 Associate Professor Mojtaba Mokhtari, mojtaba.mokhtari@ntnu.no. If you have any questions about the recruitment process, please contact Marit Gjersvold, marit.gjersvold@ntnu.no.

If you think this looks interesting and in line with your qualifications, please submit your application electronically via jobbnorge.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: 21.06.2024

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 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:

Jonsvannsveien 82 7050 Trondheim (Trondheim Municipality)