Jobbnorge ID: 266995
Deadline: 10/6/2024
Website: http://www.hvl.no
Scope: Fulltime
Duration: Fixed Term

This is Western Norway University of Applied Sciences

With about 17,000 students, Western Norway University of Applied Sciences is one of the largest higher education institutions in Norway. A broad range of academic programmes are offered at Bachelor, Master and PhD levels, spread out on five campuses Førde, Sogndal, Bergen, Stord og Haugesund.

Our ambition is to build stronger and more solid academic and research environments that will interact nationally and internationally. The aim is to become a recognized actor on the international higher education arena. Increased international cooperation and engagement in externally funded projects will work towards this goal.

The Department of Mechanical Engineering and Maritime Studies has 88 employees. More than 70% of the academic staff within the engineering section of the department are qualified at doctoral level, of which 7 are professors. The department has about 850 students and educates at both bachelor and master level. There are 7 educational programmes offered at bachelor level (Mechanical Engineering, Marine Engineering, Energy Technology, Ocean Technology, Sustainable Industrial Engineering and Circular Economy, Maritime Management and Nautical Science) and 3 at master's level (Sustainable Energy Technology, Maritime Operations, and, in cooperation with the University of Bergen, Ocean Technology). R&D work in energy, materials, ocean marine technology is conducted at the department. The department has modern laboratories with, amongst other things, the MarinLab facility on campus Bergen for testing boats and offshore structures. The department's Centre for Safety at Sea is located on campus Haugesund. Great emphasis is placed on developing the content of our study programmes in close collaboration with the public and private business community, and other stakeholders, which are employers of our engineers.

Postdoctoral research scholarship in Marine hydrodynamics for offshore floating wind

Western Norway University of Applied Sciences, Faculty of Engineering and Science has a vacancy for a postdoctoral research scholarship in Marine hydrodynamics for offshore floating wind

Western Norway University of Applied Sciences (HVL) has a vacancy for a post-doctoral research scholarship in Marine Technology. The position is part of the research project "HYDROdynamic Mooring analysis for Ocean Renewable Energy - HYDROMORE" (No. 324388), financed by the Research Council of Norway, with research partners at The University of Manchester, University of Oslo and SINTEF Ocean.

The research fellow will be part of the Wind, Water and Waves research group in the Department of Mechanical Engineering and Maritime studies at the Faculty of Technology, Environmental and Social Sciences.

The appointment is a fulltime position and is made for a period of up to three years, with the first two and a half years working predominantly on the HYDROMORE project and the remaining period on academic duties within the Department of Mechanical Engineering and Maritime studies.

Starting date no later than 01.01.2025.

The main intended workplace is at Campus Bergen. Temporary research stays at one or more of the partnering institutions may be required.

HYDROMORE (hydromore.no) seeks to establish new best-practice approaches for designing future mooring systems used in floating ocean renewable energy devices. This will ultimately enable the design of leaner and safer mooring solutions and reduce the cost of energy from these technologies.

A major obstacle to minimise cost of electricity from both floating wind and wave energy, is the mooring system cost. Traditional moorings are heavy and designed using methods suitable for large floating oil rigs, but not for small, dynamic floating wind structures or wave energy converters. Mooring forces are influenced by low-frequency effects, such as slow drift and the interaction of variable wind and wave conditions, coupled with structure response and adaptive control systems. These interactions are not readily assessed using high fidelity methods, such as computational fluid dynamics (CFD). As such, there is a knowledge-gap between fast, low-fidelity methods and slow, high-fidelity methods. Hence the design of leaner, more advanced mooring solutions is restricted.

Through four work-packages, HYDROMORE is addressing this knowledge-gap, to accurately model nonlinear and irregular seas, whilst allowing rapid evaluation of multiple design condition parameters. HYDROMORE will assess reliability and limitations of state-of-the-art methods for accurate hydrodynamic modelling over long-periods, as well as highly nonlinear breaking waves. Methods for modelling the combined effects of aerodynamic loading, e.g., a turbine moving in and out of its own wake, with hydrodynamics will also be studied. All modelling will be validated against controlled laboratory-scale tests to help inform new industry standards.

Key duties/responsibilities:

The focus of this postdoctoral position will be experimental validation of nonlinear hydrodynamic modelling and aerodynamic coupling. The primary test facility will be the HVL MarinLab towing tank (https://www.hvl.no/en/about/marinlab/), with further testing at the University of Oslo and/or The University of Manchester.

Potential research tasks:

- Conduct wave tank testing on a 1:100 scale semi-submersible wind turbine with varying mooring characteristics, subject to irregular waves in deep and shallow water, including short-crested and breaking wave effects.
- Compare experimental results with linear/nonlinear diffraction-radiation time-domain models.
- Study effects of aerodynamic damping due to platform motion.

Subject to departmental needs, the post-doctoral researcher may be offered additional teaching and supervision duties in relation to other PhD and MSc students at the Department. Such additional duties will extend the duration of employment. The successful applicant is also encouraged to contribute the development of joint project applications for external funding in collaboration with the permanent research staff members.

If the appointee is granted additional externally financed research, the position may be extended, up to a maximum of 4 years. Individuals may not be hired for more than one fixed-term period as a postdoctoral research fellow at the same institution.

Qualifications:

We seek a highly motivated candidate, with the following qualifications:

- A degree equivalent to a Norwegian doctoral degree within one of the disciplines of Mechanical Engineering, Civil Engineering, Naval Architecture/Ocean Engineering, Applied Mathematics, or equivalent, with thesis focussing on Marine Hydrodynamics.
- Documented fluent oral and written communication skills in English language, equivalent to C1 on the Common European Framework of Reference (CEFR).

The doctoral dissertation must be submitted for evaluation by the closing date. Only applicants with an approved doctoral thesis and completed defence are eligible for appointment.

The following credentials will additionally be considered, in order of importance:

- Experimental hydrodynamics testing experience.
- Peer-reviewed publications.
- Experience of working and developing time-domain hydrodynamic computational codes, e.g. SIMA, openFAST, OrcaFlex, in-house codes, etc.
- Practical workshop skills and computer-aided design software.
- Experience of nonlinear modelling, for example in OpenFOAM, Basilisk, OceanWave3D, or equivalent.

Personal attributes:

- Ability to work individually and in a team.
- Good communication skills
- High work capacity
- Solution-oriented problem solving

The candidate is expected to carry out high-quality research and to publish the results in national seminars, international workshops, conferences, and journals.

Application procedure:

Applications will be evaluated by an expert panel of three members.

Applicants are asked to submit their application and CV online. Please use the link ?Apply for this job" (?Søk stillingen").

The following documentation must be uploaded as an attachment to the online application:

- Cover letter (statement of motivation, summarizing scientific work and research interest)
- CV (summarizing education, positions, pedagogical experience, administrative experience and other qualifying activity)
- Copies of educational certificates, academic transcript of records
- A complete list of publications and up to 5 academic works that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

Applicants should indicate which publications or parts of publications should be given special consideration in the evaluation. Grade transcripts must specify the topics, the course work, and the grades at the bachelor`s and master`s degree levels.

Applicants whose education is from another country than Norway, must also attach a certified translation of the diploma and transcript of grades to English or a Scandinavian language, if the original is not in any of these languages. It is required that the applicant enclose a review from NOKUT whether the education (bachelor and master's degree) is of a scope and level that corresponds to the level of a Norwegian master's degree.
Please see www.nokut.no/en (http://www.nokut.no/en) for more information about NOKUT's general recognition. This may take some time and

we recommend you to apply as soon as you know you will apply for this position. If no answer within the application deadline, please enclose documentation from NOKUT that they have received your application.

Applicants should note that the evaluation will be based on the documentation submitted electronically via Jobbnorge within the submission deadline. The applicants are responsible for ensuring that all the documentation is submitted before the closing date. It is of utmost importance that all publications to be considered in the evaluation are uploaded as an attachment with the application, since these are sent electronically to the expert panel. Applications cannot be sent by e-mail or to individuals at the college.

Salary:

- Good occupational pension, insurance and loan schemes from The Norwegian Public Service Pension Fund
- Exciting academic environment with the possibility of competence enhancement and development
- Opportunities for training within the working hours

Initial salaries will be offered at code 1352 - postdoctor (starting NOK 620 000) in the Civil Service pay grade table scale.

There is a compulsory 2 % deduction to the pension fund (see http://www.spk.no for more information). The successful applicant must comply with the guidelines that apply to the position at any time.

General information:

The appointment will be made in accordance with the regulations for State employees Law in Norway ("Lov om statens ansatte)". Organizational changes and changes in the duties and responsibilities associated with the position must be expected.

State employment shall reflect the multiplicity of the population at large to the highest possible degree. Western Norway University of Applied Sciences Bergen has therefore adopted a personnel policy objective to ensure that we achieve a balanced age and gender composition and the recruitment of persons of various ethnic backgrounds.

Information about the applicant may be made public even though the applicant has requested not to be named in the list of applicants. The applicant will be notified if his/her request is not respected.

Short-listed applicants will be called in for an interview.

Employed on condition that you are granted a work and residence permit **(must be considered individually).**

Western Norway University of Applied Sciences is subjected to the regulation for export control system. The regulation will be applied in the processing of the applications.

Contacts:

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Inclusion, challenging norms, collaboration

Homepage

Additional information

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