Cyber-physical empirical methods for lattices of marine structures (CYBERLAB)

Applications are invited for a PhD fellowship/scholarship at Graduate School of Technical Sciences, Aarhus University, Denmark, within the Agroecology programme. The position is available from 1st February 2022 or later.

**Research area and project description:**
Wind, solar, wave, and tidal energy play a central role in achieving the decarbonization of our energy system. As a consequence, a large portion of future power grids will be installed offshore and take the form of lattices of marine structures, i.e., a vast set of floating structures interconnected by a shared mooring system in a scalable and cost-optimal way.

Optimizing such systems requires accurate prediction of hydrodynamic loading exerted on floating structures. Despite the tremendous development of computational modeling tools, hydrodynamic loading models still require extensive experimental validation to provide accurate predictions. Hydrodynamic experimentation is mainly conducted in ocean basins where a moored floating structure is subjected to waves generated by a wave maker. Such experiments are time-consuming and, therefore, limited in duration and number.

This Ph.D. project aims at developing algorithms for the design of optimal hydrodynamic experiments such that the cost for calibration of hydrodynamic loading models is minimized, and uncertainty on responses of interest can be quantified. Accordingly, this Ph.D. project will mainly consist of theoretical and numerical work across the domains of hydrodynamic modeling, testing, and machine learning.

This Ph.D. project is hosted at the Department of Civil and Architectural Engineering of Aarhus University, Denmark, and it is part of the activities of the CYBERLAB project funded by the Research Council of Norway and led by SINTEF Ocean in Trondheim.

Applicants seeking further information are invited to contact: Dr. Giuseppe Abbiati (abbiati@cae.au.dk), Assistant Professor in Structural Mechanics, Department of Civil and Architectural Engineering, Aarhus University, Denmark.

Applicants are invited to provide a tentative “Project description (½-2 pages)” as part of their application. This document should describe your ideas and research plans for this specific project. If you wish to, you can indicate an URL where further information can be found. Please note that we reserve the right to remove scientific papers, large reports, theses, and the like.

**Qualifications and specific competences:**
Applicants to the PhD position must have a relevant Master's degree in Civil/Mechanical/Mechatronics/Marine Engineering, or equivalent.

A strong aptitude for applied mathematics and programming is a must. Moreover, existing skills and competences in computational modelling, machine learning, and Matlab programming are an advantage. The applicants should be enthusiastic about working in an interdisciplinary environment with an academic view on industrial challenges.

Applicants shall refer to the webpage of the Graduate School of Technical Science of Aarhus University for language and other requirements.

[https://phd.tech.au.dk/for-applicants/](https://phd.tech.au.dk/for-applicants/)
Place of employment and place of work:
Navitas, Inge Lehmanns Gade, 10, Aarhus 8000 C

Contacts:
Applicants seeking further information may contact: Assistant professor Giuseppe Abbiati, abbiati@cae.au.dk

How to apply:
Please follow this link to submit your application. Application deadline is 31 December 2021 23:59 CET. Preferred starting date is 1 February 2022 or later.

https://app.researchplanner.net/Peoplexs22/CandidatesPortalNoLogin/ApplicationForm.cfm?PortalID=16581&VacatureID=1082670

For information about application requirements and mandatory attachments, please see our application guide.

https://phd.tech.au.dk/for-applicants/application-guide/

Shortlisting will be used, which means that the evaluation committee only will evaluate the most relevant applications.

All interested candidates are encouraged to apply, regardless of their personal background. Salary and terms of employment are in accordance with applicable collective agreement.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.