PETER ROHRER

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EDUCATION

Ph.D. in Engineering **August 2021 - February 2025**
Norwegian University of Science and Technology (NTNU) Trondheim, Norway

- Ph.D. Candidate under the BLUES Centre for Research-based Innovation (SFI BLUES).
- **Thesis:** Generic Techniques for Multidisciplinary Design Optimization of Floating Wind Turbines
  - Development of aero-hydro-servo-elastic analysis models for use in design optimization.
  - Implementation of generic, flexible structural model for optimization of floating substructures.
  - Exploration of advanced hydrodynamic loading model in gradient-based optimization.
  - Improvements to techno-economic analysis models to enable holistic objective and constraints.
- **Supervisors:** Prof. Erin Bachynski-Polić (main), Prof. Zhen Gao, Dr. John Marius Hegseth
- **Courses:** Hydrodynamic Aspects of Marine Structures I, Stochastic Methods Applied in Nonlinear Analysis of Marine Structures, Environmental Sustainability and Societal Transformation, Integrated Dynamic Analysis of Floating Wind Turbines, Nonlinear Finite Element Analysis
- **Co-supervision of Master Students:**
  - L.P. Solvang Johnsen, (2022-2023), Design optimization of concrete spar-buoy floating wind turbines
- **Teaching Duties:**
  - Lecturer's assistant for TMR4220 - Naval Hydrodynamics (Spring 2023, Spring 2024)
  - Lecturer for TMR4505 - Multidisciplinary Design Optimization (Fall 2023)
- **Service:**
  - Assistant Representative for Temporary Scientific Employees, Department of Marine Technology (Summer 2023 to present)
  - Representative for Temporary Scientific Employees on NTNU Research Committee and NTNU Innovation Committee (2024)

M.Sc. Naval Architecture and Marine Engineering **September 2020 - May 2021**
University of Michigan College of Engineering Ann Arbor, MI, USA

- GPA: 4.00/4.00
- Awarded 2020 SNAME Scholarship for advanced study in ship and offshore structures.
- **Thesis:** Gradient-based Design Optimization of Large Tension-Leg Platform Wind Turbines
  - Research funded by 2020-2021 Fulbright Norway Student Grant (one of twelve grants awarded).
- **Courses:** Offshore Engineering, Stochastic Dynamics of Marine Structures, Multidisciplinary Design Optimization, Physical Oceanography

B.S.E. Naval Architecture and Marine Engineering, Oceanography Minor **September 2016 - May 2020**
University of Michigan College of Engineering Ann Arbor, MI, USA

- GPA: 3.98/4.00
- Semester-long Engineering Study Abroad at UNSW Sydney, Australia
- Engineering Scholarship of Honor, Dean's List (*all semesters*), University Honors (*all semesters*), 2018 and 2020 Michigan Engineering Distinguished Undergraduate Achievement Award
- **LEADERSHIP EXPERIENCE**
  - Rear Commodore, Quarterdeck Student Honor Society (student chapter of SNAME), 2019
  - Operations Director, Michigan Solar Car Team, 2nd place finish in 2017 World Solar Challenge

PUBLICATIONS

1. **Rohrer, P.**; Bachynski-Polić, E.E.; Hegseth, J.M. (2023). Gradient-based design optimization of fully-flexible floating wind turbines using modal analysis. *Proceedings of the ASME 2023 42nd International Conference on Ocean, Offshore and Arctic Engineering.*

2. **Rohrer, P.**; Bachynski-Polić, E.E.; Collette, M. (2022). Towards gradient-based design optimization of fully-flexible tension-leg platform wind turbines. *Journal of Physics: Conference Series (JPCS).*

WORK EXPERIENCE

ExxonMobil Technology and Engineering **Summer 2023**
Marine Engineering Intern Spring, TX, USA

- Evaluated offshore wind as a technology pathway for deepwater decarbonization.
- Summarized gaps in offshore wind technology for deepwater and power-to-platform applications.
- Conducted aero-hydro-servo-analysis to understand specific sensitivities for deepwater applications.
- Presented findings and engaged with technical and non-technical stakeholders across the organization.

Marine Structures Design Lab, University of Michigan **Autumn 2020**
Graduate Student Research Assistant Ann Arbor, MI, USA

- Investigated risk for hull, machinery, and electrical systems on optionally-crewed naval platforms.
- Developed simulation of long-term autonomous naval patrol missions to focus future research areas.

ExxonMobil Upstream Integrated Solutions **Summer 2020**
Marine Engineering Intern Spring, TX, USA

- Developed procedures for installation and calibration of a retrofit critical system on an offshore platform.
- Performed hydrodynamic analysis and constructed fully-coupled OrcaFlex model of a tension-leg platform.
- Validated results from numerical simulation tools with existing analysis reports and model testing data.
- Analyzed platform motions in various metocean conditions to make recommendations to operators.
- Interfaced with operators and classification society to approve safety system commissioning procedures.

Chevron Shipping Company **Summer 2019**
Hull & Systems Engineering Intern San Ramon, CA, USA

- Provided engineering support for alterations aboard vessels in Chevron's international tanker fleet.
- Consulted applicable class rules and IMO regulations to recommend actions to fleet management.
- Spent one week aboard a 155,000 DWT tanker observing ship-to-ship transfer operations and procedures.
- Trained and practiced vessel salvage scenarios as part of Chevron's Salvage Response Team.

BMT Designers and Planners **Summer 2018**
Engineering Intern Alexandria, VA, USA

- Designed structural additions and modifications for a ferry to support emission-reducing machinery.
- Created initial specifications for machinery systems in compliance with military standards.

Kadey-Krogen Yachts **November 2017 - February 2018**
Engineering Intern Stuart, FL, USA

- Revised arrangements, machinery selections, and hull design for new and customized designs.
- Modeled complex interior and exterior components using Rhino3D.

SKILLS

Applications: AutoCAD, GHS, HECSALV, OrcaFlex, Rhinoceros, SIMA, SolidWorks, WAMIT
Programming Languages: MATLAB, Python, Fortran
Languages: English *(native)*, Norwegian *(intermediate)*
Private Pilot's License: 73.9 TT, ASEL Rating (USA), 10.1 hours solo.