

Curriculum Vitae

Yunfeng Ding

Postdoc in Fluid-structure Interaction
Division of Marine Technology
Department of Mechanics and Maritime Sciences
Chalmers University of Technology
412 96 Gothenburg, Sweden

Address:
Uppstigen 122
412 80 Gothenburg, Sweden
Mobile phone: +46 768 583 288
E-mail: yunfengd@chalmers.se

Education Background

PhD

Technical University of Denmark, Lyngby, Denmark 01/09/2020 – 15/07/2024

PhD Thesis:

CFD modelling of fluid responses between side-by-side structures in waves and currents

Master of Engineering

Dalian University of Technology, Dalian, China 01/09/2016 – 01/07/2020

Master's Thesis:

Numerical Study on Flow Control of Risers with Vortex Induced Vibration Suppression Devices

Bachelor of Engineering

Dalian University of Technology, Dalian, China 01/09/2011 – 01/07/2015

Bachelor's Thesis:

The influence of long design period of validity on the fatigue life of jacket platform

Research Interests

CFD; Multi-body hydrodynamics; Wave dynamics; Fluid resonance; Wave-current-structure interaction; Seakeeping of ships and marine structures; Vortex induced vibration and motion

Research Experience

Chalmers University of Technology, Gothenburg, Sweden

Postdoc

2025.04 – Pres.

CETPartnership Project: Enhancing Shared Mooring System Design for Floating Offshore Wind Farms

- 1) Develop FSI algorithms for high-fidelity simulations and conduct in-depth analysis to address aero-/hydro-elastic issues for floating wind turbines
- 2) Provide support in life cycle assessment, levelized cost of electricity (LCoE), and structural analysis.

Technical University of Denmark, Lyngby, Denmark

Postdoc

2024.07 – 2025.03

SLGreen project by the Innovation Fund Denmark, the Danish Maritime Fund, and the Lauritzen Foundation

- 1) Postprocessing of real ship operational matrix and obtain the probability of each load and sea-state condition
- 2) Report of mean added resistance of marching ships in waves using an in-house HOBEM code, based on potential flow theory
- 3) Bow-part optimization and parametric study in consideration of added resistance reduction

Technical University of Denmark, Lyngby, Denmark

PhD Student

2020.09 – 2024.06

CFD modelling of fluid responses between side-by-side structures in waves and currents

- 1) 2D higher-order gap resonance between fixed barges under shallow water waves based on fully nonlinear numerical wave tank
- 2) 2D higher-order gap resonance and heave response of two side-by-side barges under Stokes and cnoidal waves
- 3) Effects of wave-current interaction on 2D and 3D gap resonances between fixed barges
- 4) 3D gap resonance between side-by-side barges under irregular waves based on the HOS-STARCCM+ coupling tool

Dalian University of Technology, Dalian, China

Master Student

2016.09 – 2020.06

Vortex-induced vibration and motion

- 1) 2D numerical study on uniform flow around single and side-by-side cylinders using discrete vortex method (DVM), based on FORTRAN solver
- 2) 2D numerical study on vortex-induced motion of a Spar platform in the uniform flow, using DVM
- 3) 2D numerical study on uniform flow around rigid and flexible hydrofoils using the Free Surface Random Vortex Method (FSRVM), focusing on the prediction of hydrodynamic loads and structural responses
- 4) 2D numerical study on uniform flow control of circular risers with fairings and secondary cylinders to suppress the VIV

Free roll motion characteristic of a Panamax ship

- 1) 2D numerical study on the free roll motion of a ship model with bilge keel of different configurations (widths and installation angles) in static water and regular waves, using the FSRVM, based on FORTRAN solver

Vortex shedding, hydrodynamic vibration and noise prediction of a propeller

- 1) Analysis of vortex shedding and pressure on 2D propeller profile using the FSRVM
- 2) Hydrodynamic vibration and noise analysis of the 3D propeller using ABAQUS

Dalian University of Technology, Dalian, China
Bachelor Student

2011.09 – 2015.06

Fatigue damage analysis of a jacket platform under waves of height with a return period of 100 years

- 1) Finite element analysis for locating hot spots with the largest stress at different parts of a jacket platform using ANSYS
- 2) Fatigue damage and fatigue life calculation of the platform using empirical formulas, e.g. the S-N curve and Miner's linear cumulative damage theory

Teaching and Pedagogical Experiences

Technical University of Denmark, Lyngby, Denmark
Postdoc

2024.07 – pres.

Lecturer for Master course “Wave Loads on Ships and Offshore Structures” (two lectures)

- 1) Basic conservation law of a fluid flow; fundamental 2D and 3D flow solutions
- 2) Linear and nonlinear potential flow wave theory

Technical University of Denmark, Lyngby, Denmark
PhD Student

2020.09 – 2024.06

Teaching assistant for Master course “Wave Loads on Ships and Offshore Structures” (two semesters)

- 1) Mark the assignments and answer to students' questions at the weekly office hours

Co-supervisor of Master's thesis project (five students)

- 1) 2D numerical study on a submerged ship hull with oscillatory heave motion at a finite water depth
- 2) 2D numerical study on the flow around an oscillatory square cylinder in calm water and a fixed square cylinder in oscillatory flow (external Master from University of Madrid)
- 3) Validation of a HOS-STARCCM+ coupling tool and its application to OC6 semi-submersible FOWT
- 4) Dimensional analysis on gap resonance of two side-by-side barges under waves
- 5) Prediction of wake flows induced by offshore wind-turbine foundations and their environmental impact (external Master from Chalmers University of Technology)

Honors & Awards

- Outstanding Graduates of the City, top 5 among 43 graduate students in the School of Naval Architecture, Dalian University of Technology *Mar. 2019*
- Scholarship of China Classification Society (most outstanding paper), top 2 among 43 graduate students in the School of Naval Architecture, Dalian University of Technology *Dec. 2018*
- Outstanding Postgraduate Student, top 3 among 43 graduate students in the School of Naval Architecture, Dalian University of Technology *Oct. 2017*

Publications

- **Ding Y.**, Walther J. H., Liang H., Shao Y. CFD modeling of three-dimensional gap resonances between side-by-side barges under combined wave and current excitation[J]. *Marine Structures*, 2025, 103: 103826.
- **Ding Y.**, Walther J. H., Shao Y. Effect of wave-current interaction on gap resonance between side-by-side barges[J]. *Applied Ocean Research*, 2024, 150: 104073.
- **Ding Y.**, Walther J H, Shao Y. Higher-order gap resonance and heave response of two side-by-side barges under Stokes and cnoidal waves[J]. *Ocean Engineering*, 2022, 266: 112835.
- **Ding Y F**, Walther J H, Shao Y L. Towards hydrodynamic modelling of ship-to-ship LNG bunkering in waves with focus on gap resonance[C]//*7th World Maritime Technology Conference*. 2022.
- **Ding Y.**, Walther J H, Shao Y. Higher-order gap resonance between two identical fixed barges: a study on the effect of water depth[J]. *Physics of Fluids*, 2022, 34(5): 052113.
- Jiang Y, **Ding Y.**, Sun Y, et al. Influence of bilge-keel configuration on ship roll damping and roll response in waves[J]. *Ocean Engineering*, 2020, 216: 107539.
- Sun L, **Ding Y F**, Zheng J T, et al. Numerical Study of Vortex Induced Motions of Spar and Semi-Submersible Platforms at High Reynolds Numbers[C]//*28th International Ocean and Polar Engineering Conference*. OnePetro, 2018.

Oral Presentations

- “Numerical Modelling of 3D gap resonances between side-by-side barges under combined wave-current excitation”, in the 25th Nordic Maritime Universities Workshop, Jan. 30, 2025.
- “Numerical investigations on 3D gap resonance between side-by-side barges under wave-current conditions”, in the 24th Nordic Maritime Universities Workshop, Jan. 26, 2024.
- “Wave-current interaction effect on gap resonance between two side-by-side barges”, in the 23rd Nordic Maritime Universities Workshop, Jan. 26, 2023.
- “Towards hydrodynamic modelling of ship-to-ship LNG bunkering in waves with focus on gap resonance”, in the 7th World Maritime Technology Conference, Apr. 26, 2022.
- “Numerical Study of Vortex Induced Motions of Spar and Semi-submersible Platforms at High Reynolds Numbers”, in the 28th International Society and Ocean Polar Engineering Conference, Jun. 11, 2018.

References

- Professor: Huadong Yao (huadong.yao@chalmers.se)