RESUME

Name:	Mingda Zhu
Nationality:	Chinese
Present position:	Ph.D. candidate
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ACADEMIC EDUCATION

08/2021 - Present	**Ph.D. candidate**, ***Intelligent Control and Optimization for Onboard Support of Surface Vessels*****,** Department of Ocean Operations and Civil Engineering, NTNU**.** **Areas of research**: Marine Digitalization and Decision Support, Artificial Intelligence, Control, Optimization, Path Planning, and Ship Model Identification.
07/2019-07/2021	**MSc. Ship Design**, Department of Ocean Operations and Civil Engineering, NTNU **Master thesis**: ***Genetic Algorithm-based Parameter Identification for Ship Maneuvering Model under Wind Disturbance***. **Key subjects**: Ship Hydrodynamics, Ship Design, Ship Structural Analyses, CFD - Applied Computational Fluid Dynamics, Modelling and Simulation of Dynamic Systems, Mechatronics, Robots and Deck Machines. **Overall Academic Performance**: A.
06/2016-06/2018	**BEng. Naval Architecture with Ocean Engineering**, Department of Naval Architecture, Ocean & Marine Engineering, University of Strathclyde. **Overall Academic Performance**: First Class Honours.
06/2014-06/2016	**BSc. Naval Architecture and Ocean Engineering**, Naval Architecture and Ocean Engineering College, Dalian Maritime University. **Overall Academic Performance**: Excellent.

PROFESSIONAL WORKING EXPERIENCE

05/2020-08/2020	**Research Assistant**	NTNU Ålesund Job Description: Ship manoeuvring model identification.
06/2020-08/2020	**Summer Intern**	Offshore Simulator Centre (OSC), Ålesund, Norway Job Description: Hydrodynamic analysis using WAMIT.

AWARDS AND HONOURS

- Salilaksha Basu Memorial Prizes
- Lloyd's Register Foundation Scholarship
- China Classification Society Scholarship

SKILLS

- Machine Learning: Support vector machine and deep learning, including convolution neural networks, recurrent neural networks, variational autoencoders, and generative adversarial networks.
- Control, Optimization and Path Planning: Proportional-Integral-Derivative control and model predictive control; Genetic algorithm; A-star, artificial potential field, rapidly exploring random trees and dynamic window algorithms.
- Software: Experience with STAR-CCM, ShipX, WAMIT, 20SIM, SESAM, OrcaFlex, ANSYS, NAPA and Maxsurf; Proficiency in the MS Word, Excel, and PowerPoint.
- Programming Languages: Python, Matlab and Arduino.

PUBLICATIONS

1. Mingda Zhu, Chunlin Wang, Peihua Han, Robert Skulstad, Houxiang Zhang and Guoyuan Li: An AIS Data-Driven Hybrid Approach to Ship Trajectory Prediction – A Real Case in Oslofjord, Ocean Engineering, 2023. (Under review)
2. Mingda Zhu, Weiwei Tian, Robert Skulstad, Houxiang Zhang and Guoyuan Li: Prediction-enabled path planning for multi-ship encounters in Oslofjord, Ocean Engineering, 2023. (Under review)
3. Peihua Han, Mingda Zhu and Houxiang Zhang: Interaction-aware short-term marine vessel trajectory prediction with deep generative models, ***IEEE Transactions on Industrial Informatics***, DOI: 10.1109/TII.2023.3302304, 2023.
4. Mingda Zhu, Weiwei Tian, Robert Skulstad, Houxiang Zhang and Guoyuan Li: Probability-based ship encounter classification using AIS data, 2023 3rd International Conference on Computer, Control and Robotics (ICCCR), Shanghai, China, pp. 393-398, March 24-26, 2023.
5. Chunlin Wang, Mingda Zhu, Ottar Osen, Houxiang Zhang and Guoyuan Li: AIS data-based probabilistic ship route prediction, 2023 IEEE 6th Information Technology, Networking, Electronic and Automation Control Conference (ITNEC), Chongqing, China, pp. 167-172, February 24-26, 2023.
6. Mingda Zhu, Robert Skulstad, Luman Zhao, Houxiang Zhang and Guoyuan Li: MPC-Based path planning for ship collision avoidance under COLREGS, 2022 IEEE International Conference on Systems, Man, and Cybernetics (SMC), Prague, Czech Republic, pp. 1930-1935, October 9-12, 2022.
7. Mingda Zhu, Tongtong Wang, Houxiang Zhang and Guoyuan Li: Ship manoeuvring model identification under wind disturbance, IEEE International Conference on Real-time Computing and Robotics (IEEE RCAR), Guiyang, China, pp. 648-653, July 17-22, 2022.