CURRICULUM VITAE

DR MIMI GAO
CONSULTANT

PhD Computational Fluid Dynamics
National University of Singapore
BEng Naval Architecture & Ocean Engineering
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CAREER HISTORY

August 2022	Octant Marine Limited, UK Naval Architect Consultant
June 2022 – Present	Sea & Gao Pte. Ltd., Singapore Director / Naval Architect
2018 - 2022	ABL Group, Singapore Principal Naval Architect Inspections and Surveys: Fishing vessel (Chile), Bearing damage (Singapore), metallurgical testing in TUV Lab (Singapore) Expert Opinions: Wind farm installation vessel design disputes, Stern tube bearing failures, Intermediate bearing failures, Mooring failures (FPSO, FPU, CALM buoys), Propeller performance, repair / modification, Gear box fatigue (FEM), Cargo lashing and toppling, Speed and Fuel oil Consumption
2015 to 2018	Brookes Bell LLP, Singapore Naval Architect Inspections and Surveys: Propeller modification (China), New-built Sea trials and shaft power measurement (Japan, China, South Korea), ship model testing (MARIN), propeller noise/vibration (Hong Kong) Expert Opinions: Ship propulsion system design, Mooring design dispute,

Factual witness for Sea trials (London/Hong Kong/Thailand)

2014 – 2015 Lloyd's Register Global Technology Centre, Singapore
Specialist / Naval Architect
LR Rules development and improvement 2015 update
Clean energy project – wave energy harvesting device in UK
Clean energy project – Offshore wind turbine (design challenges and CFD study)
JIP with Singapore A*STAR - Singapore Deepwater basin
PhD students' supervision

2010 – 2014 National University of Singapore, Singapore
Research Fellow

Computational Fluid Dynamics code development
Numerical study of Tsunami and its effect on coastal structures
Research project on membrane type LNG vessel – MPA funded

2011 – 2012 CIMNE, Spain
Visiting Scholar / Postdoctoral Researcher

CFD code (CPM) and KRATOS software development and testing
Research and comparison of discrete particle methods

2009 – 2010 National University of Singapore, Singapore
Research Engineer

FEM Analysis of the sunshades of greenhouses in GBB Singapore
FEM analysis of damage control trainer for ST electronics
Design and Finite element modelling of SPAR platform

2003 – 2002 CSIC Research Institute, China, Design Engineer
Ship Structural design, Stability calculation
Finite Element Analysis

Mimi is a Naval Architect and a Chartered Engineer with a doctorate degree (PhD) in Computational Fluid Dynamics and a BEng degree in Naval

Architecture and Ocean Engineering. Her areas of expertise cover all the naval architectural aspects of both marine and offshore structures, including but not limited to marine structure integrity, structure health monitoring, hydrodynamics of vessels and offshore structures, mooring and seakeeping, decarbonisation and vessel performance, subsea engineering.

As an author of many articles published in journals and conferences, and with one patent filed in three countries, Mimi has worked in both academia and the industry for more than 15 years. She has developed her own Computational Fluid Dynamics software solving large motion and breaking waves. She conducted investigations on numerous marine casualties and incidents, including vessel groundings and collisions, propulsion system and bearing failures, propeller performance issues, fatigue failures and mooring failures. She has advised on various types of new-build ship and offshore platform disputes regarding design defects and contractual compliance. She has attended vessel sea trials and conducted shaft power measurements for speed and fuel consumption assessment. She has also designed and supervised model testing in laboratories to support investigations.

She has acted as expert witness and attended arbitration hearings, in addition to providing other technical consultancy to various offshore, marine and civil engineering activities.

Patent: Liquid stabilizing device, Inventor: Chan Ghee Koh; Mimi Gao; Chao Luo, filed in China (CN102917967), Japan (JP2013527070), South Korea (KR1020130055603) and Singapore (SG184565).

Journal papers

1. Min Luo, C. G. Koh, Wei Bai, Mimi Gao (2016), A particle method for two-phase flows with compressible air pocket, International Journal for Numerical Methods in Engineering 108:695-721;DOI: 10.1002/nme.5230.
2. Min Luo, C. G. Koh, Mimi Gao, Wei Bai (2015), A particle method for two-phase flows with large density difference, International Journal for Numerical Methods in Engineering 103(4):235-255; DOI: 10.1002/nme.4884.
3. Mimi Gao, C. G. Koh, Min Luo, Wei Bai (2014), Modelling of breaking waves in Tsunami and sloshing waves by a new particle method; International Journal of Modern Physics, DOI:10.1142/S2010194514603755.

4. C. G. Koh, Min Luo, Mimi Gao, Wei Bai (2013), Modelling of liquid sloshing with constrained floating baffle. Computers & Structures, 122:270-279, DOI:10.1016/j.compstruc.2013.03.018.
5. C. G. Koh, Mimi Gao, Chao Luo (2012), A new particle method for simulation of incompressible free surface flow problems. International Journal for Numerical Methods in Engineering 89(12):1582-1604, DOI: 10.1002/nme.3303.

Conference papers

6. Yu Chen, Yali Zhang, Mimi Gao, et al. (2015) OMAE2015-41807 Numerical Simulation Of Oblique Wave In Water Basin, DOI: 10.1115/OMAE2015-41807.
7. C.G. Koh, Min Luo, Wei Bai, Mimi Gao (2015), Modelling of wave impact on structures, Conference: The 11th International Conference on Shock and Impact Loads on Structures.
8. C. G. Koh, Min Luo, Wei Bai, Mimi Gao (2015), Simulation of Wave Impact with Compressible Air Entrainment Based on Consistent Particle Method, Conference: The 34th International Conference on Ocean, Offshore and Arctic Engineering (OMAE), DOI: 10.1115/OMAE2015-41107.
9. C. G. Koh, Min Luo, Mimi Gao, Wei Bai (2014), An improved consistent particle method for two phase flows with large density difference, Conference: Proceedings of 33rd International Conference on Ocean, Offshore and Arctic Engineering (OMAE).
10. C. G. Koh, Min Luo, Mimi Gao, Wei Bai (2014), A particle method for incompressible and compressible two-phase flows, Conference: Proceedings of 11th International Conference on Hydrodynamics (ICHD 2014).
11. C. G. Koh, Min Luo, Mimi Gao, Wei Bai (2013) Modelling of liquid sloshing with constrained floating baffle, Proceedings of 7th MIT Conference on Computational Fluid and Solid Mechanics.
12. Mimi Gao, C. G. Koh, Min Luo, Wei Bai (2013), Modelling of breaking waves in Tsunami and sloshing waves by a new particle method; Conference: Proceedings of 5th International Symposium on physics of fluids.
13. C. G. Koh, Min Luo, Mimi Gao, Wei Bai (2013), Numerical and experimental study of violent sloshing in a prismatic tank, Conference: The twenty-sixth KKHTCNN symposium on Civil Engineering.
14. Mimi Gao, C. G. Koh, Chao Luo (2008), Numerical and Experimental Studies of Liquid Sloshing in Rectangular Tanks Using a Particle Method, Conference: The 27th International Conference on Offshore Mechanics and Arctic Engineering OMAE 2008 Portugal, DOI: 10.1115/OMAE2008-57735.