

Name: Dr. Mimi GAO
Date of Birth: 06 Mar 1980
Nationality: Singaporean
Country of Residence: Singapore
Language(s): Spoken English, Chinese
Language(s): Written English, Chinese
Email: mimi.gao@seagao.com
Telephone: +65 9722 0832
Profession: Naval Architect



Academic & Professional Qualification(s):

PhD - Computational Fluid Dynamics
National University of Singapore

BEng - Naval Architecture & Ocean Engineering
Shanghai Jiao Tong University

Chartered Engineer (CEng) of the Engineering Council

Professional Membership(s):

Fellow of Singapore Institute of Arbitrators (FSI Arb)

Member of The Royal Institution of Naval Architects (MRINA)

Member of Women's International Shipping & Trading Association (WISTA)

Career & Professional Experience:

Jun 2022 - Present **Sea & Gao Pte. Ltd., Singapore**
Director, Expert Witness / Naval Architect

Expert Opinions: Propeller damage, Lashing failure of LNG facility, Transportation accident of powder silo

Jan 2018 - May 2022 **ABL Group, Singapore**
Expert Witness / Principal Naval Architect

Inspections: Fishing vessel (Chile), Bearing damage (Singapore), metallurgical testing in TUV Lab

Expert Opinions: 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

Expert determination: Wind farm installation vessel design dispute
Arbitrations (expert testimony): London (LMAA), New Zealand, HKIAC

Aug 2015 - Jan 2018 **Brookes Bell LLP, Singapore**
Expert Witness / Naval Architect

Inspections: 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)

Arbitrations (expert testimony): London (LMAA)

**Apr 2014 - Aug 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

**Dec 2010 - Apr 2014 National University of Singapore, Singapore
Research Fellow**

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

**Nov 2011- Feb 2012 CIMNE, Spain
Visiting Scholar / Postdoctoral Researcher**

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

**Mar 2009 - Dec 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

Jun 2003 - May 2004 CSIC Research Institute, China, Design Engineer

Ship Structural design, Stability calculation, Finite Element Analysis

Knowledge relating to Shipping, Arbitration Practice and Procedure:

1. Graduate Certificate in International Arbitration (NUS) 2022.
2. Conduct Expert determination on issues related to Wind farm installation vessel design. The two parties are a Chinese shipyard and a Taiwanese buyer. The dispute was about the design defects of a wind turbine installation vessel. The initial appointment was in December 2019, my determination was issued in May 2020. There was no oral hearing, but document only.
3. Act as expert witness in various arbitrations and court proceedings in England, Malaysia, Singapore, New Zealand, Denmark, and Hong Kong since 2015. Some details of the cases (non-exhaustive) are as follows.
 - Cases resolved in LMAA: involving claims for new-build bulk carrier design defects, ranging from USD 27 million to 43 million.
 - Cases resolved in HKIAC: involving a claim for offshore vessel design defects, in excess of USD 10 million.
 - Cases resolved in Singapore and Malaysia: involving claims for welding defects, cargo damages, infringement of copyright, ranging from USD 500,000 to 2 million.
 - Cases resolved in Denmark (Maritime and Commercial Court): involving a claim in excess of USD 1 million for propeller damage and repair.
 - Cases resolved in New Zealand high court: involving a claim for mooring failure in excess of USD 2 million.

Publications:

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 (ICHHD 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.

NAME, POST NOMINALS

Listed Profession (select 1):

- Independent Arbitrator
- Advocate and Solicitor
- Barrister
- Solicitor
- Counsel
- Master Mariner
- Consultant
- Specialist
- **Others (indicate) : Independent Arbitrator / Expert Determination**

A. Write-up

Dr Gao is a Naval Architect with a PhD degree in Naval Architecture and Ocean Engineering, and a Fellow of the Singapore Institute of Arbitrators.

Dr Gao has been working as an expert witness in arbitration and court proceedings in England, Malaysia, Singapore, New Zealand, Denmark, and Hong Kong since 2015.

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, and subsea engineering.

As an author of many articles published in journals and conferences, and with one patent filed in three countries, Dr Gao has worked in both academia and industry for more than 18 years. She conducted investigations on numerous marine casualties and incidents, including vessel groundings, collisions, propulsion and bearing failures, propeller performance issues, fatigue failures and mooring failures. She has advised on various types of new-build ship disputes and offshore platform disputes regarding design defects and contractual compliance.

Dr Gao conduct Expert Determination on issues related to ship design, in addition to providing other technical consultancy to various offshore, marine, and civil engineering activities.

B. Contact

Tel: +65 9722 0832

E-mail address: mimi.gao@seagao.com

Nationality: Singaporean

Country of Residence: Singapore

Language(s): English, Chinese

C. Main Practice Areas

(No more than 4 areas* from:)

- **Charterparties***
- Coal Disputes (Commodities)
- Grain Disputes (Commodities)
- Other Commodities
- **Oil & Gas***
- Bunkering
- Ship Sale & Purchase
- **Ship Build & Repair***
- **Collisions***

D. Professional Appointments (if any)

Fellow of Singapore Institute of Arbitrators

E. Admissions (if any)

Chartered Engineer of the Engineering Council
Member of The Royal Institution of Naval Architects

F. Education

PhD in Computational Fluid Dynamics, National University of Singapore
BEng in Naval Architecture & Ocean Engineering, Shanghai Jiao Tong University
Graduate Certificate in International Arbitration, National University of Singapore

G. Directory Listings

(No more than 2 entries)
N.A.