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

Academic & Professional Qualification(s):

- **PhD** - Computational Fluid Dynamics, National University of Singapore
- **BEng** - Naval Architecture & Ocean Engineering, Shanghai Jiao Tong University
- Chartered Engineer (**CEng**) - Engineering Council UK

Professional Membership(s):

- **Fellow**, Singapore Institute of Arbitrators (**FSIArb**)
- **Panel Arbitrator**, Singapore Chamber of Maritime Arbitration (**SCMA**)
- **Accredited Mediator**, Singapore Mediation Centre (**SMC**)
- **Supporting Member**, London Maritime Arbitrators Association (**LMAA**)
- **Member**, Royal Institution of Naval Architects (**RINA**)
- **Member**, Maritime Law Association of Singapore (**MLAS**)
- **Member**, Women's International Shipping & Trading Association **(WISTA**)

Career & Professional Experience:

SEA & GAO PTE. LTD. | Singapore
Managing Director / Forensic Naval Architect / Arbitrator / Mediator | *2022 – Present*

- Direct a premier maritime consultancy providing specialized technical forensic analysis, expert witness testimony, and alternative dispute resolution (ADR) services globally.
- Appointed as **Expert Witness** and **Expert Determiner** across high-value maritime disputes, providing authoritative engineering analysis for litigations involving:
    - *Structural & Infrastructure Damages:* Jetty fenders, subsea/onshore cables (fatigue analysis), FPSO mooring chain failures, and docking/berthing incidents.
    - *Casualties & Mechanical Failures:* Collisions, towing and sea-fastening incidents, marine loading arm failures, and offshore wind turbine structural damage.
    - *Design & Performance Disputes:* Propeller damage claims, CFD analysis of energy-saving devices, and multi-million-dollar LNG ship design disputes.
- Serve as a Panel **Arbitrator** and **Mediator** under both institutional frameworks (SCMA, SMC, LMAA, SIAC) and ad-hoc references, resolving complex commercial maritime disputes.

BRAEMAR (now ABL Group) | Singapore
Principal Naval Architect / Expert Witness | *2018 – 2022*

- Led technical forensic investigations and insurance marine surveys for a global maritime consultancy.
- Delivered expert opinions relied upon in international tribunals across **London (LMAA), New Zealand, and Hong Kong (HKIAC)**.
- Conducted rigorous technical evaluations on:
    - *Design & Mechanical Deficiencies:* Wind farm installation vessel design disputes, stern tube/intermediate bearing failures, and reduction gear box fatigue using Finite Element Method (FEM), New-build ship damage and sinking.
    - *Operational Failures:* Offshore mooring system collapses (FPSO, FPU, CALM buoys), cargo lashing/toppling incidents, and commercial speed/fuel oil consumption disputes.
- Managed physical forensic inspections and metallurgical testing (e.g., with TÜV SÜD labs).

BROOKES BELL LLP | Singapore
Naval Architect / Expert Witness | *2015 – 2018*

- Provided technical expertise to shipowners, charterers, P&I Clubs, and legal firms on high-stakes marine casualties and performance disputes under **LMAA** jurisdiction.
- Attended critical physical testing programs, including new-built sea trials and shaft power measurements across major shipyards in **Japan, China, and South Korea**.
- Evaluated propeller modifications, ship propulsion disputes, mooring designs, and ship model testing at premier global institutes like **MARIN**.
- Investigated complex hydrodynamic phenomena, including propeller noise/vibration issues for commercial vessels in Hong Kong.

LLOYD'S REGISTER GLOBAL TECHNOLOGY CENTRE | Singapore
Specialist / Naval Architect | *2014 – 2015*

- Spearheaded cutting-edge research and regulatory compliance frameworks for a world-leading classification society.
- Formulated technical safety guidelines regarding extreme wave impacts under **LR Rules**.
- Led advanced CFD modelling for pioneering clean energy projects, including wave energy harvesting devices and offshore wind turbines.
- Supported a Joint Industry Project (JIP) with **A*STAR** on Singapore Deepwater basin development.
- Mentored and supervised PhD candidates in advanced naval architectural research.

NATIONAL UNIVERSITY OF SINGAPORE (NUS) | Singapore
Postdoctoral Research Fellow / Research Engineer | *2009 – 2014*

- Developed proprietary Computational Fluid Dynamics (CFD) codes for maritime application.
- Conducted breakthrough numerical studies on Tsunami impact dynamics on coastal infrastructures.
- Led a high-profile research initiative investigating sloshing dynamics on membrane-type LNG vessels, combining experimental lab work with numerical simulations.
- Executed complex Finite Element Analysis for urban structural engineering projects (sunshades of greenhouses in GBB, Damage control trainer for ST electronics, SPAR platform design) in Singapore.

INTERNATIONAL CENTER FOR NUMERICAL METHODS IN ENGINEERING (CIMNE) | Spain
Visiting Scholar / Postdoctoral Researcher | *2011 – 2012*

- Collaborated on international software testing and validation for advanced CFD codes.
- Conducted comparative research on discrete particle methods to enhance FSI accuracy.

CSIC RESEARCH INSTITUTE | China
Design Engineer | *2003 – 2004*

- Engineered ship structural designs, stability calculations, and Finite Element Analysis (FEA).

Legal 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.
3. Act as expert witness in various arbitrations and court proceedings. For example:
   - Cases resolved in LMAA: involving claims for new-build bulk carrier design defects, ranging from USD 27 million to 43 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.
   - Case resolved in HKIAC: involving a claim for offshore vessel design, in excess of USD 10 million.
   - Case resolved in Denmark (Maritime and Commercial Court): involving a claim in excess of USD 1 million for propeller damage and repair.
   - Case resolved in New Zealand high court: a claim for mooring failure in excess of USD 2 million.
   - Cases resolved in Singapore and China: insurance claims for subsea cables and mooring lines failures ranging from 10 million to 50 million.

Publications:

Intellectual Property

- Patent: Liquid stabilizing device | Inventors: Chan Ghee Koh, Mimi Gao, Chao Luo. *Filed & Registered in*: China (CN102917967), Japan (JP2013527070), South Korea (KR1020130055603).

Keynote Presentations

- Keynote Speaker (2025): "Advanced Numerical Analysis used in Marine Forensic Investigations" – 5th Workshop on Civil and Environmental Engineering, National University of Singapore.

Top Peer-Reviewed Journal Highlights (*Full list of 14 publications available upon request*)

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.
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.
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.
4. 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.