

FANGXU SUN MSc, BENG SENIOR NAVAL ARCHITECT

National University of Singapore, Master of Science, Offshore Technology 2013

National University of Singapore, Bachelor of Mechanical Engineering, 2012

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Fangxu is a Senior Naval Architect at Solis Marine Engineering Pte Ltd, the engineering division of the Solis Marine Group providing engineering, design, and analysis services to the offshore and maritime, renewables industries and green shipping.

Fangxu's work includes hydrodynamic analysis, stability analysis, mooring strength and fatigue analysis, offloading analysis, riser and umbilical analysis, engineering design, structural design, seafastening, ship manoeuvring, MWS document review, project management and planning. He has delivered many challenging large-scale permanent installation projects and FPSO mooring system design and installation projects.

Upon graduating with a Master of Science in Offshore Technology in 2013 from the National University of Singapore, he then worked as a Naval Architect at PAPE Engineering for six years and has extensive knowledge of mooring system design for FSO / FPSO and derrick barge, SURF (subsea umbilicals, risers and flowlines) installation, structural design, pipe laying design and dynamic position system design.

In 2019 Fangxu joined London Marine Consultant Asia Pacific where he worked extensively in design, engineering, project management and interface roles for mooring & riser designs for FPSO and offshore installation projects, which include numerous technically challenging projects in the deep water and tropical storm regions. This work involved project management, mooring & riser system design, stability analysis, offloading availability analysis, cost estimation, and scope of work definition.

In 2022 Fangxu moved on to Solis Marine Engineering. He took over the structure analysis scope on green fuel vessel conversion project, he also expanded his skill set with seafastening analysis and ship manoeuvring analysis. In addition, he did multiple MWS document review for load-out and salvage project which included mooring, seafastening, ballasting, stability, deck strength, ramp structural and global strength calculations.



SOLIS MARINE ENGINEERING PTE LTD., SINGAPORE, 2022 – PRESENT

Green Fuel Vessel Conversion Projects

- Structural integrity check for tank supporting structure, new-built deck house, lifeboat platform, ventilation tower and ducting support, and underdeck structures.
- Seafastening calculation for tank and new-built items.
- Tank temperature calculation for ammonia tank.

North Sea System – Winch Seafastening

- Seafastening calculation for newly added winch.

FMG SYDNEY Collision Investigation

- Ship manoeuvring simulation for multiple scenarios.

Ocean Infinity – Island Pride Mobilization

- Seafastening calculation for containers and LARS tower

Bombora – EuropeWave Mooring

- QA for mooring strength and motion analysis for semi-submersible type wind farm.

Subsea Energy Solution – Bend Stiffener Analysis

- Stress analysis for bend stiffener for flexible riser

MWS Document Review for Multiple Load-out and Salvage Projects

- Document review for multiple types of calculation including mooring, seafastening, ballasting, stability, deck strength, ramp structural and global strength calculations.

LONDON MARINE CONSULTANT ASIA PACIFIC, SINGAPORE, 2019 – 2022

World Carrier Corporation – Etame FSO Project

- Basis of design for the mooring system.
- Mooring strength and fatigue analysis for the spread mooring system of the FSO.
- Hydrodynamic, motion and greenwater analysis for the FPSO.

Oil Search – Turret Pre-FEED

- Define the scope of work, responsibilities, controls and coordination procedures for Contractors of the FSO turret mooring system in the FEED phase.

EXMAR – Leviathan FLNG Phase2

- Hydrodynamic and motion analysis for the FLNG.

Yinson – Atlanta 2 FPSO (Water Depth 1540m)

- Liaise with client as interface engineer.
- Mooring strength analysis for the spread mooring system of the FPSO.
- Static and dynamic riser and umbilical analysis for the FPSO.
- Availability analysis for the offloading operation.

World Carrier Corporation – Okwok FPSO Project

- Liaise with client as interface engineer.
- Mooring strength analysis for the spread mooring system of the FPSO.
- Hydrodynamic, motion and greenwater analysis for the FPSO.

TK-Ocyan – FPSO Pioneiro de Libra (Water Depth 1920m)

- Mooring fatigue analysis for the external turret mooring system of the FPSO.
- QA of the mooring strength analysis.

ICON – Barge Mooring and Motion Analysis

- Stability, hydrodynamic and motion analysis for barge.
- Mooring strength analysis for the barge during installation, for both operational and stand-off position.

SHIPLOAD – FSU Mooring Study.

- Project management and planning.
- Liaise with client as interface engineer.
- Mooring strength analysis and anchor pattern selection and optimization.

TYLin – Proposed Condominium Development at Harbourfront Avenue (Plot 4)

- Project management and planning.
- Liaise with client as interface engineer.
- Stability analysis for concrete floating swimming pool.
- Frequency domain motion analysis for concrete floating swimming pool.

TYLin – Innovative Mooring Solutions for the Optimization of Sea Space at Anchorages in Singapore

- Project management and planning
- Liaise with client as interface engineer.
- Compartmentalization & stability analysis for floating deck.
- Motion and greenwater analysis for floating deck.
- Mooring strength and berthing analysis for side-by-side FSRUs and floating deck.

Vires – Batangas LNG Terminal Mooring System

- Preliminary mooring strength analysis for internal column turret mooring system.

HBA – Nam Du Turret Mooring System

- Mooring strength analysis and mooring system selection between spread mooring system and turret mooring system.
- Cost estimation for different mooring system.

MVOT – FSO Orkid

- Hydrodynamic assessment for loading condition and calibrate the roll damping based on the RAOs provided by client.
- QA of mooring strength analysis.

Cortez – FPSO Berantai

- Riser system verification for the newly installed riser.
- Review and QA of the Fibre Optic Cable installation analysis.

DRL – Husky FPSO

- Review and QA of the Greenwater analysis.

OMNI – FSO Erawan

- Mooring strength analysis for detailed strength design of the external cantilever mooring system.

PAPE ENGINEERING PTE LTD, 2013 – 2019

ONGC – Pipeline Replacement Project-4 / Daman Development Project / C-26 Cluster Pipeline Project

- Lead structural design for riser/l-tube clamps including design and material selection for all plates, stiffener, stubs and bolts & stress and feasibility check. Supervise the drafting of clamp detailed drawings.
- Material-take-out (MTO) making for procurement for clamp fabrication.
- Liaise with fabrication yard during fabrication of all clamps to provide technical support to ensure the fabricated clamps are in line with the design & validation the alteration request raised by the fabrication yard.

KRIS Energy – Wassana Field Development, EPC of Calm Buoy & Associated Mooring System

- Mooring strength and fatigue analysis, and anchor pattern preparation for SPM system including DOC, DEC and offloading conditions.

PETRONAS – SK316 Development Project

- Mooring strength analysis and anchor pattern preparation for jacket upending and topside lifting operations in operational and survival conditions.
- Anchor deployment procedure for topside float over operation.

MISC – Provision of Engineering, Supply and Delivery of One Calm Buoy for Underbalance Drilling (UBD) Campaign

- Mooring strength analysis and anchor pattern preparation for SPM system including DOC, DEC and offloading conditions, heading and weather vaning restriction analysis.

OMNI – NONG YAO Filed Development, FSO Supply of Calm Buoy with Associated Mooring System

- Mooring strength analysis and anchor pattern preparation for SPM system including DOC, DEC and offloading conditions.

PTSC – Su Tu Field Development

- Mooring strength analysis and anchor pattern preparation for pipelay activities from start-up to lay-down including operational and survival conditions, and for various lifting analysis including spools, expansion loops, riser guard and topsides.

ConocoPhillips – South Belut Project

- Mooring strength analysis and anchor pattern preparation for semi-submersible Safe Astoria as accommodation barge including operational and survival conditions.

Swiber – Kaizen 4000 Upgrading Project

- Mooring strength analysis for Kaizen 4000 for upgrading propose.

PEMEX – Transportation and Installation Engineering for SINAN Project

- Mooring strength analysis and anchor pattern preparation for pipelay activities from start-up to lay-down, and for spool lifting.

Shell – Champion Water Flood Project

- Structural design for dropped objects protection system including energy absorption, frame integrity, on-bottom stability and cathodic protection.

SOFTWARE SKILLS

Hydrodynamic Analysis	Diodore, Hydrostar, OrcaWave
Mooring Analysis	Ariane 7/8
Dynamic Finite Element Analysis	Deeplines, OrcaFlex
Dynamic Positioning Analysis	ShipX
Stability Analysis	Autohydro, GHS
Structural Finite Element Analysis	Autodesk Inventor, Autodesk Nastran

EMPLOYMENT HISTORY

2022 to Present	Solis Marine Engineering Pte. Ltd. Singapore Senior Naval Architect / Naval Architect
2019 to 2022	London Marine Consultant Asia Pacific, Singapore Naval Architect
2013 to 2019	PAPE Engineering Pte. Ltd., Singapore Naval Architect