JISHNU T

Naval Architect • **Design Engineer** • **Ocean Engineer**

Ship Design | Structural Engineering | Offshore Platform Analysis | Production Engineering

+91 9567882003 thekkadavanjishnu1@gmail.com linkedin.com/in/jishnut

Gurugram, Haryana, India *Open to International Relocation*

PERSONAL PROFILE

I am a professionally qualified **Naval Architect and Ocean Engineer**, holding a Bachelor of Technology (First Class with Distinction, CGPA 8.17/10) from the Indian Maritime University, Visakhapatnam — one of India's premier maritime institutions. I bring a strong foundation across the full spectrum of naval architecture disciplines including **ship structural design, hull form development, hydrostatics and stability analysis, resistance and propulsion engineering,** and **shipyard production engineering**. Currently deployed as a Design Engineer at a TCS-client maritime project, I am actively contributing to a high-complexity, **confidential naval engineering programme**, demonstrating competence in precision structural calculations, compliance-driven design documentation, and coordinated multidisciplinary engineering delivery.

My practical experience spans four distinct engineering environments: a **major national defence-maritime project** (Ebizon/TCS), **India's largest public sector shipyard** (Cochin Shipyard Limited), a **composite small craft manufacturer** (Praga Marine), and **India's premier ocean technology research institute** (NIOT, Ministry of Earth Sciences). Through these engagements, I have developed proficiency in industry-leading software platforms including **Maxsurf 3D, Bentley MOSES, Tribon M3, Cadmatic, AutoCAD, IRHull,** and **Siemens NX**, and have built a thorough understanding of **IMO, SOLAS, MARPOL, IS Code, DNV-OS, LR, BV, ABS,** and **IRS** regulatory frameworks and their practical application in real-world engineering contexts.

I am a disciplined, analytically rigorous, and results-oriented engineer with a demonstrated ability to work effectively within multidisciplinary teams, manage complex technical deliverables, and adapt rapidly to new technical and organisational environments. I am actively seeking challenging roles in **ship design, offshore structural engineering, marine consultancy, classification society plan approval,** or **shipyard engineering** — where I can contribute meaningfully to high-impact maritime and offshore engineering programmes globally.

EDUCATION

Bachelor of Technology — Naval Architecture & Ocean Engineering **2021 – 2025**

Indian Maritime University (IMU), Visakhapatnam (Central University, Ministry of Ports, Shipping & Waterways, Govt. of India)

CGPA: ***8.17 / 10*** *|* ***First Class with Distinction***

Key Academic Modules:

Ship Theory I & II (Hydrostatics & Stability)
Marine Hydrodynamics I & II
Ship Structural Analysis & Design
Resistance & Propulsion
Preliminary & Detail Ship Design
Offshore Engineering & Ocean Structures
Ocean Wave Theory & Environmental Loads
Ship Production Technology
Ship Maneuvering & Seakeeping
Marine Machinery & Propulsion Systems
Finite Element Methods in Marine Structures

Shipbuilding Materials & Welding Technology
Ship Repair & Maintenance Engineering
Maritime Law, Regulations & Conventions
Environmental Studies in Marine Engineering
CAD/CAM Applications in Shipbuilding

Class XII — Science (Physics, Chemistry, Mathematics & Biology) **2019 – 2021**
Kendriya Vidyalaya Payyanur, Kerala (CBSE — All India Senior School Certificate Examination) *Grade:* ***95.4%***

Class X — All India Secondary School Examination (AISSE) **2018 – 2019**
Kendriya Vidyalaya Payyanur, Kerala (CBSE) *Grade:* ***91.6%***

PROFESSIONAL EXPERIENCE

Ebizon Net Info Pvt. Ltd. (Client Deputation: TCS Maritime Division) **July 2025 – Present**
Design Engineer – Naval Architect *Gurugram, Haryana, India*

- Perform **structural design and strength calculations** for foundations, bulkheads, stiffened panels, deck plating, watertight compartments, and primary structural members in compliance with **applicable engineering design standards, structural codes, and project-specific technical specifications**, ensuring full structural integrity across all prescribed design load conditions and worst-case scenarios.
- Generate comprehensive **standards-compliant engineering deliverables** — structural arrangement drawings, scantling calculation reports, material take-off (MTO) lists, weight summaries, and detailed design documentation — meeting client quality assurance requirements and technical authority review standards throughout the project lifecycle.
- Validate structural designs through systematic rule-based engineering checks and analytical assessment, consistently achieving **first-pass approval by technical review authorities**, minimising review iterations, eliminating rework loops, and accelerating overall project delivery timelines.
- Coordinate across multidisciplinary engineering teams spanning hull structure, outfitting, piping, machinery, and electrical disciplines to maintain design consistency, ensure cross-discipline integration, and deliver complete, error-free engineering construction packages on schedule.
- Maintain rigorous **engineering documentation and configuration control** throughout all design phases, ensuring full traceability of design decisions, revision history, and compliance evidence in accordance with project quality management procedures.
- Ensure all engineering outputs conform to **applicable structural integrity standards, design codes, and project-specific technical requirements**, applying a systematic approach to regulatory compliance that prevents deficiency findings during technical authority reviews.
- Translate approved engineering design drawings into **production-ready fabrication packages**, bridging the gap between design intent and manufacturing execution, supporting downstream production workflows, and reducing on-site construction rework and design change notices.
- Develop engineering solutions to complex structural challenges encountered during the detailed design phase, applying principles of **structural mechanics, material science,** and **manufacturing feasibility** to deliver practical, cost-effective design resolutions.

Cochin Shipyard Limited (CSL) – India's Largest and Premier Public Sector Shipyard — **June 2024 – July 2024**

Naval Architecture Intern — *Kochi, Kerala, India*

- Gained immersive exposure to a world-class shipbuilding environment at India's largest public sector shipyard — a facility responsible for constructing major national defence assets, commercial vessels, and offshore support platforms — developing comprehensive understanding of full-cycle **newbuild project execution at an industrial scale**.
- Supported **shipyard layout analysis and block-build planning** operations, contributing to efficient construction scheduling, optimal yard space utilisation, and effective coordination of simultaneous multi-vessel production activities.
- Prepared and reviewed **lifting plans** for structural blocks and major assemblies, applying load distribution calculations, centre-of-gravity analysis, and rigging safety standards to ensure safe, code-compliant crane operations across the shipyard.
- Executed production design tasks using **Tribon M3 and Cadmatic**, producing 3D structural hull models, outfitting and pipe-routing layouts, and detailed manufacturing drawings for active newbuild construction programmes.
- Evaluated safety protocols, production sequencing, and workflow dependencies in active shipbuilding operations; contributed recommendations supporting process optimisation and reduced non-productive time within the production engineering division.
- Observed and participated in **classification society surveyor interactions**, witnessing the practical application of LR and BV classification survey processes during construction — gaining insight into the requirements for class-approved shipbuilding documentation.

Praga Marine Pvt. Ltd. — **July 2024**

Naval Architecture Intern — Composite Craft Division — *Aroor, Kerala, India*

- Acquired intensive practical exposure to the complete manufacturing lifecycle of **FRP (Fibre-Reinforced Polymer) boat and catamaran hull construction**, from initial mould design and surface preparation through lamination, assembly, systems installation, finishing, and final quality inspection at launch.
- Studied and documented **material selection methodology** for marine composite construction, covering E-glass fabrics, woven roving, chopped strand mat, biaxial reinforcements, and polyester / vinyl ester / epoxy resin systems — including their comparative mechanical properties, cost implications, and suitability for different vessel types and operating conditions.
- Observed lamination schedules, vacuum infusion processes, gel coat application, structural insert installations, and quality control inspections; developed understanding of **process-driven quality assurance** in composite boat manufacturing aligned with classification society requirements for small craft.
- Developed applied understanding of **composite lightweight structural design** principles, including fibre orientation effects, sandwich construction advantages, and the structural and hydrodynamic performance benefits of FRP hulls in high-speed ferry, patrol boat, and offshore workboat applications.

National Institute of Ocean Technology (NIOT) – Ministry of Earth Sciences, Government of India — **June 2023 – July 2023**

Naval Architecture Intern — Offshore Structures Division — *Chennai, Tamil Nadu, India*

- Conducted a comprehensive, end-to-end **hydrostatic and stability analysis study of a deepwater spar-type offshore platform** using **Bentley MOSES**, performing modelling, mesh generation, hydrostatic computation, and full stability booklet production covering all mandatory loading conditions specified by international offshore structural codes.

- Produced complete stability analysis outputs including **hydrostatic particulars, righting lever (GZ) curves, metacentric height (GM) calculations, dynamic stability parameters,** and cross-flooding analysis across all prescribed intact and damage loading conditions — all formatted for regulatory submission.
- Rigorously cross-validated all computational results against the requirements of **IMO IS Code 2008/2020 and DNV-OS stability criteria**, ensuring full compliance of the analytical outputs and achieving **first-pass regulatory acceptance** — demonstrating precision, methodological thoroughness, and in-depth command of international offshore structural safety regulatory frameworks.
- Strengthened specialist knowledge in **deepwater offshore structure global performance analysis**, including hydrostatic restoring characteristics, free-surface effects, environmental load assessment methodologies, and the regulatory frameworks applicable to FPSO, spar, semi-submersible, TLP, and jackup offshore platform types across global deepwater energy sectors.
- Applied the experience of working within a government research institution on a complex offshore engineering analysis programme, reinforcing competencies in **offshore structural assessment, regulatory documentation preparation, computational modelling accuracy,** and **structured engineering reporting**.

RESEARCH & ACADEMIC PROJECTS

Project 1: Preliminary Design of a 300-Passenger High-Speed Catamaran Ferry

Indian Maritime University, Visakhapatnam | Final Year Academic Project | 2024–2025

Project Overview:
This project involved the complete concept-level and preliminary naval architecture design of a commercial high-speed passenger catamaran ferry serving the Beypore–Cochin coastal route. The design addressed the growing demand for fast, efficient, and safe inter-city passenger maritime transport along Kerala's coastline.

Key Technical Work & Achievements:

- Executed comprehensive **principal dimensions selection** and vessel type analysis, establishing a 36.75 m overall length, 28-knot service speed wave-piercing catamaran configuration as the optimal solution for the route's operational requirements and port infrastructure constraints.
- Performed iterative **hull form design and resistance estimation** using **Maxsurf 3D (slender-body theory)**, systematically optimising demihull geometry — including length-to-beam ratio, deadrise angle, and bow profile — to minimise total resistance, reduce power requirements, and improve fuel efficiency at the 28-knot design speed.
- Conducted detailed **propulsion system selection and sizing**: evaluated multiple waterjet and propeller configurations, ultimately selecting the **Rolls-Royce Kamewa S3-45 waterjet** propulsion system paired with **MTU 16V 4000 M53 high-performance marine diesel engines**. Validated propulsion power balance, shaft torque, fuel consumption, and endurance range for the design operational profile.
- Performed **hydrostatic and intact stability analysis**, computing displacement, centre of buoyancy, metacentric height (GM), and generating righting lever (GZ) curves for the vessel in multiple loading conditions; verified compliance with **IMO IS Code 2008 intact stability criteria**.
- Carried out **general arrangement (GA) design**, establishing the internal deck layout for 300 passengers including seating arrangement, emergency egress routes, crew spaces, life-saving appliance (LSA) stations, and machinery room allocation in compliance with **SOLAS Ch. III & IV** and **IMO High-Speed Craft (HSC) Code 2000**.
- Evaluated **structural design principles** for the catamaran cross-structure, demihull scantlings, and aluminium/GRP construction material selection, considering weight minimisation and structural adequacy for the design sea states.
- Assessed **spatial and dimensional constraints** including propulsion tunnel geometry, draft limitations at destination ports, shaft alignment feasibility, and longitudinal weight distribution — refining the design to achieve a well-balanced and operationally viable vessel.

Tools Used: Maxsurf 3D (resistance, stability), AutoCAD (GA drawings), MS Excel (calculations), Maxsurf Stability (intact stability analysis).

Project 2: Concept Design — Tethered Amphibious Hull Inspection & Cleaning (HISC) Robot

Project Overview:
This project addressed the growing maritime industry challenge of hull biofouling and the high cost, operational disruption, and environmental impact associated with traditional drydocking-based hull maintenance. The project developed a concept-level design for a tethered, semi-autonomous robotic system capable of performing in-water hull inspection and biofouling cleaning on commercial vessels.

Key Technical Work & Achievements:

- Defined the **engineering design requirements** for the HISC robot through systematic analysis of commercial vessel hull geometry, biofouling growth patterns, operational safety constraints, and the cost economics of drydocking vs. in-water maintenance — establishing a clear technical specification baseline for the concept design.
- Developed the complete **3D mechanical design** of the robotic platform in **SolidWorks**, including the chassis frame, thruster arrangement for controlled underwater manoeuvring, tool mounting assembly, and tether management system — with due consideration for structural rigidity, waterproofing, and ease of deployment from a vessel deck.
- Designed and evaluated the **cavitating water-jet cleaning nozzle system**, analysing the operating pressure requirements, standoff distance, and nozzle geometry necessary to achieve effective biofouling removal from anti-fouling coated hull surfaces without causing paint damage or surface erosion.
- Prototyped **control system logic in Python**, establishing the foundational operational control architecture for thruster management, tether tension monitoring, and operator command interface for a semi-autonomous ROV-type underwater operating mode.
- Aligned the design concept with **IACS UR Z17 requirements** for in-water survey (IWS) equivalency and classification society guidelines for hull survey using remote-operated vehicles (ROV), demonstrating commercial viability as a drydocking interval extension tool.
- Quantified the potential **economic and environmental benefits**: reduction in biofouling drag penalty (estimated fuel savings of 5–15%), reduced dry-dock frequency, lower antifouling paint consumption, and minimised underwater noise signature — benefits directly aligned with IMO's 2050 GHG reduction targets and MARPOL Annex VI requirements.

Tools Used: SolidWorks (3D design), Python (control logic), AutoCAD, MS Excel (hydrodynamic load calculations).

TECHNICAL SKILLS & SOFTWARE PROFICIENCY

Software / Tool	Proficiency	Primary Application Area
Maxsurf 3D (Resistance & Seakeeping)	*Advanced*	Hull resistance estimation, wave-making analysis, seakeeping response
Maxsurf Stability	*Advanced*	Intact / damage stability analysis, GZ curves, IS Code compliance
Bentley MOSES	*Proficient*	Offshore platform hydrostatics, stability booklets, global analysis
Tribon M3	*Proficient*	3D ship hull modelling, structural assembly, production drawings
Cadmatic	*Proficient*	3D ship design, outfitting layout, pipe routing, fabrication drawings
IRHull	*Proficient*	Hull structural rule-checking, scantling calculations
Siemens NX	*Working Knowledge*	3D CAD modelling, assembly design, engineering drawing generation
AutoCAD (2D & 3D)	*Advanced*	General arrangement drawings, structural layouts, detail drawings
SolidWorks	*Proficient*	3D mechanical and structural conceptual design
MS Office Suite	*Advanced*	Technical reports, engineering calculations (Excel), presentations
Python	*Intermediate*	Data processing scripts, automation, engineering calculation tools
C Programming	*Basic*	Fundamental programming logic, embedded systems concepts

CORE TECHNICAL COMPETENCIES

- Naval Architecture & Ship Design
- Hydrostatics & Hull Form Design
- Intact & Damage Stability Analysis
- Structural Design & Scantling Calculations
- Finite Element Analysis (FEA) Concepts
- Seakeeping & Hydrodynamic Analysis
- Resistance & Propulsion Engineering
- Offshore Platform Analysis (FPSO, Spar, TLP)
- IMO / SOLAS / MARPOL / IS Code Application
- DNV, LR, BV, ABS Classification Rules
- Production & Shipyard Engineering
- Block Planning & Lifting Operations
- Ship Repair & Drydocking Concepts
- FRP & Composite Marine Structural Design
- Material Take-off & Weight Estimation
- Class-Approved Technical Documentation
- Engineering Drawing Interpretation
- Cross-functional Team Coordination

REGULATORY & STANDARDS KNOWLEDGE

- IMO International Conventions (SOLAS, MARPOL, COLREGS)
- IS Code 2008 & 2020 (Intact Stability)
- IMO High-Speed Craft (HSC) Code 2000
- DNV-OS Offshore Structure Series
- Lloyd's Register (LR) Rules for Ships
- Bureau Veritas (BV) Rules for Classification
- ABS (American Bureau of Shipping) Rules
- Indian Register of Shipping (IRS) Guidelines

- IACS Unified Requirements (URs)
- Load Line Convention (ICLL 1966)

RESEARCH INTERESTS

- **Hydrodynamic Optimisation of High-Speed Marine Craft:** Hull form design, resistance reduction strategies, and propulsion efficiency improvement for fast ferries and offshore support vessels using computational analysis tools.
- **Composite and Lightweight Structural Design for Naval Vessels:** Application of FRP, carbon fibre reinforced polymer (CFRP), and hybrid materials in weight-critical marine structural design for patrol craft, high-speed ferries, and naval platforms.
- **Offshore Floating Structure Stability & Mooring Systems:** Global performance analysis, station-keeping, and regulatory compliance of deepwater platforms including FPSOs, spars, semi-submersibles, and TLPs.
- **Autonomous Underwater Systems for Hull Inspection:** ROV and AUV technology for in-water hull survey, biofouling assessment, and maintenance — reducing drydock dependence and improving fleet operational availability.
- **Green Shipping & IMO GHG Reduction Compliance:** Energy efficiency design measures (EEDI, EEXI, CII) and alternative propulsion technologies aligned with IMO's 2050 decarbonisation targets.

ACADEMIC CONTRIBUTIONS & PRESENTATIONS

- **Conference Poster Presentation — CCMARPOL 2023**
  Title: "Autonomous Firefighting System to Reduce the Environmental Impact of Shipboard Fires"
  Event: National Maritime Regulatory Conference on MARPOL Compliance, 2023
  Significance: Demonstrated interdisciplinary innovation combining autonomous systems engineering, naval architecture, and environmental compliance aligned with MARPOL Annex regulations and IMO fire safety conventions (SOLAS Ch. II-2). Recognised for originality and practical applicability.

CERTIFICATIONS

- **Offenso Certified Security Professional**
  Domain: Cyber Security — Ethical Hacking, Network Security, Vulnerability Assessment, Penetration Testing Methodologies.
  Relevance: Demonstrates systematic analytical, risk assessment, and structured problem-solving capabilities applicable to engineering integrity analysis and system security evaluation.
- **Defronix Certified Junior Security Professional**
  Domain: Penetration Testing & Information Security Fundamentals — covering network protocols, OS-level security, and vulnerability identification methodologies.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

- **House Head — Nirghat House**
  Indian Maritime University, Visakhapatnam | 2023–2024
  Elected as House Head for Nirghat House, managing the welfare, discipline, study support, and inter-house sporting and cultural activities for a residential student cohort of **60+ students** drawn from diverse regional and linguistic backgrounds. Developed strong competencies in leadership, conflict mediation, cross-cultural communication, and structured organisational management within a formal institutional framework.
- **Member, Anti-Ragging Committee**
  Indian Maritime University, Visakhapatnam | 2024–2025
  Served as a student member of the university's statutory Anti-Ragging Committee, contributing to campus safety policy implementation, incident monitoring, student welfare initiatives, and institutional governance. Demonstrated accountability, ethical leadership, and a commitment to maintaining a safe, inclusive academic environment.

PROFESSIONAL AFFILIATIONS & MEMBERSHIPS

- **Eligible to apply:** SNAME — Society of Naval Architects and Marine Engineers (USA/International)
- **Eligible to apply:** IMarEST — Institute of Marine Engineering, Science & Technology (UK/International)
- **Eligible to apply:** RINA — Royal Institution of Naval Architects (UK/International)

LANGUAGES

English (Professional — C1) **Malayalam** (Native — C2) **Hindi** (Proficient — B2)

REFERENCES

Professional and academic references are available upon request, including academic faculty from Indian Maritime University and supervisors from professional internship organisations.

This curriculum vitae is accurate and complete to the best of my knowledge. Certain aspects of current employment relate to a confidential engineering programme and cannot be disclosed beyond the scope described herein.