

Mohannad AlRefai

Ocean & Naval Architectural Engineer — Engineer-in-Training (EIT) — Project Coordination
St. John's, NL (Relocating to Ontario)
(709) 315-9600 malrefai@mun.ca linkedin.com/in/mohannadalrefai

Education

Memorial University of Newfoundland

Bachelor of Engineering – Ocean & Naval Architectural Engineering (Co-op)

St. John's, NL

May 2025

Work Experience

Underwater Acoustics Researcher

Memorial University of Newfoundland

Sep 2024 – Dec 2024

St. John's, NL

- Developed an underwater noise model for Memorial University's PoGo route-planning program, assessing vessel-generated noise impact on marine mammals in Arctic shipping corridors.
- Implemented the MacGillivray et al. (2022) functional regression methodology to calculate vessel source levels, and applied the Ainslie-McColm attenuation formula to estimate sound propagation across depth and frequency.
- Built an Excel-based tool covering 5+ operating scenarios, comparing outputs against NOAA Level A and B harassment thresholds for 3 marine mammal species and 2 fish species.
- Researched and integrated 5 existing Canadian noise restriction zones into the model and ran a case study on two real vessels, back-calculating safe distances and producing speed-source level analyses.
- Took full ownership of the workstream and delivered approximately 2 weeks ahead of schedule, which led directly to an additional Rhino 3D hull modelling assignment.
- Led weekly project meetings, provided twice-weekly written supervisor updates, and produced a formal technical report adopted as a methodology guideline by the supervising professor.

Search and Rescue Operations Researcher

Memorial University of Newfoundland

Jan 2024 – May 2024

St. John's, NL

- Contributed to a multi-institution SAR research collaboration (MUN, Marine Institute, Dalhousie) focused on improving search and rescue response in Atlantic Canada.
- Took initiative on early-stage project planning, independently establishing the project structure and sequence of work that enabled the broader research effort to move forward on schedule.
- Built and maintained a structured Excel dataset sourced from the Canadian Coast Guard's national SISAR incident database, covering thousands of records across multiple years.
- Developed ~10 Python-based mapping outputs visualizing incident distribution, coverage gaps, and operational patterns, presented directly to 103 SAR Squadron in Gander.
- Conducted site visits to the Canadian Coast Guard and 103 SAR Squadron, engaging senior RCAF officers and active SAR pilots to validate research assumptions and gather operational data.
- Delivered regular progress updates and a comprehensive technical report; outputs were reused by the supervising graduate student's thesis.

Project Engineering Student

Enaimco

May 2023 – Aug 2023

St. John's, NL

- Worked across engineering, software development, and business teams at a ~20-person startup building cloud-based asset integrity software for offshore oil and gas operators.
- Interpreted P&IDs and engineering drawings to extract and organize subsea asset data for platform digitization.
- Conducted QA testing across system workflows, documenting 30+ issues and presenting prioritized recommendations to leadership.
- Researched offshore IMR (Inspection, Maintenance, and Repair) workflows and delivered a company-wide knowledge transfer session, producing a presentation and reference document that directly drove a major overhaul of the platform's IMR feature.
- Produced a Figma mock-up for a new dashboard feature after a whiteboard session with engineers and developers, used directly by the dev team to build the UI.
- Tracked deliverables and outreach through Monday.com dashboards and participated in client-facing meetings.

Research Assistant

Memorial University of Newfoundland

Jun 2022 – Sep 2022

St. John's, NL

- Supported ice load measurement research under Dr. Mikko Suominen (Aalto University), conducting experimental testing on a full-scale double pendulum setup simulating ship-ice contact mechanics.
- Used the Tekscan I-Scan 5260 pressure mapping sensor to measure spatial load distribution across simulated hull interfaces, completing 150+ quasi-static test runs to loads up to 10 kN.
- Performed two-load sensor calibration using an Instron 5585H machine across multiple sensitivity settings, applying the power law equation methodology to validate accuracy.
- Developed MATLAB scripts to process raw CSV data across thousands of frames, identifying peak load frames and generating 3D bar graphs and 2D heat maps of load distribution.
- Managed equipment setup, maintained traceable test logs, and documented procedures to ensure repeatability.

Projects

LNG Carrier Design – Capstone Project (Kitimat, BC ↔ Incheon, South Korea)

- Delivered the preliminary design of a 296 m LNG carrier (113,000 GT, 19 knots, ABS classified) as part of a 5-person team, with the vessel achieving a 45% EEDI margin below the required Phase 3 value.
- Owned the project coordination function – managed the MS Project schedule, identified a mid-project deviation, replanned, and delivered all milestones on time.
- Personally led the economic assessment (Future Value, NPV, IRR across six fleet configurations) and the cargo handling piping system design across all four cargo tanks.
- Performed stability and hydrostatic analysis using GHS across 10 loading conditions, including lightship weight estimation. All cases passed IMO intact and ABS damage stability criteria.
- Contributed to ABS-classed midship section design using first-principles methods, and led regulatory compliance across ABS, SOLAS, IGC Code, MARPOL, and Transport Canada.
- Received strong feedback from professors and external industry reviewers.

America’s Cup AC75 Hydrofoil Sailboat Design

- Contributed to the conceptual design of an AC75-class hydrofoiling monohull as part of a 3-person team within America’s Cup class rule constraints.
- Developed a component-based Python resistance model covering 0–50 knots across displacement, transition, and foiling regimes.
- Built a time-domain hydraulic powering simulation modeling the 8-station cyclor system, 20L accumulator dynamics, and actuator demands during a tack maneuver.
- Authored the maneuvering, seakeeping, and sustainability sections of the final report.

Skills

- **Project Coordination:** schedule management, task and deadline tracking, meeting facilitation, stakeholder coordination, action item follow-through, risk identification, multi-workstream support
- **Naval Architecture & Marine Engineering:** vessel concept and preliminary design, stability/hydrostatics, lightship weight estimation, resistance & propulsion, safety systems development, regulatory compliance (ABS, DNV, SOLAS, IGC Code, MARPOL)
- **Documentation & Controls:** technical reports, methodology documentation, P&ID interpretation, design and general arrangement drawings, structured records, change tracking, status updates, meeting notes
- **Reporting & Analysis:** Excel-based modeling tools, Python (data processing, visualization, geographic mapping, engineering simulation), MATLAB (data analysis, scripting), scenario comparisons
- **Tools:** MS Project, Monday.com, MS Teams, Microsoft Office Suite (Excel, Word, PowerPoint, Outlook), AutoCAD, Rhino 3D, MATLAB, Python, QGIS, NavCad, GHS
- **Professional Skills:** self-directed execution, adaptability, problem-solving, stakeholder communication, attention to detail, communicating technical work to non-technical audiences