

Colm Molder EIT, B. Eng Mechanical, M. Eng in Naval Architecture Student

Vancouver, BC, Canada | www.colm.world

Education

University of British Columbia	<i>Sep 2025 - Present</i>
Master of Engineering in Naval Architecture and Marine Engineering	
University of Victoria	<i>Sep 2019 - Apr 2024</i>
Bachelor of Engineering in Mechanical Engineering	

Technical Competencies

Computer Aided Design	SolidWorks, Fusion 360, Siemens NX, Creo Parametric, AutoCAD, Rhino
Simulation	Orca3D, NX FEA and CFD, ProteusDS, Ansys Fluent
Machining	MasterCAM, Vericut, Design for manufacturing – mill, lathe, injection molding
Programming	Python, MATLAB, Excel Scripts and Macros

Technical Work Experience

Inventu Research - Flash Park, Enclosure and Prototyping Specialist	<i>May 2025 - Present</i>
Led the mechanical design for a IP67 and IK10 rated parking space monitor enclosure for mass production.	
<ul style="list-style-type: none">Designed several injection molded design options to eliminate the need for side action cores while still allowing for specific instrument placement saving 50% on mould development costs.Incorporated custom gaskets, sealants, and acoustically transparent membranes to ensure IP67 level resistance.Developed and tested ultrasonic amplifying horns constructed into the geometry saving \$60 on components per enclosure.Standardized tolerances to ISO 2768 and performed tolerance stack up analysis to ensure components fit.Collaborated with international manufacturers to save 70% on mould development costs.	
Dometic Marine Canada, Mechanical Engineering Co-Op	<i>Jan 2023 - Apr 2023</i>
Contributed to machining cell layout, fixture design, and automation improvements.	

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<ul style="list-style-type: none">Designed and sourced replacement CNC fixture components as part of preventative maintenance, preventing up to 2 weeks of critical machine downtime.Engineered and tested a prototype automated part flipper that improved part quality and eliminated 45 minutes of manual work daily.Developed a lean manufacturing shop floor redesign in AutoCAD/3D factory utilities that optimized workflows and informed machine movement and power requirement plans.Facilitated setup and process optimization of an automated centerless grinding machine freeing up ~4 hours of operator time daily compared to the previous manual system.	
Ocean Networks Canada, Mechanical Engineering Co-Op	<i>May 2022 - Aug 2022</i>
Performed design, validation, and assembly of ocean floor observatories.	

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<ul style="list-style-type: none">Planned mounting, deployment, and cable routing for a pan-tilt camera on a Wally Crawler ROV using stability analysis, documented in a technical report that was awarded "Demonstration of High-Level Engineering Skills and Enterprise" by the Vancouver Island Engineering Society.Engineered a platform with a fiberglass base, performing bending and buoyancy analysis to ensure rigidity without costly metal reinforcement, while optimizing for stability and ease of ROV deployment.Designed and 3D printed a custom ROV cutting tool that severed failed burn wire release mechanisms, enabling successful retrieval of Smart Ocean platforms.	
Smart Ocean Technologies, Mechanical Engineering Co-Op	<i>Aug 2021 - May 2022</i>
Designed and developed a custom 3D printed cutting tool for a Smart Ocean platform.	

Inventu Research - Ergonomyx Technologies, Mechanical Engineering Co-Op

Sep 2021 - Dec 2021

Worked in rapid prototyping, production, and documentation of workplace fitness products.

- Designed and printed a prototype enclosure for Ergonomyx's latest product showcased at CES 2022.
- Created and documented standardized production and QC workflows, streamlining assembly and reducing variability in Ergonomyx's manufacturing process.
- Implemented an autonomous inventory control spreadsheet, ensuring component availability and eliminating manual re-count time.

Speers Construction – Ahtaapq Hydro Project, Junior Project Coordinator

Jan 2021 - Apr 2021

Led quality control for an award-winning energy project that replaced diesel power in a remote community.

- Inspected and documented rebar placement, concrete pours, excavation, backfill, CLT erection, and penstock installation ensuring adherence to engineering specifications and drawings.
- Authored compaction method specifications and calibrated density testing procedures, improving material quality control and ensuring structural integrity in remote-site conditions.
- Tested and optimized cement-treated backfill mix and placement techniques, reducing installation risk and enhancing long-term durability of hydro infrastructure.

Technical Projects

UBC Capstone Project – Canadian Coast Guard (CCG) Future Coastal Patrol Vessel

- This ongoing project collaborates with the CCG to replace their current Hero Class patrol vessels.
- I will be leading the hull development with an emphasis on stability and optimizing seakeeping ability through an active stabilization feature to be verified through simulation.

UVic Submarine Racing Club, Mechanical Team Lead

- Led the mechanical design, assembly, and testing of internal systems for a human-powered submarine, contributing to a Top Speed Award at the 2022 International Submarine Race.
- Directed composite fiberglass construction of a new hull form for the 2023 competition, coordinating design, fabrication, and systems integration efforts.

UVic Capstone Project – Automated Rod Paint Stripper, Mechanical Lead

- Performed mechanical design and fabrication of an automated machine to remove powder-coat overspray from part hanging rods, ensuring proper part electrical grounding for high-quality coating.
- Delivered a fully functional prototype that eliminated up to 2 hours of daily manual labor while improving coating consistency and production efficiency.

Wave-Jet Self-righting RC Boat, Personal Project

- Developed a self-righting RC boat through iterative design and stability analysis, creating a robust 3D-printed hull optimized for rough ocean wave conditions.
- Engineered a custom water-jet propulsion system with a fully designed impeller and steering linkage.

Buoy Survivability Simulation, School Project

- Determined a 100-year storm sea state through a Python developed probabilistic model using wind, wave, and current data.
- Determined a moorings survivability using ProteusDS and performing stress and fatigue analysis on mooring elements.