

Aili Alamdari

26 rue du Syrah • Kirkland, H9H 0B1 • aili.alamdari@gmail.com • (418) 264-3255

Education

École Polytechnique Montréal

B.Eng. in Mechanical Engineering

Montréal, QC

08/2024-05/2028

Experience

Ultra Maritime

Mechanical Engineering Co-op

Halifax, NS

06/2026 - 08/2026

- Designed and dimensioned mechanical components in SolidWorks for the Sea Spear submarine detection program, applying Geometric Dimensioning & Tolerancing (GD&T, ASME Y14.5) to ensure fit, form, and function.
- Redesigned and optimized existing parts in CAD to reduce weight and improve functionality, balancing performance requirements against manufacturing and assembly constraints.
- Authored and maintained Manufacturing Engineering Instructions (MEIs), along with MRIs, VDSs, and test plans, supporting production, design verification, and non-conformance resolution.
- Owned the drawing release process end-to-end of over 500 parts: prepared drawing packages, tracked revisions, and coordinated cross-functional approvals to keep releases on schedule.
- Maintained real-time part status tracking across the program in Excel; built automated, formula- and macro-driven spreadsheet tools that reduced manual update time by 2 hours a week and improved visibility for engineers.

Laval University

Research Intern, Department of Chemical Engineering

Project: Optimization of Carbon Anode Manufacturing for Industrial Aluminum Production

Québec QC

06/2026 - 08/2026

- Prepared and characterized carbon anode samples (coke and pitch), implementing experimental protocols for material mixing and coating, followed by demolding, polishing, and surface preparation for microscopic observation.
- Conducted microstructural analysis using Keyence and Nikon optical microscopes; analyzed and interpreted microscopic images and measured the density of porous materials.
- Conducted literature reviews on the mechanical and electrical properties of carbon anodes to support experimental analysis and interpretation.

École de technologie supérieure (ÉTS)

Research Intern, Department of Materials Engineering

Project: Characterization of metallic components to optimize wear behavior

Montreal, QC

06/2023 - 08/2023

- Prepared metallic samples through cutting, mounting, polishing, and chemical etching; conducted analysis using optical microscopy, SEM, and hardness testing equipment.
- Collected and interpreted experimental data, summarized results in technical reports, and presented findings during weekly team meetings.

Projects

Robotic Dog Prototype

- Designed a fully autonomous robotic dog from scratch in CAD, fabricated components through 3D printing, and integrated mechanical, electrical, and control systems.
- Programmed Arduino-based controls to autonomously navigate a parcours, including forward/reverse motion, rotation, toy retrieval, tail movement, and synchronized LED signals while meeting defined safety requirements.

Automated Sliding Door System

- Designed and built a CAD-based automated sliding-door prototype to reduce peak-hour congestion while maintaining the building's thermal performance.
- Programmed an Arduino control system with LiDAR sensing to detect incoming users and automatically open the appropriate door configuration based on object/person size.

Wind Turbine Design & Optimization

- Designed and built a small-scale functional wind turbine entirely from scratch, optimizing its electrical efficiency through experimental testing.
- Evaluated the effects of blade number, blade angle, and other design parameters to identify configurations that maximized electrical output.

Skills

- Software: MS Office, CATIA and AutoCAD, LabVIEW, SolidWorks
- Programming: Python, VBA and C++
- Languages: French (native), English (bilingual)
- Laboratory: SEM, optical microscopy (Keyence and Nikon), hardness testing