CARMINA ROCHELEAU

MECHANICAL ENGINEER

Hands-on experience in design, prototyping, and testing for biomedical, oceanographic, and mechanical applications. Skilled in FEA, SolidWorks, MATLAB, and CNC operations. Strong leadership in team environments and proven ability to manage complex projects from conception through completion.

(250) 580 - 6223
carmina@rocheleau-engineering.com
Victoria, B.C.

Education

University of Victoria
Bachelor of Mechanical Engineering
Mechatronics Pathway Certificate
January 2023 – December 2024

Camosun College
Advanced Diploma in Mechanical Engineering
January 2022-December 2022
Diploma Mechanical in Engineering Technology
January 2019- December 2021

Thompson Rivers University
Certificate Adventure Guide
January 2019-December 2021

Volunteer

Climbing Instructor
Boulder House – *Victoria, Canada*

Facility Coordinator
Olive Branch - *El Chorro, Spain*

Teacher & Child Activities Coordinator
CFC Organization - Uganda, Africa

Interests

- Product Design & Mechatronics
- Mountaineering & Adaptive Sports
- Graphic Design & Photography

Experience

Starfish Medical - *Mechanical Engineer Co-op* *January 2024 - May 2024*

- Developed verification protocols to test device integrity under rotational and linear loads (0.7 Nmm, precision: 0.01 Nmm), ensuring a safety factor of 4.
- Conducted FEA, MATLAB simulations, and manual calculations to validate designs, ensuring regulatory compliance.
- Investigated the environmental impact of various chemicals on multiple materials, analyzing deformation, stress cracking, and discoloration, leading to a 15% improvement in material selection and a 10% reduction in product failures.
- Presented design concepts to cross-functional teams, resulting in a 30% reduction in prototype development time.

Ocean Networks Canada - *Mechanical Engineer Co-op* *April 2023 - August 2023*

- Performed FEA on a 20 ft beam to identify failure points, optimizing structural integrity for marine environments and increasing lifespan by 2 years.
- Designed hydraulic actuator and davit system for deploying 760 lb structures from moving vessels.
- Led the manufacturing process using CNC equipment to produce components resistant to continuous water currents and iceberg shock forces, while maintaining high precision tolerances (within ±0.05 mm).
- Created design specifications for mooring systems, considering environmental factors and long-term durability. Designed mooring systems capable of withstanding over 2 years of ocean submersion in extreme Antarctic conditions.

Origen Air - *Mechanical Engineer Co-op* *April 2022 - August 2022*

- Developed PWM frequency control (490 Hz) to optimize fan speeds in air filtration systems, improving system efficiency by 18%.
- Designed a Flutter/Dart interface, allowing customers to monitor and control multiple units remotely.
- Led a team in creating assembly manuals and product documentation for manufacturing processes, reducing assembly time by 43%.
- Assembled PCB boards and designed wiring harnesses for product development.

AML Oceanographic - *Mechanical Engineer Co-op* *September 2021 - December 2021*

- Designed high-pressure calibration systems (10,000 psi, -5 to 10°C) to test multiple oceanographic sensors simultaneously, maintaining ±0.05°C accuracy.
- Identified cost savings in component supply chains, reducing project spend to under $100K.
- Developed a high-accuracy pressure case for 10,000 psi environments, optimizing sensor configurations for compact designs.

Stark CNC - *Waterjet Technician* *April 2019 - August 2019*

- Managed the production of precision components, addressing discrepancies in AutoCAD files and ensuring product quality.
- Handled cost projections, material procurement, and customer communications to meet project requirements.

Lead Guide & Head Instructor *2017 - 2022*

- Developed frameworks, procedures, and guidelines for adventure sport programs.
- Organized and led excursions for diverse participant groups.

Technical Skills

Design & Analysis:	SolidWorks, FEA, MATLAB, AutoCAD
Programming:	C, C++, Dart/Flutter
Prototyping & Manufacturing:	CNC Operation, Waterjet Cutting, 3D Printing
Project Management:	Team Lead, Protocol Design, Client Liaison
Electrical:	PCB Assembly, Instrument Calibration