

ALTHEA ALMERON

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EDUCATION

Candidate for Bachelor of Applied Science in Honours Mechanical Engineering (Co-Op)

University of Waterloo

Sept. 2022 – Present | Expected Graduation: June 2027

- Current Cumulative Average: 87% | Term Distinction (Winter 2025)
- Recipient of the Undergraduate Student Research Award (USRA), President's Research Award (2x recipient), Faculty of Engineering Entrance Scholarship, and President's Scholarship of Distinction

RESEARCH EXPERIENCE

MEMS & Microfluidics Researcher (Co-Op)

Waterloo Microfluidics Lab – University of Waterloo

Jan. 2026 – Aug. 2026

- Awarded the NSERC Undergraduate Student Research Award (May 2026 – August 2026) under supervision of Professor Carolyn Ren during this placement

Microfluidic Protein Separation

- Fabricated and prepared PDMS microfluidic chips for experimental applications, including fabrication, post-fabrication processing, and assembly
- Conducted experiments using microfluidic systems to analyze sample flow behaviour using microscopy and MATLAB for data post-processing
- Designed and created fixtures and jigs using CAD modeling and 3D-printing to support experimental procedures

Soft Pressure Sensor Fabrication and Testing

- Fabricated sensor devices using Form Labs 3 SLA printer, laser cutting, and material assembly
- Tested and verified optimal fabrication parameters through experimental characterization and CAD model comparison; conducted pressure testing to analyze sensor performance
- Prepare flexible circuits for wearable sensors using a flexible material dispensing machine and hand-deposited silver ink to create conductive pathways

Microwave Sensor Fabrication

- Produced sensor components using standard microfabrication and photolithography techniques to create microscale sensor patterns
- Conducted fabrication processing and device preparation for sensor integration
- Verified sensor design and structural integrity using optical microscopy

RELEVANT WORK EXPERIENCE

Manufacturing Engineer (Co-Op)

ATS Corporation

May 2025 – Aug. 2025

- Supported transition of automation product development projects to release by finalizing process documentation, part drawings, and jig/fixture designs using SolidWorks, Microsoft Word and Excel
- Conducted time studies and developed process documentation to improve production efficiency and support manufacturing requirements
- Optimized plant layouts in DraftSight/AutoCAD to integrate new fixtures and improve workflow efficiency

Product Development Engineer (Co-Op)

ATS Corporation

Sept. 2024 – Dec. 2024

- Created and updated assembly work instructions for new and existing products, collaborating with operating technicians and mechanical designers to ensure accurate and efficient product assembly
- Managed engineering documentation for product updates and revisions
- Created 3D models and drawings a manufacturing jig using SolidWorks for design optimization and quotation support

R&D Mechanical Engineer (Co-Op)

Borrum Energy Solutions

Jan. 2024 – Apr. 2024

- Applied design for manufacturing and assembly (DFMA), conducted FEA structural simulations, and prepared calculations to verify design safety
- Produced engineering drawings for laser-cut and welded mechanical components
- Performed simulations and safety factor calculations using Robot Structural Analysis and Excel based on applicable engineering standards
- Designed, prototyped, and tested jigs using Fusion 360, SolidWorks, and 3D-printing to improve manufacturing accuracy and repeatability

TECHNICAL PROJECTS

Modeling Soccer Ball Flight Dynamics

ME 362 Fluid Mechanics II Course Project – University of Waterloo

Sept. 2025 – Dec. 2025

- Developed a MATLAB model to simulate soccer ball trajectory using fluid dynamics equations and varying stadium environmental conditions
- Applied findings from research article results on drag/lift coefficients, surface roughness, and aerodynamic properties of soccer balls
- Prepared a technical report on model theory and MATLAB code implementation

AWARDS & SCHOLARSHIPS

Research Awards

Undergraduate Student Research Award (USRA), NSERC

May 2026 – Aug. 2026

President's Research Award (2x Recipient), University of Waterloo

Feb. & June 2026

Academic Scholarships

Faculty of Engineering Entrance Scholarship, University of Waterloo

Jan. 2023

President's Scholarship of Distinction, University of Waterloo

Jan. 2023

Alexander Rutherford Scholarship, Government of Alberta

Sept. 2022

VOLUNTEERING & LEADERSHIP

Orientation Leader

University of Waterloo

Sept. 2025

- Planned and executed faculty-specific and university-wide orientation events for engineering students
- Assist students with move-in and answer general questions, provide guidance and support as needed, and collaborate with other orientation leaders to ensure student safety and smooth event coordination