

Julia Patterson

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julia-patterson.com | BAsC Honours Chemical Engineering

SKILLS

Python, AspenPlus, P&IDs, 3D modelling, 3D printing, AutoCAD, experimental design, mechanical material testing, LaTeX, MS Office, MS Excel VBA, research, technical writing, organizational skills, Spanish B1, German A2

EXPERIENCE

Assistant Operations Manager

Ravens Rest Retreat

July 2025 - Sept 2025

Moose Brook, NS

- Increased efficiency of financial reporting and management by 300%, replacing manual input with MS Excel and the use of VBA
- Managed Squarespace website and Square online store site using built-in features and customized HTML/CSS

Research Intern

Emnandi Bioplastics × ASTUTE Centre of Excellence

Jan 2024 - June 2024

Swansea, Wales

- Conducted 50+ annealed polymer ageing tests such as DSC, MFI, tensile tests, and impact tests on recycled polymers to determine mechanical properties and reprocessibility for automotive applications
- Performed a comprehensive literature review on PLA and recycled PLA properties, supporting innovative projects and advancing understanding in the field

Research Assistant for Adhesion Testing of Clay

Technische Universität Hamburg

May 2023 - Dec 2023

Hamburg, Germany

- Designed experimental test parameters and conducted 150+ geotechnical laboratory tests to deduce the effects of salinity on clay and the adhesion properties in geotechnical engineering applications such as tunnelling
- Assessed experimental results from multiple softwares and LiDAR point clouds using Python
- Performed literature reviews on the novel research of salinity effects on clay for design criterion

Project Engineering Co-op Student

Zeton Inc.

Sept 2022 - Dec 2022

Burlington, ON

- Identified and inspected 250+ instruments, valves, and equipment using P&IDs and 3D models and VBA for automation to significantly reduce labour time
- Coordinated with multiple vendors and created purchase orders and BOMs using Microsoft Dynamics ensuring correct and efficient delivery

Engineering Co-op Student

Environment and Climate Change Canada

Jan 2022 - Apr 2022

Gatineau, QC

- Utilized technical writing skills to prepare 10+ internal guidance documents and SOPs for implementation of the QA program, including verification and validation, of the Clean Fuel Regulations
- Created several detailed presentations to successfully explain the complexity of the regulations to stakeholders

Student Research Assistant

SNOLAB - SNO+ Experiment

May 2021 - Aug 2021

Sudbury, ON

- Aided in administering controls testing of 2 underground chemical plants ensuring the project stayed on schedule
- Collaborated with R&D team conducting QA testing and assisting isolation of an impurity in one of the chemical compounds

PROJECTS

Solar Desalination | Mechanical design, Python, AutoDesk Fusion 360

University of Waterloo, Fourth Year design project

June 2024 - March 2025

Waterloo, ON

- Mechanical and materials co-lead in the development and design of a novel modular scale solar still for residents of Bangladesh
- Produced water throughput results within a 5% margin compared to other modular designs
- Competed in campus finals of Map the System Canada, placing top 5 of 45 applicants

EDUCATION

Bachelor of Applied Science Honours (Distinction) in Chemical Engineering

University of Waterloo

Sept 2020 - Apr 2025

Waterloo, ON

- Keith Carr Memorial Award recipient 2023 for leadership in the university and community
- Engineering Society President's Award recipient Fall 2021, Spring 2022 for valuable assistance to the activities of the Society

Chemical engineering exchange student

Swansea University

Jan 2024 - June 2024

Wales, United Kingdom

- Tree planting society, mountaineering and climbing society, windsurfing society, hiking society, stand-up paddleboard society