

Brendan Laframboise

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<https://brendansportfolio.xyz/>

Professional Summary

Reliable and adaptable professional with strong problem-solving and organizational skills. Experienced in both independent and team-based roles, with a background in research, battery testing, and technical communication. Quick to learn new systems and processes, with proven ability to handle responsibilities accurately and efficiently.

Skills

Hands-on work with tools, equipment, and chemicals | Safe and accurate handling of materials and treatments | Strong record-keeping and attention to detail | Ability to work independently or in a team | Quick learner, adaptable to new tasks and environments | Clear communication with coworkers and customers | Reliable with time management and meeting responsibilities

Education

Master of Science in Chemistry

University of Guelph, Canada

September 2023 – August 2025

Bachelor of Science Honours with Distinction

University of Guelph, Canada

September 2019 - April 2023

Concentration in Biological and Pharmaceutical Chemistry

Professional Experience

Battery Test Technician

AlumaPower, Canada

November 2025 – Present

- Execute comprehensive electrochemical, electrical, and mechanical testing on proprietary aluminum-air galvanic generators to validate R&D prototypes.
- Operate, maintain, and troubleshoot precision laboratory equipment.
- Manage the setup of complex test apparatuses and gas sampling sensors, ensuring accurate data capture for critical prototype phases.
- Developed a testing automation program and instrument communication logic using Python.

Graduate Research Assistant

University of Guelph, Canada

September 2023 – August 2025

- Built and automated data pipelines for high throughput electrocatalysis simulations using Python
- Streamlined surface modeling workflows, reducing compute demand and improving reproducibility
- Developed a scalable method for computational alloy design
- Produced clear data visualizations and technical documentation for cross-functional teams
- Presented technical findings at international conferences and interdisciplinary meetings

Teaching Assistant

University of Guelph, Canada

September 2023 - April 2025

- Evaluated assignments and lab reports for accuracy and consistency in data interpretation
- Provided individualized support to students on data analysis and experimental reporting
- Reinforced scientific reasoning and attention to detail in written and verbal communication

Undergraduate Research Assistant

University of Guelph, Canada

September 2022 - May 2023

- Performed multi-step organic synthesis of nucleoside analogues under controlled lab conditions
- Purified and analyzed compounds using NMR and mass spectrometry
- Prepared reagent solutions and handled sensitive materials with accuracy
- Maintained compliance with safety and waste management protocols
- Documented experimental methods and results to ensure reproducibility

Projects

- Computational Design of Pt-M (M = Au, Ir, Pd, Rh, and Ru) Binary Alloys for Enhanced Ammonia Oxidation Electrocatalysis (Accepted for publication)
- Insights into Conversion of CO₂ to Formic Acid at Nanostructured CuBi Catalyst: Electrochemical, Spectroscopic and DFT Studies (Submitted manuscript)
- How Ir-Rh Alloys Improve Electrochemical Ammonia Oxidation Activity Studied by Density Functional Theory (Published)
- Synthesis of 3'-amino-3'-deoxy-5-methyluridine (Unpublished)
- Synthesis of 3'-amino-3'-deoxy-5-methylcytidine (Unpublished)

Additional Work Experience

Senior Service Technician

May 2023 – September 2023

Mosquito.buzz, Guelph, ON

- Trusted to operate independently in the field, manage a company vehicle, and handle hazardous materials safely
- Trained and supervised new technicians on treatment procedures, PPE use, and client communication
- Applied chemical treatments accurately and documented all service activities
- Assessed properties for pest risks and provided tailored prevention recommendations

Service Technician

May 2022 - September 2022

Mosquito.buzz, Guelph, ON

- Operated independently on daily service routes, entrusted with a company vehicle and hazardous materials
- Applied pest control treatments using proper PPE and safety protocols
- Inspected client properties for pest issues and advised on long-term prevention
- Recorded service details accurately and maintained professional client interactions

Cable Restoration Worker

May 2021 - September 2021

Wirecomm Systems, Vaughan, ON

- Drove to work sites to evaluate the best action for restoration, worked independently, and responsible for transporting and operating large construction equipment.

Cook/Chief Sanitization Officer/Busser

June 2020 - September 2020

St. Louis Bar & Grill, Whitby, ON

- Operated large-volume cooking equipment, responsible for the safety and sanitization of the restaurant to prevent the spread of Covid-19, cleared tables, and interacted with customers to ensure an exceptional dining experience.

Junior Cable Technician

July 2019 - September 2019

Wirecomm Systems, Vaughan, ON

- Used computer software and hardware to solve complex problems such as detecting RF leakage, used ladders to reach cable equipment, and perform exceptionally without supervision.

Professional Development

Machine Learning Specialization (DeepLearning.AI)

2025

Stanford University (Coursera platform)

Publications

- Sabouhanian N., **Laframboise B.J.R.**, Quintal J., Su Z., Chen, L.D, Lipowski J., Chen A. (2026). Efficient conversion of CO₂ to formic acid at nanostructured CuBi catalyst: Electrochemical, spectroscopic and DFT studies. *Electrochimica Acta*. DOI: 10.1016/j.electacta.2026.148126.
- **Laframboise, B.J.R.**, Coveny, J., Zhou, J., Chen, L.D. (2025). Computational Design of Pt-M (M = Au, Ir, Pd, Rh, and Ru) Binary Alloys for Enhanced Ammonia Oxidation Electrocatalysis. *ChemElectroChem*. DOI:10.1002/celc.202500288.
- **Laframboise, B.J.R.**, Johnston, S.J., Chen, L.D. (2024). How Ir-Rh Alloys Improve Electrochemical Ammonia Oxidation Activity Studied by Density Functional Theory. *ChemCatChem*. DOI:10.1002/cctc.202401177.
- Johnston, S.J., Choueiri, R.M., Liu, X., **Laframboise, B.J.R., et al. (2023)**. A Density Functional Theory Investigation of Ammonia Oxidation on the M-doped β -Ni(OH)₂ (M = Cr, Co, Cu, Fe) Surfaces. *J. Phys. Chem. C*. DOI:10.1021/acs.jpcc.4c00596.

Awards

- R.H.F. Manske Award, \$750 CAD 2025
- **Ontario Graduate Scholarship (OGS), \$15,000 CAD** 2024-2025
- CSC: Pearson Book Prize 2024
- Braithwaite Conference Travel Grant, \$700 CAD 2024
- Stephen Safe Scholarship, \$2,500 CAD 2023
- Graham, Fraser, and Trevor Bosch Scholarship, \$1,200 CAD 2022