

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, data management, 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

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

September 2023 - April 2025

University of Guelph, Canada

- 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

September 2022 - May 2023

University of Guelph, Canada

- 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 <i>Mosquito.buzz, Guelph, ON</i>	<i>May 2023 – September 2023</i>
<ul style="list-style-type: none">Trusted to operate independently in the field, manage a company vehicle, and handle hazardous materials safelyTrained and supervised new technicians on treatment procedures, PPE use, and client communicationApplied chemical treatments accurately and documented all service activitiesAssessed properties for pest risks and provided tailored prevention recommendations	
Service Technician <i>Mosquito.buzz, Guelph, ON</i>	<i>May 2022 - September 2022</i>
<ul style="list-style-type: none">Operated independently on daily service routes, entrusted with a company vehicle and hazardous materialsApplied pest control treatments using proper PPE and safety protocolsInspected client properties for pest issues and advised on long-term preventionRecorded service details accurately and maintained professional client interactions	
Cable Restoration Worker <i>Wirecomm Systems, Vaughan, ON</i>	<i>May 2021 - September 2021</i>
<ul style="list-style-type: none">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 <i>St. Louis Bar & Grill, Whitby, ON</i>	<i>June 2020 - September 2020</i>
<ul style="list-style-type: none">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 <i>Wirecomm Systems, Vaughan, ON</i>	<i>July 2019 - September 2019</i>
<ul style="list-style-type: none">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) Stanford University (Coursera platform)	<i>2025</i>
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Publications

- 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. *ChemRxiv*. DOI: 10.26434/chemrxiv-2025-33zzx
- 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.**, Tatarchuk S.W., Chen, L.D. (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

<ul style="list-style-type: none">R.H.F. Manske Award, \$750 CADOntario Graduate Scholarship (OGS), \$15,000 CADCSC: Pearson Book PrizeBraithwaite Conference Travel Grant, \$700 CADStephen Safe Scholarship, \$2,500 CADGraham, Fraser, and Trevor Bosch Scholarship, \$1,200 CAD	<i>2025</i>
	<i>2024-2025</i>
	<i>2024</i>
	<i>2024</i>
	<i>2023</i>
	<i>2022</i>