

## 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

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 CO<sub>2</sub> 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

- **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  $\beta$ -Ni(OH)<sub>2</sub> (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