

NICHOLAS BAINBRIDGE

UNDERGRADUATE STUDENT

Education

B.S. UNIVERSITY OF WESTERN ONTARIO, 2019 — PRESENT

Honours specialization in Biochemistry and Chemistry, 3.7 GPA . Expected Graduation Date: 2023, Currently enrolled in Year 4

- ◆ Deans Honour Roll

Work Experience

RESEARCH ASSISTANT, UNIVERSITY OF WESTERN ONTARIO, 2021-PRESENT

Investigated the effects of solvent evaporation after Taylor cone droplet expulsion on protein analysis in native-electrospray ionization mass spectrometry. Designed, sourced, conducted, and documented experiments to accomplish analysis using a combination of benchtop experiments of bulk solution and molecular dynamic simulations using GROMACS. Wrote python scripts for complex multivariate calculations to determine the pH of a multi-buffered solution. Developed and produced custom 3D printed pi-pette tip racks to given specifications. Responsible for sourcing and ordering chemicals and analytical devices such as pH electrode

LABORATORY ASSISTANT ROBARTS RESEARCH INSTITUTE, 2018-2020

Created 3D modelled patient mitral valves based off 2D and 3D ultrasound images and recreated them in silicon. Established work flow process and organization systems. Designed, developed, and built a desktop model of a mitral valve simulator enabling practice of valvular surgeries. 3D modelled and printed custom syringe component mixing devices to create visual jets mimicking ultrasound contrast fluid. Gained experience in operating, and interpreting Philips EPIQ ultrasound system. Collected data on mitral valve simulator and used statistical models to determine variable coefficients, for future tests mimicking real patient data.

STARBUCKS BARISTA, 2018-2019

Worked in team to create enjoyable experience both fellow baristas and customers. Made espresso beverages to Starbucks standards along with desired customer specifications. Listened attentively for orders and created a personal experience for every customer. Held responsibility to collect payments from customers by ways of cash, or card and distributing the appropriate amount of change. Dealing with complaints and handling customers in positive manor to continue granting customers a premium customer experience. Achieved high standards and *Partner of the Quarter* award.

Extra Curricular Activities

UNIVERSITY OF WESTERN ONTARIO MATH CLUB 2019-PRESENT

Guest lecturer on the mathematical abstraction of quantum particles and quantum tunneling and its applications. Presented a series of custom visual aids to effectively portray a complex concept in a simplified manor, maximizing audience comprehension.

JOURNAL CLUB 2020-PRESENT

Founded and organizes a ten participant weekly review, summary, and critique of published papers on innovative topics . Learned the importance of explanation and group discussion to formulate ideas and improvements to techniques and methodology.

OPEN INSULIN FOUNDATION 2021– 2022

Volunteering within the biochemistry department, investigating patents for viable extraction methodology of insulin from bacteria with the goal of creating open source availabilities for insulin generation .

Certifications

- ◆ Standard First Aid with CPR-C
- ◆ National Lifeguard Certification
- ◆ Canadian Ski Instructor Level 1

Hobbies

- ◆ Outdoor activities including camping, rafting, hiking, kayaking, climbing, and biking
- ◆ 3D modelling, 3D printing, and woodworking with a custom built CNC Router
- ◆ Computer and electronic hardware design in Space Claim, and Fusion 360
- ◆ Software programming in HTML, CSS, JS, Python, Java, C++, MATLAB