

# Trevor Daykin

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## PROFILE

My goal is to be a part of the innovative technology scene, leveraging my creativity and deeply rooted math and physics background to drive positive changes. During my recent role at a leading global fuel cell company, I worked in a multidisciplinary team and pursued many projects, from liquid injection molding to particle analysis. In this role, I learned to take initiative and lead in ambitious environments while consistently emphasizing my accountability and meaningful contributions.

## EDUCATION

### 3rd Year UBC Engineering Physics, BAsC

*University of British Columbia*

Sept 2021 – Present

*Vancouver, B.C., Canada*

- Engineering Physics is the bridge between Engineering and Science combining advanced concepts in math and physics while putting them to practical use in team-based projects.
- Key Courses: software construction, signal processing, mechanics and instrument design

## TECHNICAL EXPERIENCE

### MEA Process Engineer Co-op, Advanced Manufacturing

*Ballard Power Systems*

Jan 2023 – April 2023

*Burnaby, B.C., Canada*

- Applied a structured approach to qualify an automated robotic Liquid Injection Molding process involving data collection, capability/GR&R analysis, and ultimately, a presentation of results in a lean Six Sigma environment.
- Hands-on experience operating Liquid Injection Molding machines including troubleshooting and control of molding parameters.
- Developed and implemented automated data analysis in Excel, transforming raw data into actionable insights; increasing overall efficiency by 98%.
- Accelerated production times by 75% through a combination of rapid prototyping 3D printed fixtures designed in Creo and updates to vision measurement system routines in C++.

## TECHNICAL PROJECTS

### Autonomous Driving Robot Competition: 2nd Place | CAD, Machine Shop, Microcontrollers, C++

- Brainstormed, designed, and manufactured an autonomous robot with a group of 4 to race on the same track as other robots while passively picking up and avoiding objects.
- Created the entire chassis, ensuring all sensors, circuits, and mechanical components function as intended, rapid prototyping through 3D printers and laser/waterjet cutters.
- Implemented and tuned a PID algorithm in C++ so the robot can follow tape smoothly through custom-made tape sensors controlled by an STM-32 Blue Pill.

### Nand2Tetris: Project Course | HDL, Gate Logic, Git

- Designed digital logic circuits using Hardware Description Language (HDL), combining various logic gates and sequentially developing larger components of a modified computer system.
- Developed an understanding of computer architecture by building a modified computer system from the NAND gate up; learning knowledge of CPU architecture, ALU design, and memory systems.

### Canadian Synthetic Biology Education Research Group, SYNBB3 | Python: scikit-learn, NumPy, pandas

- Assisted in the identification of a cannabinoid that has a high affinity for the human CB1 receptor.
- Modeled protein similarities through hallucinations using Python, PyMol, and knowledge of organic chemistry.
- Produced a technical outline with a multidisciplinary team across Canada that organized our results to satisfy real-world demands for potential companies to explore.

**Multidisciplinary Undergraduate Research Competition** | *R, Statistical Methods: Hypothesis Testing*

- Analyzed and statistically compared market data of air purifiers using R to lower costs and increase the efficiency and safety of incoming products for COVID-19.
- Interpreted how ultraviolet air purifying works, specifically with  $TiO_2$  together with multi-walled carbon nanotubes, which reduce the harmful effects of UV radiation.
- Transformed our findings into digestible content by using Python and Matplotlib to be shared in a conference.

TECHNICAL SKILLS

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**Prototyping Tools:** 3D printing, laser/waterjet cutting, SolidWorks, OnShape, oscilloscopes, soldering

**Languages/Systems:** Python, C/C++, Java, R, Linux, ROS

**Libraries:** Pandas, NumPy, Matplotlib, OpenCV

COMMUNITY ENGAGEMENT

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**Engineering Physics Mentor**

Sept 2023 – Present

*Skills: Leadership, Teaching*

*Vancouver B.C.*

- Guided five first-year students in Engineering Physics, providing academic support and career advice.

PUBLICATIONS AND CONFERENCES

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**Multidisciplinary Undergraduate Research Competition**

March 2022

*University of British Columbia*

*Vancouver B.C.*

- Authored an abstract and represented our findings in a non-technical presentation.

Daykin, T. D., Holzman, I. M., & Chin, S. (2022). *Development of a UV-LED based air purification system: A research study*. Undergraduate Research in Natural and Clinical Science and Technology (URN CST) Journal, 6(4), A29–A29. <https://doi.org/10.26685/urncst.375>