Ryan Seto

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Education

University of Toronto Toronto, Canada

B.A.Sc in Computer Engineering – 3.55/4.0 cGPA *Expected June 2026*

- Pursuing an Artificial Intelligence Minor and Music Technology Certificate
- Awarded the *UofT National Book Award* in 2021 for ranking top of the class in high school with a 98.3% final average

Experience

ECE Student Research Fellowship May 2023 – Present

University of Toronto *Toronto, Canada*

- Researching and developing a Raspberry Pi supercomputer for performing mathematical operations at a small scale
- Creating a two week robotics workshop where students learn to CAD, wire, and program a small Arduino-controlled robot to both autonomously follow a line to a destination and be piloted through a maze without striking the walls
- Designed and taught a 4-day software workshop reviewing C and introducing C++ to first year ECE students, with 83% rating the overall workshop 8/10 or higher alongside requests for another workshop

Back-End Software Engineer Intern May 2022 – Aug. 2022

Heliolytics *Toronto, Canada*

- Developed the back-end of a portal for clients to view performance reports of their solar fields using Python and FASTAPI
- Completed an authentication middleware that routed user tokens from the portal's front-end to a central auth server
- Streamlined the development of back-end APIs with the auth middleware and was implemented in 10+ services
- Linked a report's GCP files and images by relating image UUIDs to reports in a PostgreSQL database using Hasura
- Refactored a legacy script that processed solar field data from Google Drive into a PostgreSQL database to match the company's modern coding standard and operate remotely using Hasura and PyDrive2

Engineering Assistant Intern Aug. 2021 – May 2022

ePIC Blockchain *Toronto, Canada*

- Prototyped an Arduino circuit that monitored the flow rate and temperature of a hash board water block with 1.5% error
- Created a 3D printed case in Solidworks to protect the Arduino circuit from water, leading to no damaged parts
- Designed housing for a client's Internet router using Solidworks and 3D printed two separate orders
- Implemented a fixture to hold PCA boards in place to improve compatibility validation using Solidworks and 3D printing

Software Engineering Intern May 2019 – Aug. 2019

Heliolytics *Toronto, Canada*

- Built a trade show demo using Flask that could take an infrared photo of the user in exchange for their contact information
- Extracted infrared footage using an IR camera's SDK and OpenCV in order to stream the footage to the user interface

Projects

Grocery Planner | *C++, Linux, Git* Jan. 2023 – Apr. 2023

- Built a full-stack application to plan grocery routes by providing an ArcGIS user interface to load and save routes
- Processed OpenStreetMap geolocation data into an object oriented database and rendered the map using GTK

Music Genre Classifier | *Python, Tensorflow, NumPy* Feb. 2023 – Mar. 2023

- Trained a convolutional neural network on 100 songs to predict the genre of a music sample to 70% accuracy

SHAD2020 Microgravity Experiment Competition | *Solidworks* Jul. 2020 – Aug. 2020

- Designed a kicker mechanism in Solidworks to repeatedly strike a shear thickening non-Newtonian fluid in microgravity in order to study its shock absorbency and scope its potential as astronaut protection
- Awarded *Top 5 Finalist* out of 62 teams competing for a chance to fly their experiment to space on Blue Origin's New Shepard rocket in 2021

Technical Skills

Languages: Python, C++, C, Arduino, Verilog, Assembly
Frameworks: FASTAPI, Hasura, Docker, Flask
Developer Tools: Git, Google Cloud Platform, VSCode
Libraries: GTK, PyDrive2, TensorFlow, NumPy, OpenCV