Ryan Seto

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Education

University of Toronto Toronto, Canada

B.A.Sc in Computer Engineering – 3.6/4.0 cGPA *Expected June 2026*

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

Experience

Kernel Driver Developer Intern | *C, C++, WinDBG, Firmware* May 2024 – Present

AMD *Toronto, Canada*

- Developing the display abstraction layer of dGPU/APU drivers through kernel level software and firmware, which provides the computer OS an interface to read monitor EDIDs, program the display settings, and send frames to the monitor
- Managing a nightly test system that logs GPU clock registers in order to quantify the power impact of driving the display and catch potential power spikes from new driver changes
- Implementing SST/MST handling for new pixel clock DPCD registers on Realtek chipsets to force frame compression in order to support edge case display modes

ECE Student Research Fellowship | *Docker, Python, Raspberry Pi, C++* May 2023 – Aug. 2023

University of Toronto *Toronto, Canada*

- Provisioned a Raspberry Pi cluster to solve linear systems in parallel by distributing asynchronous jobs across workers in a Docker Swarm through a Redis Pub/Sub pipeline and automated Raspberry Pi configuration with Ansible playbooks
- Programmed and taught a robotics workshop where students learned Fusion 360 to design a line tracking robot controlled by an Arduino, with 89% of students rating the overall experience 9/10 or higher
- Raised over $3000 of funding from the Chair of the ECE Department for the next year's robotics workshop equipment

Back-End Software Engineering Intern | *Python, FASTAPI, PostgreSQL, GCP* May 2022 – Aug. 2022

Heliolytics *Toronto, Canada*

- Developed REST APIs using Python and FASTAPI that generated analysis tasks for solar field analysts to generate reports on the wattage, potential faults, and profit of a client's solar farm
- Completed a user authentication middleware that allowed developers to toggle authentication during development, streamlining the development of 10+ back-end APIs by removing the need for admin tokens in each request
- Refactored a legacy script that migrated solar field data from Google Drive into a PostgreSQL database to be concise and modular, as well as added remote functionality using PyDrive2 and Hasura

Software Engineering Intern | *Python, Flask, OpenCV* May 2019 – Aug. 2019

Heliolytics *Toronto, Canada*

- Built a web-based trade show demo that could exchange an infrared selfie for the user's contact information and facilitate networking for the Business Development Team
- Streamed infrared footage from a Flask application to an HTML user interface using OpenCV and multithreading

Projects

Cursive Handwriting Decoder | *Python, Pytorch, NumPy* Jan. 2024 – Present

- Designed a deep learning model that filters sequential features out of images of cursive hand writing using a convolutional neural network (CNN) and decodes them into digital text using a long short term memory model (LSTM)

UTMIST: NucleAIse Protein Function Predictor | *Python, PyTorch Geometric, BioPython, NumPy* Jul. 2023 – Jan. 2024

- Implemented a graph neural network that introduced structural inductive bias into protein sequence embeddings in order to generate a more rich CLS token and achieve better protein function prediction than state of the art models
- Prepared 250GB of protein graphs by forming contact maps from AlphaFold protein structures and using ProtBERT sequence embeddings as node features

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

- Trained a convolutional neural network (CNN) to predict the genre of a music sample based on timbre, frequency, and volume analysis to 70% accuracy with background noise