

Brian Chen | Student & Aspiring Software Engineer

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SUMMARY

Current Engineering Science/Electrical & Computer Engineering student at the University of Toronto with a demonstrated passion for software engineering. A big Linux & command line aficionado and avid badminton player. I have worked in development and leadership positions in industry, research, and my own non-profit startup. Interested in working in a community to identify and resolve problems in the world around us.

EDUCATION

B.A.Sc in Engineering Science

University of Toronto

2020 – 2025

Electrical and Computer Engineering major, Machine Intelligence minor. cGPA 3.73, Dean's List.

EXPERIENCE

Software Developer

BC Parks Foundation

July 2020 – September 2021

- Worked with stakeholders design and implement novel 'DiscoverParks' platform and data collection/visualization solution for parks in British Columbia with `python`, `Django`, `PostgreSQL`, `VueJS`, `docker`, and `AWS`; currently in private beta.
- Built and maintained site backend, internal content management interface, and early-stage front-end experiences
- Identified and addressed two key bottlenecks in content management strategy, **improved efficiency by >10x**.

Teaching Assistant

Division of Engineering Science - University of Toronto

September 2021 - Present

- Helped teach ESC180: Introduction to Programming and ESC190: Algorithms and Data Structures courses (`C` & `python`)
- Prepared tutorial content and lead tutorials of 25 students; assisted labs and course evaluations. Review content is public at chenbrian.ca/posts/2021/teaching

Research Intern

Intelligent Sensory Microsystems Lab - University of Toronto

May 2021 – Present

- Researched novel input encoding and gradient thresholding methods for optimizing `memristor` crossbar machine learning accelerator in-situ performance using `MemTorch` and `PyTorch`.
- First author paper** on novel 'thresholding' concept which **reduces the demand on crossbar devices by up to 90%**, greatly improving longevity and reducing power consumption; currently pending submission

GrocerCheck Website; Co-Founder & Developer

GrocerCheck Foundation

April 2020 – December 2020

- Created grocercheck.ca, a website that aggregates and visualizes grocery store busyness to help users shop more safely for groceries across **>15,000** stores in 10+ major cities
- Founded GrocerCheck Foundation, a **registered non-profit** to better scale project; secured support, funding, grants, and partnerships valued at **>\$200,000**, supporting **>20,000** daily users.
- Designed and implemented custom `LivePopularTimes` scraping library to power backend

Simulation & Testing Co-lead

aUToronto - UofT's Self Driving Car Team

September 2020 – Present

- Leading multidisciplinary team of 14 students across 4 project groups to develop superior automated tooling for autonomous vehicle development. Our team, **aUToronto**, has won the SAE Autodrive Challenge for four consecutive years.
- "aUToTest"**, automated simulation integration test framework for autonomous vehicles, with `python`, `matlab`, `simulink`, `docker`, `ROS/ROS2`, and `unreal engine`, enabling asynchronous testing & reducing developer testing time by **>1000%**
- "aUToNoise"** Machine learning - augmented sensor noise modelling for improved Sim2Real transfer using `CycleGAN`
- "aUToViz"** test result visualization framework and `Jenkins` / `GitLab` `CI/CD` integrations for aUToronto software stack
- Presented work at 2021 Vector Institute Mobility Symposium & 2021 UofT Robotics Institute AV workshop

PROJECTS/OTHER

- For more project information and demos please visit chenbrian.ca/posts/2021/projects
- Languages/Frameworks:** `python`, `c/c++`, `javascript`, `go`, `java`, `html/css`, `bash`, `sql`, `verilog`, `MATLAB`, `simulink`, `assembly`, `verilog`, `Django`, `PyTorch`, `Keras`, `Android`, `Git`, `CI/CD`, `Jenkins`, `Docker`, `Linux`, `PostgreSQL`, `MongoDB`, `node.js`, `vue.js`, `ros/ros2`, `Fusion360`
- "butternut"**, a chrome extension implementing `gltr` that detects AI-generated text. nwHacks bronze, KPMG Data Analysis & Groundswell Salesforce Award
- "the Humerus Bot"**, an applied `NLP` (Natural Language Processing) project to write a bot that can win Cards Against Humanity
- dotfiles**, my extensive Linux user application and `neovim` configurations with various in-process plugins
- Badminton:** ClearOne Nationals Team, Eric Hamber Provincial Team Captain & Assistant Coach, 2018 Junior Nationals Finalist, UofT Badminton Club Exec
- Theatre:** Wrote and directed full-length show: 'To Bleach a Pigeon'. Oversaw actors, crew, set design, and creative process
- Awards:** Schulich Leadership Scholarship nominee, Bert & Greta Quartermaine Badminton Scholarship Recipient, BC District Scholarship & BC Achievement Scholarship Recipient, Canada Service Corps Student Service Grant, ESROP-UofT