# 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 esign 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 story 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
- Deploying & accelerating machine learning models for vehicle perception stack using Nvidia TensorRT
- 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
- **Skills**: python, c/c++, lua, rust, javascript, html/css, go, java, bash, SQL, verilog, MATLAB/simulink, assembly, verilog, Django, PyTorch, Tensorflow, Android, CI/CD, Jenkins, Docker, Linux, PostgreSQL, node.js, vue.js, ROS/ROS2, Fusion360, TensorRT
- ***"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, 2018 Junior Nationals Finalist, Eric Hamber Provincial Team Captain, UTBC 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