

SOPHIE LIU

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EDUCATION

University of Toronto

BASc in Engineering Science; **GPA: 3.67/4.00**

Toronto, Canada

September 2023 – Present

- **Relevant Coursework:** Applied Fundamentals of Deep Learning (**neural networks, image & text classification/generation, unsupervised learning; Numpy, PyTorch**) Computer Algorithms and Data Structures (**C and Python**), Ordinary Differential Equations, Digital and Computer Systems (**SystemVerilog and Assembly**)

SKILLS

Programming Languages: Python, Java, C/C++, MATLAB, SystemVerilog, Assembly, HTML/CSS, ROS, SQL (ProgreSt)

Libraries: Matplotlib, NumPy, pandas, scikit-learn, PyTorch

Developer Tools: Git, Docker, Linux, Google Cloud, Jupyter Notebook, PyCharm

PROJECTS AND EXPERIENCES

Autonomous Drone Racing, AI team

Software Developer

Toronto, Canada

September 2024 - Present

- Developing a new drone controller utilizing **Proximal Policy Optimization (PPO)** to optimize flight control and improve autonomous navigation.
- Integrating the controller into simulation environments such as **flightmare** for testing and tuning before real-world deployment.

KitchenVision for Hack the North 2024 | [Github](#)

Software Developer

Kitchener, Canada

September 2024

- Developed an Android mobile app using **Java**, and **Python** to streamline grocery management and meal planning.
- Integrated **CEIR (computer vision model)**, **Cohere's LLM**, **Databricks** and **Apache server with PHP**, optimizing data processing and storage for over 30,000 recipes.

Multifunctional Structures Lab, University of Toronto Institute for Aerospace Studies

Research Assistant

Toronto, Canada

May 2024 – August 2024

- Conducted research on **topology optimization** for partially dense materials using **MATLAB**, **ABAQUS**, and the **Single Isotropic Material with Penalization (SIMP) algorithm**.
- Modified optimization algorithms and debugged code in a **Linux Gentoo** environment to enhance computational efficiency and accuracy.
- Developed models for predicting elastic properties of lattice structures and generating manufacturable designs.

Film List App Development

Developer

Toronto, Canada

May 2023 – Present

- Developed iOS app with **Swift**, integrating **TMDB API** for real-time movie data.
- Implemented Supabase (**PostgreSQL**) backend for efficient data retrieval and indexing.
- Designed **dynamic UI** components to enhance user experience.

AWARDS

Engineering Science Research Opportunities Program (ESROP, CA\$8,000), University of Toronto

May 2024

- UofT's flagship summer research grant for first and second year Engineering Science students, given to those with a strong research proposal and academic achievement.

Dean's Honor List, University of Toronto

September 2023 - Present

- For obtaining a weighted term average of 79.5% or higher.