

# Guanghan Wang

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## EDUCATION

### University of Toronto

Toronto, ON

*Bachelor of Applied Science in Engineering Science, Machine Intelligence major* September 2019 – June 2024

- Current Year: 4      Expected Graduation Date: **May 2024**      Cumulative Average: **3.93/4.0**

ECE421H1	Introduction to Machine Learning	99
ECE358H1	Foundations of Computing (Algorithms and Data Structures)	100
ECE367H1	Matrix Algebra and Optimization	100
ECE352H1	Computer Organization (Computer Hardware)	95
ECE361H1	Computer Networks I	95
CSC343H1	Introduction to Databases	94
ROB311H1	Artificial Intelligence	93
ECE353H1	Systems Software (Operating Systems)	92
- **Courses in progress:** Compilers & Interpreters, Distributed Systems, Computer Security, Computer Architecture, Digital Systems Design, Computer Systems Programming, Decision Support Systems, Information Theory, Natural Language Computing, Introduction to Image Understanding

### Coursera

DeepLearning.AI      Deep Learning Specialization by Andrew Ng (certificate)      Summer 2021

## TECHNICAL SKILLS & INTERESTS

**Languages:** Python, C, HTML/CSS/JavaScript, React, Bash, SQL, ARM/MIPS, Verilog, MATLAB

**Frameworks & Libraries:** LLVM, PyTorch, NumPy, pandas, scikit-learn, Matplotlib, TensorFlow

**Tools:** git/GitHub, gdb, vscode, JIRA, L<sup>A</sup>T<sub>E</sub>X, cmake, docker, Intel Quartus Prime, ModelSim

## EXPERIENCE & PROJECTS

### Software Engineer - PEY Intern

May 2022 – September 2023

*Intel Corporation*

- Acquired a comprehensive understanding of technical activities necessary for High-Level Design (HLD) programs
- Enabled Intel<sup>®</sup> FPGA AI Suite customers to use OpenVINO's Python API to accelerate deep learning inference
- Designed and implemented an automatic regression test triager from scratch to reduce human effort
- Enhanced and refined the Schedule Viewer, an integral component of the Intel<sup>®</sup> oneAPI FPGA Reports Tool
- Ported typed pointers to opaque pointers in the Intel<sup>®</sup> LLVM FPGA compiler codebase

### Teaching Assistantship

Fall 2021, Winter 2022, Fall 2022, Winter 2023

*University of Toronto*

- ESC180: Introduction to Computer Programming (Fall 2021, Fall 2022, Fall 2023)
- ESC190: Computer Algorithms and Data Structures (Winter 2022, Winter 2023, Winter 2024)

### Summer Research on Security and Machine Learning

Summer 2021 – Present

*Toronto Systems Security Lab (UofT); Summer Research Assistant with Prof. David Lie*

- Collected logs and code coverage using a fuzzer based on American Fuzzy Lop inside docker containers
- Trained a decision tree, LSTM, and autoencoder to predict code region coverage based on logs
- Achieved an accuracy of 99.7%

### Summer Research on Audio Adversarial Machine Learning

Summer 2020

*CleverHans Lab (UofT and Vector Institute); Summer Research Assistant with Prof. Nicolas Papernot*

- Devised a genetic algorithm to address audio adversarial ML for speaker verification under a black box setting
- Successfully lowered the model accuracy below 1%
- Publication: *On the Exploitability of Audio Machine Learning Pipelines to Surreptitious Adversarial Examples*

### Project on 12-Lead ECG Reconstruction

September 2022 – Present

*UTMist (University of Toronto Machine Intelligence Student Team); Project Developer*

- Implemented deep learning models for ECG signal reconstruction with high PearsonR and low RMSE losses
- Developed a complete pipeline for ECG reconstruction, from dataset preparation to result visualization
- Abstract presented at T-CAIREM AI in Medicine Conference

## HONOR & AWARDS

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|------|---|
| 2022 | Murray F. Southcote Scholarship (awarded for obtaining high academic standing at the end of third year) |
| 2020 | John M. Empey Scholarships (awarded for achieving the highest average percentage of marks in the year)  |
| 2019 | University of Toronto Scholar   |
| 2018 | Intensive Study on Computer Science, Stanford University  |
| 2018 | AP Scholar with Distinction Award   |