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*

- Graduated with High Honours — 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
ROB311H1	Artificial Intelligence	93
ECE353H1	Systems Software (Operating Systems)	92

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, ONNX
Tools: git/GitHub, gdb, vscode, JIRA, LaTeX, cmake, docker, Intel Quartus Prime, ModelSim

Experience & Projects

Software Engineer - PEY Intern — May 2022 – September 2023

Intel Corporation — *Toronto, ON*

- Acquired a comprehensive understanding of technical activities necessary for High-Level Design (HLD) programs
- Enabled Intel® 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® oneAPI FPGA Reports Tool
- Ported typed pointers to opaque pointers in the Intel® LLVM FPGA compiler codebase

Teaching Assistantship — Fall 2021, Winter 2022, Fall 2022, Winter 2023, Fall 2023, Winter 2024

University of Toronto — *Toronto, ON*

- 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

2024	Graduated with High Honours
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