

BILL ZHANG

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EDUCATION:

M.A.Sc. Electrical and Computer Engineering, Queen's University, Canada

May 2023 - Nov 2024

- Overall GPA: 4.3/4.3

• Research Direction: Hardware-Software Integration, Machine Learning, Communication Networks, Algorithm Optimization

B.A.Sc. Electrical Engineering, Queen's University, Canada

Sep 2019 – Apr 2023

- Overall GPA: 3.65/4.3

• Award: Three times Dean's Scholar Awards (2020-2023), Charles Allan Thompson Award (2022), Queen's University Excellence Scholarship (2019)

• Relevant courses: Professional Engineering Skills and Design (SolidWorks, AutoCAD), Electronics I&II, Solid State Devices, 3D Prototyping, Computer Architecture and System, Artificial Intelligence, Communication Networks.

PROFESSIONAL EXPERIENCE

Hardware-Software R&D Assistant

Jan – June 2025

Smith Engineering in Queen's University, Canada

- Implemented a base station including five IoT devices to perform energy harvesting operations and a Raspberry Pi to run privacy-oriented ML algorithm. The goal is to investigate how does the energy harvesting functions optimize ML algorithms under changing time and energy constraints.
- Designed two network emulation prototypes using NE-ONE network emulator to simulate the influence of hardware functionality and their feasibility to different ML algorithms on communicating multiple IoT devices. Configured custom network profiles and test protocols for IoT devices under these network conditions through sub-layers validations.

ML/AI Specialist

May - Sep 2024

Salesforce, Canada

- Implemented a customized ML algorithm using Python, PyTorch to analyze customer preferences to offer personalized financial advice, credit recommendations, and targeted product offerings. Developed a two-layer digital transformation plan for a Canadian Bank using Salesforce CRM.
- Advised senior executives about the challenges the bank was facing and developed detailed strategies for digital transformations using historical data analysis and visualization with Salesforce Einstein and Tableau.

Hardware Design Specialist

Sep 2023 - Apr 2024

AMOREPACIFIC Corporation, Canada

- Led a team on a smart mirror project that incorporates lighting and AI software by using SolidWorks to build prototypes and OpenCV to integrate computer vision. We also designed new electronic circuits bundles (microcontrollers, power regulators, memory drivers) for a cloud-connected skin scanner operated by GCP.
- Integrated machine learning models from TensorFlow into facial detection devices, enabling the devices to predict facial changes. At the same time, applied RTL simulation and security verification technologies to conduct multiple rounds of quality testing, ensuring that the instruments can run smoothly in different environments and with different customers.

Cloud Engineer

Jan - July 2023

FutureCite, Canada

- Migrated the company's physical storage and operating system to Google Cloud to enhance the company's multi-cloud strategy and system resilience through utilizing open-source frameworks such as PyTorch and TensorFlow and integrating cloud computing via Google Vertex AI into the system.
- Led a team on a project related to Federated Learning and latency and bandwidth optimization, designing hardware systems (end-user devices, network simulators, servers) to demonstrate that latency caused by the physical distance between users and servers can be optimized through federated learning.

UNIVERSITY EXPERIENCE

SparQ Studios Makerspace Supervisor

July 2022 – June 2024

- Provided bi-weekly tutorials on 3D printing technology, 3D scanners, and soldering stations to new members. Supervised their activities and provided necessary guidance to maximize efficiency and ensure safety.
- Assisted the Makerspace Director in repairing machines such as laser cutters and power drills. Proposed two initiatives on robotic automation and robotic transfer systems between different fabrication stations within the studio.

Capstone Team Captain: Next-Gen Robotic Gripper for Human-Robot Interactions

Sep 2022 – Apr 2023

- Led the team in hardware implementation and fabricated three prototypes of a feasible robotic gripper using three software tools: Cura, Fusion 360, and Blender. Evaluated the differences in physical movements, compatibility with the existing Panda robotic arm, and assembly complexity.
- Conducted extensive research on suitable 3D printing filament materials to enable the gripper to handle solid-state materials such as quartz and magnetite. Integrated OpenCV into the finalized prototype, allowing the gripper to perform dodging operations when it detects potentially harmful objects.