Elisa Ding

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EDUCATION

University of Toronto   **Toronto, ON**
BASc in Engineering Science (Machine Intelligence)
Minor in Engineering Business   *April 2023*

SKILLS

Languages:	Python · C/C++ · Bash · MATLAB · JavaScript · PostgreSQL
Tools & Technologies:	Git · Unix · Docker · Kubernetes · GDB · Wireshark · React
Machine Learning:	PyTorch · Tensorflow · scikit · Jupyter/Colab · Airflow · AWS Batch

EXPERIENCE

Trimble Inc. (Applanix Corporation)   **Toronto, ON**
Hardware Intern   *May 2021 - August 2022*
- Created **PTP** timing tool reducing latency issues in APX-15 (GNSS-Inertial board) by 28%
- Processed daily GNSS-inertial test data, generated statistics and reports in **MATLAB**
- Developed circuitry and test script to reproduce hardware shutdown issues in APX-15

Autonomous Machine Learning Intern
- Implemented **place recognition** algorithm (PointnetVLAD) in **Tensorflow 2** on LIDAR data, enabling conversion to **ONNX** for 6x faster inference
- Automated **CI/CD** in Gitlab and deployed training using **Kubernetes** and **Docker** containers
- Designed **device driver** and unit tests in C++ to receive & parse **60+** message types from APX-15 to **ROS**

PROJECTS

Oxford Cancer Analytics   ***Remote* Oxford, UK**
                                                                                                          Sep 2022 - Dec 2022

- Capstone design project in collaboration with OXcan, investigating early cancer detection using blood biomarkers
- Trained DeepDIA (CNN/LSTM) model for protein sequence identification given mass spectrometry data
- Decreased test loss by 40% and increased cosine similarity by 7% on OXcan dataset

Robotics for Space Exploration   **University of Toronto**
                                                                                                          Sep 2019 - Apr 2022

- Designed and created a new **rover arm** for competitions simulating space-like conditions, built in **ROS** and visualized in **MoveIt**. Extracted **Jacobian matrix** of robot joints to implement remote control
- Prototyped and tested models using CAD software (**Solidworks and Onshape**)

RESEARCH PUBLICATIONS

NoFADE: Analyzing Diminishing Returns on CO2 Investment, NeurIPS CCAI 2021
Developed novel metric to quanitfy CO2 emissions from large CV models.
P4AI: Approaching AI Ethics Through Principlism, NeurIPS HCAI 2021
Proposed innovative ethical framework for the AI community in face of modern ethical concerns.

RELEVANT COURSES

Data Structures and Algorithms, Probabilistic Reasoning, Matrix Optimization, Artificial Intelligence, Systems Software, Computer Organization, Intro to Databases