Ted Zhang

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Experience

Software Engineering Intern, *BlackBerry Limited* Sept 2022 – Dec 2022

Waterloo, Ontario

- Developed an unsupervised **NLP** model with an **87 f1-score** and **92% validation accuracy** for log anomaly detection using **hashing vectorizers**, **scalers**, **LSTM** autoencoders, Google's **BERT** transformer, and **isolation forest**.
- Tested, productionized, and integrated the new model into the existing codebase and pushed **2000+ lines** into **production**.
- Researched and experimented with models from **research papers** using **TensorFlow**, **Keras**, **Sckit-learn,** and **Pandas.**
- Improved the machine learning data pipeline by decreasing memory usage by **38%** using **multiprocessing,** working on a **NoSQL** database, and reducing log footprint and redundant **API** calls by **55%**.
- Implemented a CI/CD pipeline using **Git**, **GitLab CI/CD**, **GitLab Runner**, **Docker**, and **bash scripts**.

Machine Learning Developer Intern, *Advanced Micro Devices Inc. (AMD)* Jan 2022 – Apr 2022

Markham, Ontario

- Developed and trained a medical diagnosis **AI** that can detect intracranial hemorrhages with **94% validation accuracy** using **TensorFlow**, **Keras**, **Pandas**, and **NumPy** trained on brain scans from an RSNA database of over **700,000 images**.
- Utilized transfer learning using **InceptionV3**, a custom data loader, and image preprocessing using **OpenCV.**
- Built both a **CLI** and **GUI** using **Tkinter** to display the brain scans along with their predictions in a user-friendly manner.
- Wrote a user guide and technical documentation to accompany the program.
- Containerized an inference optimization library along with various other pretrained models using **Docker** and **bash scripts**.

Tractive Systems Team Member, *University of Waterloo Formula Electric* Oct 2021 – Apr 2022

Waterloo, Ontario

- Worked with team members to design in **SOLIDWORKS** and produce various parts of a drivetrain and battery pack for an electric race car. Independently designed a cell fuse resistance testing device in **SOLIDWORKS**.
- Modified a PDU mount to include a waterproofed container for a relay in **SOLIDWORKS**.

Relevant Projects

Personal Website - www.tedzhang.ca/ Apr 2022 – Present

- Built a multi-page personal portfolio website complete with interactive elements using **React.js**, **SASS**, and **JavaScript**.
- Optimized website for mobile responsiveness and added features like a mobile menu and dynamically resizing elements to improve user experience.

Mastermind Artificial Intelligence - GitHub Dec 2020 – Feb 2021

- Designed and programmed the algorithm for an artificial intelligence that can play the game Mastermind with 3 levels of difficulty in **Java**. Designed the highest difficulty's algorithm to beat almost any human player.
- Fully commented and documented code to fit industry standards, including function headers.

Education

BASc, Mechatronics Engineering, *University of Waterloo* Sept 2021 – Apr 2026

Cumulative GPA: 94.41/100

Waterloo, Ontario

- Fall 2021, Spring 2022 Dean's Honours List
- Relevant Courses: Algorithms and Data Structures, Digital Computation, Circuits, Linear Algebra, Calculus 1 & 2

Skills

- Languages: Python, C++, JavaScript, HTML, CSS/SASS, bash, Java, SQL
- Frameworks: TensorFlow, Scikit-learn, Keras, Pandas, NumPy, OpenCV, Matplotlib, React.js
- Other: Machine Learning, NLPs, CNNs, Computer Vision, CI/CD, Git, SOLIDWORKS, AutoCAD