Eric Ji

647-609-1298 | erichanxiang.ji@mail.utoronto.ca | eric-h-ji | ericji1326 | ericji.me

SKILLS

Languages: Java, Python, C, C++, Bash, JavaScript, HTML/CSS, SQL
Data/ML: PyTorch, scikit-learn, Pandas, OpenCV, MATLAB
Dev Tools: Unix, Git, SVN, Qt, gdb, AWS, Firebase, Heroku, Docker
Web Dev: React, Redux, Node, Flask, Django

EDUCATION

University of Toronto | B.A.Sc. Mechatronics Engineering — 2018 - 2023

- **Minors:** Artificial Intelligence and Robotics | **CGPA:** 3.64
- **Relevant Courses:** Data Structures and Algorithms, Intro to Software Design, Intro to Machine Learning, Applied Fundamentals of Deep Learning, Probability and Statistics, Numerical Methods
- **Academic Scholarships**: Earl Charles Lyons Memorial – awarded on recommendation from chair of Mechanical Engineering

EXPERIENCE

Huawei Technologies Canada — May 2021 – Present
Software Engineering Intern — *Markham, Ontario*

- Developed a test case building tool for programming silicon chips using C++, Python, and Bash to increase number of timing test cases by over **300%**, resulting in significantly more data to improve silicon timing model accuracy.
- Implemented a **DFS-based routing algorithm** in C++ to generate an optimal path of nodes on graph model of silicon chip given a set of detailed user-constraints such as starting node and exact ordering of node types.
- Created a **pipeline-based** infrastructure with Bash to read path constraint file then provide optimal path in desired *syntax* structure resulting in saving **80+** man-hours.
- Improved test coverage by **20%** by writing unit-tests and refactoring legacy code base.

IEEE University of Toronto — May 2021 – Present
Senior Tech Associate | *react-expense-tracker* — *Toronto, Ontario*

- Hosted **git** and **React** workshops with **100+** attendees to introduce web development and software design to students.
- Designed an interactive curriculum using an **expense tracker app** to demonstrate concepts such as React components, props, and state hooks which resulted in **50%** higher student engagement.
- Facilitated and **mentored** at *MakeUofT* by helping teams through idea generation, code debugging and software design.

SOFTWARE PROJECTS

Accompaniment — Dec 2021 – Feb 2022
React, Node, Firebase, Python (scikit-learn, pandas), Flask, Spotify API | *accompaniment*

- Developed a **social matching platform** with **70+ users** that analyzes Spotify listening patterns and matches users together using machine learning techniques such as k-Nearest Neighbours.
- Handled HTTP requests using **Python/Flask** to fetch song metadata from Spotify API and execute the matching algorithm.
- Built the frontend and user authentication system using **React/Material UI,** integrated with **Firebase** DB infrastructure.

Tutoring Platform Web Application — Dec 2021 - Present
React, Node, Socket.io, WebRTC, CSS | *online-tutoring-platform*

- Built a tutoring platform in React for student-tutor interactions via messaging, video-calling, screen-sharing, and collaborating over a virtual whiteboard to improve tutoring environment.
- Leveraged ChatEngine.io/Socket.io/WebRTC to implement user login, messaging, and collaborative whiteboard features.

Exam Score Predictor — Nov 2021 - Dec 2021
Python (PyTorch, scikit-learn, pandas) | *test-score-estimator*

- Leveraged collaborative filtering techniques to build an ensemble of 3 ML algorithms consisting of **KNN**, Probabilistic **Item Response Theory**, and **Autoencoders** to infer exam scores based on historical student and peer performances.
- Designed rigorous model testing techniques and accordingly **optimized** autoencoder model architecture in PyTorch by implementing dropout, input data biasing, and meta-data injection to achieve a final **test accuracy of over 70%.**