# Eric Ji

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## **SKILLS**

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

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

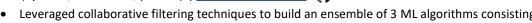
React, Node, Socket.io, WebRTC, CSS | online-tutoring-platform

- 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%.