# Edward Jiayu Zeng

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US Permanent Resident

## EDUCATION

**University of California, Berkeley** *Aug 2023 - May 2024*
Masters of Engineering, Industrial Engineering and Operations Research - Fintech GPA: 3.80/4.00
**University of British Columbia** *Sep 2019 – Apr 2023*
Bachelor of Science, Combined Honors in Mathematics and Computer Science, Highest Distinction GPA: 3.78/4.00

## TECHNICAL SKILLS

**Programming**: Python, Java, C/C++, C#, Swift, JavaScript, HTML/CSS
**Tools/Environments:** AWS, NodeJS, ReactJS, MongoDB, MySQL, Pandas, PyTorch, Docker, Git
**Competencies:** Algorithms, Linear Analysis, Linear Programming, Numerical and Computational Optimization, Real Analysis, Number Theory

## EXPERIENCE

**UBC Mahjong Club,** Vancouver, BC - Web Developer *May 2022 - May 2023*
• Added homepage feature to view live games on a Meteor application used by over 100 members in JavaScript with MongoDB database
• Refactored web app to move database calls to the backend server, preventing frontend database injections
• Updated front-end HTML and CSS with an intuitive interface to check the progress of live Mahjong games
• Automated removal of dead games through implementing a time-to-live index for all entries in MongoDB
• Assisted in writing a new full-stack development website with a TypeScript/React/Bootstrap based frontend, NodeJS/ExpressJS backend, MySQL database, and hosted on AWS with a Docker container
**University of British Columbia,** Vancouver, BC - Computer Science Teaching Assistant *Sept 2020 – Dec 2022*
• Led 250 online lab sections with 30 students each for CPSC 110: Systematic Program Design over two years
• Held office hours to assist students and regularly mentored students in program design / functional programming

## PROJECTS

**Alpha Mining in US Stock Market (Python/Pandas)** *Dec 2023*
• Researched alpha mining in the US stock market with deep learning and reinforcement learning methods, mentored by industry advisors Lizeng Zhang and Svitlana Vytrenko, and supervised by Prof. Xin Guo and Prof. Thibaut Mastrolia
• Analyzed alphas to optimize revenue with informers, transformers, LGBMs, GRUs, CNN-GRUs, TCNs, and feature fusion residual LSTMs on 1-day time series data taken from Yahoo Finance
• Generated formulaic alphas from genetic programming and reinforcement learning models
**RPG Video Game (C#)** *Sep 2022*
• Led a team of 10 to develop an interactive game in C# using the Unity Game Engine played by over 50 users
• Developed the collision logic, interactive event logic, and transitions between scenes
• Coordinated DevOps for C# gameplay logic updates over Github workflows, scheduled weekly updates
**Rubik's Cube Algorithm Database and Visualization (Java)** *Nov 2020*
• Developed a database application in Java that can store various algorithms for the 3x3 and 2x2, with a 3D graphic visualization of the Rubik's cube undergoing the algorithms utilizing LWJGL OpenGL
• Converted Rubik's cube layouts to JSON in the persistence layer, making it to save exact steps of algorithm visualizations between instances
• Set up automated testing in JUnit / Maven, allowing for quick identification of errors and revisions
**Arithmetic App (Swift)** *Jan 2021*
• Created an interactive app that provides timed arithmetic problems through XCode
• Utilizes interactive graphic interfaces such as buttons, segues, and storyboards

## INTERESTS

Mahjong, rubik's cubes, badminton, piano