Eric Chang

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Education

University of California, Berkeley May 2023

Bachelor of Arts in Computer Science and Statistics

- **Relevant Coursework:** Operating Systems, Databases, Principles and Techniques of Data Science, Concepts of Statistics, Computer Security, Machine Learning, Algorithms, Computer Programs, Data Structures, Discrete Mathematics and Probability Theory, Machine Structures, Data Science, Information Devices and Systems I & II, Probability, R Programming, Time Series, Forecasting, Data Inference and Decisions
- **Activities:** President of Cal Badminton, Data Structures Associate Mentor for Computer Science Mentors

Experience

Amazon 06/2022 - 08/2022

SDE Intern on the Amazon Pay Team *Cupertino, CA*

- Introduced the tracking of a new set of button metrics to better identify errors during merchant website integration with Amazon Pay
- Developed the back-end verification process to allow customers using Amazon Pay to pay for subscriptions to update their payment details through a streamlined button option
- Investigated, analyzed, and fixed 3 persistent bugs involving a new tooltip connection to the Amazon Pay button in a front-end package

Qualtrics 06/2021 - 08/2021

SDE Intern on the X-Flows Workflows API Team *Provo, UT*

- Streamlined back-end disaster recovery (i.e. server outages) by engineering an internal endpoint for employees to replay batches of 5000 failed customer workflows, connecting it to a new quark worker for execution
- Shifted original dependency on Redis to Elasticsearch for metadata queries and removed the Redis and Elasticsearch dependency from the script to improve efficiency and scale tested the new replay procedure by batches of 1000 workflows
- Operated with Amazon's Simple Workflow Service to retrieve, reconstruct, and resume workflow executions

The Economist Intelligence Unit 09/2021 - 12/2021

Research Intern *Berkeley, CA*

- Worldwide Cost of Living: Implemented a new web scraping algorithm using BeautifulSoup in Python and scaled the algorithm to 5 retailers in each of the 10 countries to acquire data for more than 60 different products from the grocery category
- Reduced the publication lag from a biannual survey to a daily, weekly, or monthly data update by automating the code to scrape the data from the retailers, process it, and deliver the end results based on the user's desired scheduling basis
- Created KPI performance indicators to measure inflation across different countries and provide users with accurate findings

Research Internship - UC San Diego 06/2018 - 08/2018

Research Intern under Dr. Chung-Kuan Cheng *San Diego, CA*

- Worked alongside Professor Chung-Kuan Cheng and 3 other PhD students on 2 research projects in the CSE Department
- Studied the runtime of the All Pairs Minimum Cut brute force solution on randomly generated strongly connected directed graphs by testing it on graphs of various node and edge numbers and found that the algorithm ran proportional to O(N) time
- Researched and tested the viability of a cuff-less blood pressure monitor using a 3-axis accelerometer
- Co-authored 2 formal papers, published in the journal *Networks* and presented at *IEEE EMBC Conference*

Publications

- Eric Chang, Chung-Kuan Cheng, et al., "Empirical Study on Sufficient Numbers of Minimum Cuts in Strongly Connected Directed Random Graphs," *Networks*, 2020; 76: 106-121.
- Eric Chang, Chung-Kuan Cheng, et al., "Cuff-Less Blood Pressure Monitoring with a 3-Axis Accelerometer," *2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Berlin, Germany, 2019, pp. 6834-6837.

Projects

Gitlet | *Java* Github: Private Repo

- Learned the inner workings of Git by developing a version control system similar to Git from scratch
- Designed and implemented version control functionality such as committing, branching, merging, and creating remotes

Lines of Action | *Java* Github: Private Repo

- Developed the popular Lines of Action board game, implementing the unique game moves and rules
- Designed and created a computer opponent using a combination of the min-max algorithm and various heuristics
- Implemented a GUI for the board, as well as included features for taking back moves, resetting, etc.

Skills

Languages: Java, Python, C, SQL, Scheme, JavaScript, HTML/CSS, Ruby on Rails, R, RISC-V Assembly
Frameworks: Node.js, JUnit, Sinon, Jest
Developer Tools: Git, Docker, Amazon Redshift, Vault, Elasticsearch, Jenkins, VS Code, Visual Studio, IntelliJ, LaTeX, NumPy, Octave, Prometheus, Grafana, SWF, BeautifulSoup
Libraries: pandas, NumPy, Matplotlib, Seaborn