Mohit Chhaya

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Education

University of Illinois - Urbana Champaign 2024
Bachelors of Science in **Computer Science + Linguistics**
Bachelors of Science in **Brain and Cognitive Science**
Coursework: Distributed Systems, Computer Systems, Programming Languages & Compilers, Algorithms, Data Structures, Software Engineering, Discrete Structures, Computational Morphology, Linear Algebra
Extracurriculars: Association of Computing Machinery, Disruption Lab at Gies

Skills and Interests

Interests: Programming Language Theory, Compilers, Fullstack Engineering, Large Language Models, Distributed Systems
Languages: Python, C++, Kotlin, C, Javascript, Haskell, Java, Typescript, HTML/CSS, SQL, SAS, C#
Tools: Git, AWS, GCP, Docker, Heroku, Pandas, Azure, MongoDB, React, Node.js, Flask, FastAPI, Kubernetes, Tensorflow

Experience

Cisco January 2023 - April 2023
Software Engineering Intern
- Working on the Third Party Software Compliance team to develop services for validating open source licenses and external software.
- Using Java to build backend API's to automate validation tasks.

Amazon August 2022 - November 2022
Software Development Engineer Intern
- Developed **in-production**, consumer-facing, features for the IMDb Android App.
- Engineered **GraphQL** queries for data fetching, optimized to reduce time to load by **5%**
- Built horizontal scrolling view pager with persistent user-based data caching using **Kotlin** and the Apollo Graph Client.
- Designed feature for the IMDb homepage to intercept **100,000** clicks that increases engagement by 2%.

Addition Technologies Inc. November 2021 - August 2022
Software Engineer
- Designed and deployed an end-to-end data pipeline utilizing Google's **Natural Language Processing** API's, **OpenAI's GPT-3**, and the Contrasive Language-Image Pre-Training (CLIP) **neural network** to generate question-answer scenarios and chatbots for various companies.
- Engineered web scraper on Google Cloud Run utilizing Selenium and Python to scrape **5000+** advertisements, exposed as an **REST API**, used to shorten marketers data wrangling time by ˜15%
- Created database utilizing both **Firestore** and GCP Cloud Storage to store **5000+** pieces of advertiser metadata.
- Decreased latency of **Google Cloud Run** jobs by **70%** and rendered data to a web app built using **React.js**
- Set up relational **MySQL** Database consisting of **12+** tables to streamline data pipelines, saving developers **˜100 hours**

Disruption Lab at Gies January 2022 - May 2022
Software Developer
- Commissioned by **Ernst & Young** to research and implement and backtest options pricing models on IBM quantum computers.
- Implemented highly efficient quantum versions of Binomial Option Pricing model and Monte-Carlo options pricing methods.
- Developed quantum finance software using **Qiskit** and **Python**. Aided in the development of a **transpiler** to convert from Qiskit quantum circuits to AWS circuits.

PURE Research August 2021 - December 2021
Undergraduate Researcher
- Collaborated with a team of 5 to develop novel trading strategies for leveraged ETF's.
- Performed data analysis on stock market data going back to 2010, developed strategy to extend dataset back to 1989. Utilized Python, Pandas, matplotlib to backtest data.
- Created poster and presented at PURE Research symposium.

Mercury Signs Inc. July 2020 - July 2021
Software Engineer
- Designed a financial dashboard using REST API's, Selenium Web Scraping, Python, and **Google Cloud Platform** to monitor financial data on **2000+** customers.
- Achieved **20%** increase in customer retention rate and handled **1000+** interactions by automating a customer pipeline using Google Cloud Functions, Cloud **Pub/Sub**, Python, and the Gmail REST API.

Projects

Search Engine | *C++, Python, Flask, React.js, PyTest* January 2022

- Created a novel Search Engine that utilizes various string matching **algorithms** for efficacy. (Jaccard Index, TFIDF Ranking, Cosine Similarity, Ratcliff Obershelp)
- Programmed **Flask** backend in Python for a web application and **RESTful** API which was deployed on Heroku.
- Rewrote project in **C++** for performance and utilized **multithreading** for performance boost of ˜3s.

Forth Interpreter | *Haskell* July 2022

- Created interpreter for stack-based langauge Forth.
- Utilized Haskell continuations to compile user defined functions and control flows for later execution.

Memory Allocator | *C, Make* August 2022

- Created implementations of **malloc**, calloc, and realloc in **C**.
- Optimized memory allocation with best fit block selection, block coalescing, block splitting, and free lists.

WeatherOrNot | *Python, Tensorflow, Django, Bootstrap, SQL* August 2021

- Developed a health assistant that analyzes risks based on climate and various meteorological factors.
- Built a fully responsive web application with the **Django** framework and **Bootstrap**.
- Implemented a relational **SQL** database to store user data. connected to a mail server to send risk factors via email daily.
- Set up continuous feedback loop by building a **Tensorflow** reinforcement model.