Mohit Chhaya

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Education

University of Illinois - Urbana Champaign 2024

Bachelors of Science in **Computer Science + Linguistics**

Coursework: Compiler Construction (Fall 22), Computer Systems (Fall 22), Programming Languages & Compilers, Data Structures, Software Engineering, Discrete Structures, Computational Morphology, Linear Algebra

Extracurriculars: NeuroTech @ UIUC, Association of Computing Machinery, Disruption Lab at Gies

Experience

Amazon August 2022 - Present

Software Development Engineer Intern

- Utilizing **Kotlin** on the IMDb team to develop **Android** applications.
- Optimized **GraphQL** queries for data fetching, reducing latency by **5%**
- Designing and architectecting feature for the IMDb homepage to intercept **100,000+** clicks.

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 **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 Pricing 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.

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.

COOL Compiler | *C++, LLVM, yacc, bison, Make* August 2022

- Architected a compiler, including front, middle and back-end systems for compiling the Cool language.
- Implemented compiler optimizations like Loop Invariant Code Motion, and Common Subexpression Elimination.
- Created three pass intermediate code generation system utilizing **LLVM**.

NoTestNoProblem | *Python, Tensorflow, Django, Keras* July 2020

- Developed an alternative COVID-19 testing platform to address the shortage of tests at the start of the pandemic.
- Trained a **Convolutional Neutral Network** utilizing K-Fold Cross-Validation through **Tensorflow** and Keras.
- Won **Best Business Potential** at Flare Hacks 2020.

Skills and Interests

Interests: Programming Languages, Compilers, Fullstack Engineering, Large Language Models, Distributed Systems, Big Data
Languages: Python, C++, 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