Allen Lu

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Education

Carnegie Mellon University
Pittsburgh, PA

B.S. in Computer Science — *Aug. 2020 - May 2024*

- Minor in Computational Finance
- Relevant Coursework: Data Structures and Algorithms, Distributed Systems, Functional Programming, Probability and Computing

Skills

Languages Python, C, C++, Java, Javascript, Typescript, Go, GraphQL, HTML, CSS, SML, SQL

Technologies Node.js, React.js, MongoDB, Docker, Gatsby, Git, AWS, Next.js, Express, Vue.js, Angular, Redis, DynamoDB, SQL, Firebase, MySQL

Work Experience

Carnegie Mellon School of Computer Science
Pittsburgh, PA

CMU Teaching Assistant for Distributed Systems(15-440) — *August 2023 - December 2023*

ZipHQ
San Francisco, CA

Backend Software Engineer Intern — *June 2023 - August 2023*

- Independently designed and implemented auto-locking feature on Zip Virtual Cards that integrated with Stripe back-end, facilitated on-boarding of the first ten Virtual Card product customers
- Developed tools that allowed customers to migrate existing transactions/cards from competitors to the Zip Virtual Cards product, and decreased TTV of potential new customers by over 300%
- Implemented Stripe webhook subscription to propagate changes between objects and updated existing Virtual Card Stripe workflows, solving multiple high+ bugs and saving over $10k

Zoom Video Communications
San Jose, CA

Full Stack Software Engineer Intern — *May 2022 - December 2022*

- Revamped client usage UI using FTL, ElementUI, and Vue.js to support deletion and search while decreasing load speed by 5x
- Designed and implemented REST API for Boston Consulting Group to hard-delete records from Elasticsearch, DynamoDB, and AWS S3 buckets, as well as defining and clearing caches for system and client usage data
- Independently developed models and REST API to detect fraud and retrieve their IP addresses in 1k batches using cache storage

Slide Nightlife
Washington DC

Backend Software Engineer Intern — *May 2021 - Aug. 2021*

- Web and mobile application to unify nightlife by centralizing club/client information and allowing users to pay, earn rewards, and socialize at all nightclubs with one app
- Created automated onboarding for enterprise application using Node.js and implemented automated billing using Stripe and Braintree
- Designed and implemented complex aggregations on MongoDB to dynamically update enhanced data analytics for clients

Projects

CMU Visual Design and Engineering Lab | Python, TensorFlow, Keras

- Implemented Fourier integration and other calculus techniques to aid in the development of neural networks.
- Tuned RBNN kernel initialization to minimize kernels in neural network and resized network architecture into batch coordinate input.

Tennis Radar Gun | Java, OpenCV, Eclipse

- Designed and implemented SURF feature detection and ORB edge detection in OpenCV in Java to track tennis balls.
- Performed complex mathematical calculations to convert from on-screen speed and rotation to mph and rpm with over 95% accurate in 500 trials of various velocities(mph) and rotation speeds(rpm).

Honors & Awards

2017 **AIME,** Qualifier, AMC10 Distinguished Honor Roll — *New Jersey, U.S.A*

2018 **AIME,** Qualifier — *New Jersey, U.S.A*

2019 **Gold Level,** USACO — *New Jersey, U.S.A*