Allen Lu

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Education

Carnegie Mellon University — *Pittsburgh, PA*

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

- Minor in Mathematical Science, Minor in Computational Finance
- Coursework: Data Structures and Algorithms, Computer Systems, Distributed Systems, Functional Programming, Probability Theory

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

Zoom Video Communications — *San Jose, CA*

Full Stack Software Engineer Intern — *May 2022 - Aug. 2022*

- Starting backend work involving real-time language translation and web development with Java and Go on Web Engineering team.

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.
- Independently created automated onboarding for the enterprise application using Node.js and Postman as well as periodic, automated billing using Stripe and Braintree API.
- Designed and implemented complex aggregations on MongoDB Compass to dynamically update enhanced data analytics for clients.

Princeton Plasma Physics Laboratory — *Princeton, NJ*

Researcher — *Jan. 2020 - Jun. 2020*

- Projected 2D map onto 3D curved surface while preserving 21 million pixel resolution using Albers Projection, triangulation, and bilinear interpolation on Python.
- Utilized visualization software such as POVRAY and Paraview.

Monmouth University — *West Long Branch, NJ*

Software Engineer Intern — *Jun. 2019 - Dec. 2019*

- Developed web applications for children with disabilities in order to help keep track of goals and daily routines to form good habits.
- Utilized Laravel PHP framework alongside Vue.js, HTML, Bootstrap, and CSS to implement dynamic and interactive interfaces to improve children engagement.
- Published paper and presented project at “The 5th IEEE International Conference on Collaboration and Internet Computing” in LA.

Stevens University — *Hoboken, NJ*

Software Engineer Intern — *Jun. 2019 - Aug. 2019*

- Conducted research on 2D camera geometry and ORB feature detection using computer vision software OpenCV on Python to project depth from 2D images into 3D computer models.
- Visualized 3D meshes and Delaunay Triangulations using MeshLab in order to model the 3D environment around the robot.

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.

Healthcare Hackers | Javascript, Java, HTML, CSS, Firebase, Android Studio

- Developed a web and mobile application to personalize scheduling doctor’s appointments to minimize waiting times.
- Designed and implemented customized survey on mobile user interface using Java on Android Studio incorporated with an interactive web application based upon Firebase database.

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).