Botong Ou

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West Lafayette, Indiana, 47906

EDUCATION

Purdue University, West Lafayette, IN Jan. 2024 (Expected)
Master of Science in Computer Information Technology | GPA:3.90/4.00

University of California - Los Angeles, Los Angeles, CA Sept. 2019 - May. 2021
Master of Science in Computer Science | GPA:3.83/4.00

Shanghai Jiao Tong University, Shanghai, China Sept. 2015 - May. 2019
Bachelor of Science in Computer Science | GPA:3.91/4.00

SKILLS

Programming Languages: Java, Python, C/C++, Go, JavaScript
Frameworks: Django, Nginx, Redis, React, Express, MongoDB, Firebase, Kubernetes, jQuery, QEMU
Features: Full-Stack Development, Web Development, System Engineering, Databases, Machine Learning

WORK EXPERIENCE

Reliable and Secure Systems Laboratory Sept. 2021 - Jan. 2022
Research Engineer Intern

- Designed **Slab** memory allocation algorithm for **Library OS** to reduce memory fragmentation. This increases the total number of applications available running synchronously on a fixed memory region by 30%
- Implemented **Redis**, **Nginx** and **SQLite** for benchmarking and the footprint overhead is around 10% - 15%.
- Incorporated with **Pull-Push** message model to receive peripheral computation resources updates.
- A high-impact paper is submitted to **ASPLOS 2023** top system conference for reviewing.

Network and Embedded System Laboratory May. 2020 - Sept. 2020
Research Engineer Intern

- Deployed **MongoDB** database on edge device to collect data generated locally at the speed of 20G daily.
- Constructed a centralized broker using **Kubernetes** and deploy it on **AWS ECS** to connect edge mobile device.
- Leveraged Google's **OpenThread** network protocol to allow **AD-HOC** communication between containers in cloud.
- Supported >500 containers to transmit data between each other with only ~80ms latency introduced.
- The results are accepted by **IoTDI 2021** top conference in Internet of Things field.

PROJECTS EXPERIENCE

Blog Posting Platform Aug. 2021 - Feb. 2022
Full-Stack Engineer

- Adopted **Django** to construct the web server for summarizing news and topics collected daily from CNN.
- Implemented **TreeMap** with **SQL** to allow users to retrieve the hottest and the most searched topics in database.
- Optimized the backend server with **jQuery** to achieve **AJAX** communication for users to retrieve article comments without refreshing the whole page. This increases the response time from server by ~45%.
- Introduced **OAuth2.0** authorization to allow third-party users to log in using WeChat token to access private articles.

Online Instant Messaging Platform Jan. 2021 - Jun. 2021
Full-Stack Engineer

- Employed **Firebase** and **React.js** to construct an online instant messaging platform for users to send messages.
- Leveraged **WebSocket** protocol to support long-term connection and reduce redundant HTTP requests by 90%.
- Integrated **WebRTC** with Firebase to allow real-time peer-to-peer video chatting between users with ~10ms latency.

Web Interactive Music Player Jan. 2020 - Sept. 2020
Full-Stack Engineer

- Utilized React.js to construct an online in-browser music player with music selected from YouTube Music.
- Integrated **MongoDB** with **Express.js** to develop a backend server with 10G size for storing music information.
- Implemented several **RESTful** APIs for web pages to retrieve music description attributes from the database.
- Cooperated with **Docker** container to hold databases in the cloud for accessing from different geometric locations.