Botong Ou

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EDUCATION

Purdue University - Main Campus Sept. 2021 - May. 2023
Master's degree in Computer Information Technology | GPA:3.90/4.00
University of California, Los Angeles (UCLA) Sept. 2019 - May. 2021
Master's degree in Computer Science | GPA:3.83/4.00
Shanghai Jiao Tong University (SJTU) Sept. 2015 - May. 2019
Bachelor's degree in Computer Science | GPA:3.91/4.00

SKILLS

Programming Languages Java, Python, C/C++, Golang, JavaScript, Rust, Julia, R
Frameworks Django, Nginx, Buildkit, Redis, React, Express, MongoDB, Kubernetes, jQuery, SpringBoot, Flask, Angular
Features Software Development, Database, OOP, Cloud Computing, MLOps, Network Programming

WORK EXPERIENCE

Tensorchord (Startup) - Remote Dec. 2022 - Mar. 2023
Software Engineer Intern

- Developed container-based MLOps - **Envd** with integrated support of multiple languages and ML frameworks.
- Feature Development
  * Designed simple CLIs for users to provision ML environments in Python/Julia/R without learning new frameworks.
  * Adopted remote and local caching to accelerate the build time by 400% faster for customized ML environments.
  * Integrated with Kubernetes for distributing ML workloads with autonomous network configurations.
  * Introduced continuous integration and delivery (CI/CD) to facilitate the testing and deployment for Envd.
- Envd has received ~1400 stars in MLOps community and obtained >500 users till the end of 2022.

RSSys - Purdue University Sept. 2021 - Mar. 2022
Research Assistant

- Proposed the state-of-art Confidential Virtual Machine (CVM) architecture against untrusted cloud infrastructure.
- Developed Features
  * Designed **Slab** memory allocation algorithm for **Library OS** to reduce memory fragmentation.
  * Developed an audit log system monitor to store **~1G** system logs information in a reserved memory region.
  * Supported various runtime for applications including **Redis**, **Nginx** and **OpenSSL** with 10% - 15% overhead.
- The work is currently under the second-round review of **ASPLOS 2023** top system conference.

NESL – University of California, Los Angeles May. 2020 - Sept. 2020
Research Assistant

- Designed the first edge system that provides secure deep learning inference for mobile and IoT devices.
- Developed Features
  * Deployed **MongoDB** database on edge device to collect data generated locally at the speed of 20G daily.
  * Leveraged Google's **OpenThread** network protocol to allow **AD-HOC** communication between cloud containers.
  * Allows **>500** containers to transmit data between each other with only **~80ms** latency introduced.
  * Supported multiple modern ML/DL models to run on the edge devices with **~5%** performance overhead.
- The work is accepted by **IoTDI 2021** top IoT conference and has been downloaded by >**400** people.

OTHER PROJECTS

Blog Posting Platform | Individual Project Aug. 2021 - Feb. 2022
Project Leader

- Adopted **Django** to construct the web server for summarizing news and topics collected daily from CNN/FOX news.
- Utilized **React.js** to construct web pages and display the articles stored on the server with **RESTful APIs** request.
- 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.