Boming Zhang

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EDUCATION

Shanghai Jiao Tong University (UM-SJTU Joint Institute)　　　　　Sept. 2018 - Aug. 2022

*BEng in Electrical and Computer Engineering (minor in Computer Science, **GPA 4.0/4.0**)*　　*Shanghai, China*
- Relevant Coursework: Intro to OS (A+), Methods and Tools for Big Data (A+), Intro to Crypto. (A)
- **2020-2021 Undergraduate Excellent Scholarship**
- **Honors Research Program in the Undergraduate Research Course**
- Outstanding Member of Technology Department UM-SJTU Joint Institute Student Union

EXPERIENCE

Software Engineer Intern　　　　　　　　　　　　　　　　　Feb. 2022 - Jul. 2022

Naive Systems　　　　　　　　　　　　　　　　　　　　　*Shanghai, China*
- Take part in a code analyzer and relative DevSecOps products. Implement checkers of some guidelines in MISRA C, based on **Clang Static Analyzer, Libtooling, and Cppcheck**. Responsible for all checkers' tests.
- Develop a VSCode extension to read protobuf analyzer results. Implement the i18n feature for checkers.

Research & Development Engineer Intern　　　　　　　　　　　Jun. 2021 - Feb. 2022

Shanghai Zhimian Weiye Technology　　　　　　　　　　　　　*Shanghai, China*
- Build Intell. IoT Firefighting System project. Design the architecture, and work as a full-stack developer.

Research Assistant　　　　　　　　　　　　　　　　　　　Mar. 2021 - Feb. 2022

Intelligent Design and Optimization Research Lab, advisor Prof. Mian Li　　　*Shanghai, China*
- **Technical leader** of 2 Undergraduate Innovation Practice Programs. Build a risk control center for Shanghai Jiao Tong University School of Medicine, used by over 10 different management systems and over 100 faculties.
- Develop a cryptocurrency funding rate arbitrage system in async python to get **milli-second transaction time**.
- Maintain a filling station hazard CV detection system based on **NVIDIA Jetson** and **lock-free queue**.

Teaching Assistant (Intro to OS, Intro to Comp.)　　Sep. 2020 - Dec. 2020, Sep. 2021 - Dec. 2021

Shanghai Jiao Tong University, advisor Prof. Manuel Charlemagne　　　　*Shanghai, China*
- Host **exam review sessions** and **weekly lab sessions** for at most 100 students. Grade labs and homework.
- Develop an automatic cast-to-cast grading script. Maintain servers for up to 150 students' usage.

Deputy Director　　　　　　　　　　　　　　　　　　　　Sep. 2018 - Jul. 2019

Technology Department UM-SJTU Joint Institute Student Union　　　　　*Shanghai, China*
- Build multimedia system and chatbot with PyQt5 for welcoming party. Write posts on WeChat official accounts.

PROJECTS

JOJ 2.0 | *Python3, Cython, PostgreSQL, Redis, Celery, LakeFS, Docker, CGroupsV1, React.js*　Mar. 2021 - Present
- Develop an online judge system from scratch for various courses. Provide stable, secure, fast, well-documented online judge service with various integrations for **over 1000 students in the institute**.
- Build the judger's sandbox with **namespace and containerization** for isolation and measurement.

Intell. IoT Firefighting System | *Python3, Go, MongoDB, Docker, React.js, React Native*　Mar. 2021 - Feb. 2022
- Start from scratch, build a high perf. firefighting platform (Web + App) based on IoT data. Use an algorithm to detect potential hazards and report fire alarms with high accuracy in buildings to **save life and money**.
- Deploy the system on **the fire brigade of Shanghai Province**, connected with **over 7 million IoT devices**.

FOCS student system & related tools | *Python3, Go, Node.js, Docker, Nginx, Certbot*　　Nov. 2018 - Present
- Develop new features and maintain the online service and software, including online judge, self-service Git platform, CI platform for **over 300 students from 10 courses each term** to build, test, and grade their codes.
- Build various tools to connect Canvas LMS, Online Judge, and Gitea together, which are widely used by students and teaching assistants in Joint Institute to save their time. Get **in total 60+ stars** on Github.

TECHNICAL SKILLS

Languages: Python3, (modern) C++, C (Linux), Go, Typescript, Shell, LaTeX
Frameworks: FastAPI, Django, Flask, React.js, PyTest, NumPy
Developer Tools: Git, Docker, Github, Drone.io, VSCode, Pre-commit
Data Management Tools: PostgreSQL, MySQL, MongoDB, Redis, RabbitMQ