

# 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 judge'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, L<sup>A</sup>T<sub>E</sub>X  
**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