

# Shao Wang

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## Education

### Shanghai Jiao Tont University

M.Sc. Computer Science  
2024.09 - 2027.03 (expected)

### Shanghai Jiao Tong University

B.E. Software Engineering  
2020.09 - 2024.6  
GPA: 3.76/4.3 (top 20%)

## Skills

### Programming

C++ Go Java Python

### Tools

Shell Git GDB  
LaTeX Markdown

### Cloud Computing

Docker Kubernetes

## Professional Experience

### SAIL Lab Research Assistant

2023.06 - 2023.12 | Shanghai

- Implement **large-scale network emulation system** based on **Kubernetes**
- Emulate network nodes with pods, and collect metrics with **Prometheus**.
- Implement a **CNI Network Plugin**, which manages virtual links between pods with Netlink and sets network properties with TBF and TC mechanism.
- Defines Topology & Route resources with CRD, and implements corresponding controller with **Operator Pattern**.

### BondiTech Infrastructure Intern

2024.01 - 2024.04 | Shanghai

- Investigate popular **time-series database** and conduct performance tests.
- Design time-series database-based market data storage system on Kubernetes cluster, in replace of current CSV-based distributed storage system.
- Improve the performance of data analysis business by **10x times**.

## Projects

### Minik8s Collaborator

2023.02 - 2023.06

- Implement a **naive k8s-like container orchestration framework** from scratch.
- Implement API objects like Pod, **Service**, Deployment and HPA, also providing **DNS**, GPU and multi-machines supports.
- Implement a Knative-like Serverless platform, which supports cloud functions, DAG workflows and scaling up/down according to workloads.

### Chfs File System Owner

2022.09-2023.01

- Chfs is a **GFS-like** distributed filesystem.
- Implement basic file operations in **inode-based filesystem** with FUSE.
- Achieve Crash-Consistency with redo-log and checkpoint.
- Implemented **Raft** and **MapReduce** framework running on it.

### Tiger Compiler Owner

2022.09 - 2023.01

- A Tiger Language compiler for course projects.
- Implement lexical analysis with flexc++ and syntax analysis with bisonc++.
- Realize functions such as type checking, escape analysis, IR tree constructions, instruction selection and register allocation.
- Eventually, Tiger Language can be compiled to runnable **x86-64 assembly code**.

## Awards

2021	Honor	Three-good Student
2021	Scholarship	B-level Prize & Wenyuan Pan Scholarship
2022	Scholarship	B-level Prize & Huawei Scholarship
2023	Scholarship	C-level Prize