

Haoxuan Han

📞 176-6409-4001 @ hhx.xxm@gmail.com github.com/Oyami-Srk

🏛️ Qilu Insitute of Technology 🎓 Computer Science • Bachelor 🎂 2001-01-25 📍 Qingdao

Passionate about operating system design and implementation, with experience in developing kernels for x86 and RISC-V architectures. Proficient in Linux kernel and GNU/Linux, as well as embedded software and bare-metal development. Able to design, implement and debug complex software systems independently. Fast learner of new technologies, with outstanding practical application ability and full-stack engineering skills.

Active in the open-source community, having open-sourced various personal projects on GitHub and contributed to some open-source projects.

During school, served as the president of the Computer Association, won the title of outstanding student, and received scholarships multiple times.

🔧 Skills

Prog. Lang. C Proficient , Python Proficient , TypeScript Mastered , Rust Mastered , Shell Proficient





Tools & Frameworks Git, Vue, Django, FreeRTOS
🌐 Language English (CET4 604) — Preferred reading and writing documents in English.

🔗 Internship

- | | |
|---------|--|
| 2023.12 | Technical Support Engineer @ UnionTech Software Technology Co., Ltd. (Shenzhen Branch) |
| 2023.09 | <ul style="list-style-type: none">➤ Packaging and maintenance of Linux open-source software.➤ Wrote scripts for workflow automation and spider program. Participated in the department's technical support work.➤ Independently developed the ShiroDEB scripts set and maintained automatic build scripts based on this.➤ Participated in the company-hosted external technical sharing activities, shared technical insights, and introduced work results (2023-11 Wuhan LUG).➤ Used Docker technology and Github Action to continuously integrate the ShiroDEB working environment, creating the clean room build environment. |

🔗 Personal Projects

- | | |
|---------|---|
| 2023.12 | Safety Training Information Platform and Surrounding Facilities |
| 2023.8 | <p>Personal freelance project. Written and maintained in my spare time during the internship. Implemented a safety training signup information records and exam information management platform, and supports the import and export functions of Excel files. It is currently in the maintenance period.</p> <ul style="list-style-type: none">➤ Use Django and Django REST Framework for backend implementation➤ Use Vue3.0, Electron for the management system, and use Svelte for the student registration page.➤ Implemented exam check-in software based on the ID100 ID card reader and Java FX. This software communicates with both this management platform and the Government-designated examination management system.➤ Use Docker and Docker-Compose to implement containerization, improving deployment efficiency. <div style="display: flex; align-items: center;"><div style="display: flex; gap: 5px;"><div style="border: 1px solid #ccc; padding: 2px 5px;">Full-stack</div><div style="border: 1px solid #ccc; padding: 2px 5px;">Docker</div></div></div> |

2023.10	VirtIO Drivers implementation based on NXOS Kernel
2023.7	<p>Project of OSPP 2023 (an event like GSOC), implemented VirtIO Drivers Framework and frontend devices drivers for NXOS Kernel. Project mentors expressed high approval of this project.</p> <ul style="list-style-type: none"> › Implemented VirtIO Over PCI Bus and VirtIO Over MMIO › Implemented various VirtIO devices, such as Net, Block, Input, Sound, etc. › Implemented generic framework for any other VirtIO devices to be implemented in the future › Fixed Bugs in NXOS Kernel codebase › Archived compatibility to error implementations beyond specification through studying the sources of Linux kernel and QEMU <div>  C VirtIO QEMU Low-level Driver </div>
2023.7	Safety Training Online Platform
2023.4	<p>Personal freelance project. Implemented an online video training platform with features of online training, face recognition, quiz tests and comments.</p> <ul style="list-style-type: none"> › Using Django and Django REST Framework for backend implementation › Using Vue3.0 and Vue-Pure-Admin framework for administration panel › Implemented the same functionality by Vue and WeChat mini program for trainee frontend › Containerize the whole project with Docker and Docker-Compose to improve the deployment efficiency <div>  Python Django Django REST Framework Vue Full-stack Docker </div>
2022.7	OS Kernel on RISC-V Architecture
2022.5	<p>Project for Kernel Design Competition to University Student, a macro-kernel based on RISC-V 64 architecture. Communicate with hardware via SBI and therefore the portability and universality could be archived.</p> <ul style="list-style-type: none"> › Implemented SMP multi-processor via spinlock and sleeplock › Implemented Buddy Page Allocator and RB-Tree based Slab objects allocator › Implemented CoW Fork to improve performance › Implemented the support of Flatten Device Tree along with extensible driver framework › Implemented some generic POSIX syscalls like execve, dup and pipe and some Linux syscalls › Support QEMU and K210, and implemented virtio-mmio/virtio-disk for QEMU › Developed RISCV-GDB-Paging for debugging SV39/SV48 paging information for RISC-V on QEMU. Written in Python and Scheme Lisp <div>  C CMake Low-level Kernel RISC-V GDB Python </div>
2022.3	Self Service Car Washing Solution, Embedded Software
2021.10	<p>Embedded part of Self Service Car Washing solutions, this project implemented the terminal electrical controlling and user-end GUI.</p> <ul style="list-style-type: none"> › As the project manager of the whole team, coordinated developers in other parts and collaborated with partner company › Using STM32F4 as MCU and developed based on STM32 HAL › Ported LVGL using DMA2D for higher performance, decoupling the LVGL GUI from embedded functionality for easier debugging and development › Communicate with LTE IoT modules and ESP32 via AT commands, enabling interaction with server-side systems › Implemented the configuring from PC via USB-FS and FATFS › Use FreeRTOS as the embedded operating system, using tasks to handle different sub-procedures <div>  C STM32 LVGL FreeRTOS Embedded </div>

</> Other Personal Projects

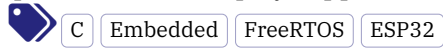
> OmochaOS:

Toy kernel for study of x86 development, using micro-kernel architecture. Implemented drivers for essential components such as HPET, PCI, APIC, and AHCI. Additionally, a modular framework to ensure extensibility and flexibility within the system has been implemented.



> AiR Air Quality Monitoring System:

The AiR Air Quality Monitoring System based on ESP32. With MQTT, HTTP API and HTTP Frontend support, also with display support on onboard LCD.



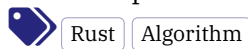
> OmegaGomoku:

A Gomoku AI using PyTorch and the DQN algorithm. Optimized DQN reward calculation. Achieved moderate AI performance after 100k training games. Outperformed MiniMax with 95% max win rate and 50% average win rate at 2-level search depth. Report: [Click Here](#)



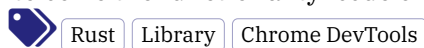
> Rust-shunting_yard:

Expression evaluation tool written in Rust using the Shunting Yard algorithm, equipped with function definition capabilities.



> Rust-headless-chrome(Code contribution):

Contributed code to the Chrome DevTools Protocol implementation API in Rust, enhancing and refining certain API application methods. Additionally, fixed errors within the code generation tool ([auto_generate_cdp](#)) to solve the functionality issue of the project.



> ShiroDL:

Asynchronous concurrent small-files download library in Rust, designed for versatility and extensibility. Includes a command-line program for batch downloading small files.



🏆 Awards and Certificates

- > Google Code-in 2017
- > 2020“FLTRP·ETIC Cup”English Reading Contest Shandong Provincial Final Third Award
- > 2021 14th Chinese Collegiate Computing Competition Shandong Provincial Third Award
- > 2021 3rd National College Computer Ability Challenge Program design C++ Eastern China area Excellence Award
- > “Sai Guan Cup”8th Shandong Provincial College Students’ Electronic and Information Technology Application Competition Second Award
- > 2022 15th Chinese Collegiate Computing Competition Shandong Provincial Second Award
- > 2022 Computer System Development Capability Competition - Kernel Design Competition Preliminary Excellence Award
- > 13rd Blue Bridge Cup Shandong Provincial C/C++ College B Group First Award
- > 13rd Blue Bridge Cup National Finals C/C++ College B Group Third Award
- > National Copyright Administration of China Computer software copyright registration certificate AiR Air Quality Monitoring System