

# Wang Jiefan

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## EDUCATION

### National University of Singapore

Singapore

*Bachelor of Computing, Focus in Parallel Computing and Database Systems*

*Aug. 2021 – July 2025 (Est.)*

- Teaching Assistant (CS2109S Introduction to Machine Learning): AY23/24 Sem 1
- Teaching Assistant (CS3211 Parallel and Concurrent Programming): AY23/24 Sem 2
- Teaching Assistant (CS3210 Parallel Computing): AY24/25 Sem 1
- Current GPA: 4.26

## EXPERIENCE

### Backend Platform Developer Intern

Singapore

*Shopee Pte. Ltd.*

*May - Aug. 2024*

- Developed Virtual Gateway feature for internal container networking platform, to automate and segregate subnet allocation to hundreds of in-production Virtual Private Clouds (VPCs) across business units.
- Implemented Quality of Service (QoS) policies for internal container networking platform, by dynamically setting Differentiated Services Code Point values in IP headers using cgroup-attached eBPF programs, to enable client-side configuration of TCP traffic priorities for hundreds of baremetal VPC servers.

### Software Engineer Intern

Singapore

*Pinvest Pte. Ltd.*

*May - July 2023*

- Designed and implemented parallelization and optimization constructs, such as streaming, pipelining and caching, into LLM service infrastructure. End-to-end latency for API endpoints improved by as much as 35%.
- Triaged and fixed several request-spoofing security vulnerabilities to mobile financial trading platform.

## PROJECTS

### The Conq Programming Language | *Rust, WebAssembly*

*Jan. – April 2024*

- General-purpose programming language for web pages, supporting vector graphics.
- Current implementation uses LLVM-MLIR toolchain and compiles to WASM with HTML Canvas bindings.
- Includes **Conq-er**, a Monaco-based IDE.

### Order-Matching System | *C++*

*Sep. – Nov. 2023*

- Socket-based HFT-inspired multi-threading order-matching engine.
- Utilizes custom extension of `std::priority_queue` that is thread-safe, supports arbitrary removal and iteration.
- Intel Core i7-9700 (8 cores, 8 threads): Processes 2000 buy-sell orders in ~18ms.

### Scrolly | *PyTorch, Typescript*

*Mar. – May. 2023*

- AI-driven single-command karaoke video synthesizer.
- Uses Whisper ASR for transcription, Facebook's Demucs for vocal isolation, and Remotion + AWS Lambda for cloud-based video rendering.

### PySlidingWindow | *Python*

*Aug. – Nov. 2022*

- Custom lost-tolerant automatic repeat request (ARQ) protocol.
- Demo supports reliable file transfer over UDP. ~15kbps (19% slowdown) at 40% packet corruption and 40% packet loss.

... and many more, at [nafeij.me](https://nafeij.me) and [github.com/Nafeij](https://github.com/Nafeij)

## ACHIEVEMENTS

SuperComputing 24 IndySCC - *Team Participation (Ongoing)*

*2024*

## TECHNICAL SKILLS

**Languages:** C/C++, Java, Kotlin, Go, Python, Typescript, Rust, PostgreSQL, SQLite, JavaScript, TypeScript, HTML/CSS, WebAssembly

**Frameworks:** React, React Native, Node.js, Next.js, Flask, Django, JUnit

**Technologies:** Git, OpenMP, OpenMPI, eBPF, Cilium, etcd, Kubernetes, ROCm, CUDA, JIRA, GraphQL, Jenkins, Firebase, NumPy, PyTorch

## MISCELLANEOUS

As a Singapore Citizen, I'm eligible for the **USSFTA H1B1 Visa**.