

# Amit Rahman

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## EDUCATION


**Computer Engineering, Bachelor of Engineering (Honours), National University of Singapore** 2021 - 2025

- **NUS Engineering Scholar** - Awarded to 50 engineering students in faculty cohort of 1500

## WORK EXPERIENCE

### Software Engineer Intern

Sep 2024 - Present


**Grasshopper**  *High-Frequency Trading Firm* — Rust, C++, Python

*Singapore*

- Working on Rust implementation parser generator for Google's Protobuf.

### Software Engineer I

Feb 2024 - Aug 2024

**Kisi Inc.**  *Cloud-Based Security Platform* — C, C++, Python, CMake

*New York*

- Owned transition and IoT cloud platform integration for fleet of 50,000 access control IoT devices from a managed cloud platform to FreeRTOS and GCP-backed proprietary IoT platform.
- Created a new firmware codebase, writing critical components such as a POSIX-like thread-safe networking library, encryption library, network drivers, and CMake build system.
- Achieved significant performance improvements, reducing networking latency by 80% and enhancing encryption & decryption speed by 100x compared to legacy system.
- Collaborated with cross-functional teams, working on embedded telemetry support and GCP integration to ensure seamless integration of new firmware with existing systems and support API team efforts.

### Software Engineer Intern

Jul 2023 - Sep 2023

**Coditioning**  *EduTech Startup* — Python, React, Node.js, PostgreSQL

*Remote*

- Engineered an end-to-end sandboxed code execution environment with code editor and remote code execution engine, creating a backend system capable of providing responsive feedback on user code submissions.
- Designed and created RESTful API and message queue architecture, achieving an average response time of 500ms for code submission feedback, ensuring a smooth user experience for platform's 1,000 users.
- Developed intuitive API endpoints and database schemas, ensuring efficient storage and retrieval of historical user submissions and test case results.

### Software Engineer Intern

May 2023 - Aug 2023

**HydraX**  *FinTech SaaS Startup* — TypeScript, Python, Kubernetes, Grafana, SQL

*Singapore*

- Deployed & implemented internal tools in kubernetes, enabling cost analysis and optimization for company's products, improving granularity from cluster to container level.
- Identified and handled inefficiencies of duplication in log ingestion monitoring stack and reduced cloud storage costs in various clusters up to 39.8%.
- Migrated legacy AWS resources to infrastructure as code in pipeline for private digital exchanges in development clusters, expanding automation coverage of CI/CD pipeline.
- Optimized Grafana automation stack, integrating continuous deployment for versioned Grafana dashboards in new nodes, with SQL hooks.

### VC Summer Analyst

Jan 2021 - Mar 2021

**K3 Ventures**  *Venture Capital Family Office* — Python, Pandas, HTML, CSS, SQLite

*Singapore*

- Scraped and visualized data and identified IPOs stock price trends around lock ups, presented on custom monitoring dashboards for VC clients.

## SKILLS

**FrontEnd:** TypeScript (NextJS, ReactJS), HTML, CSS

**BackEnd:** C/C++, Rust, Python, Typescript (NodeJS)

**CI/CD:** Github Actions, AWS Cloudformation, Grafana

**Databases:** PostgreSQL, Redis, RocksDB


**Tools:** Git, Linux, FreeRTOS, Docker, Kubernetes, CMake, Maven, AWS, GCP

## PROJECTS

**RESP2 Protocol Compatible Key-Value Database Server Library** — Rust

Apr 2024

- Developed a high-performance, asynchronous database server library using Rust's m:n runtime model for efficient concurrency.
- Implemented in-memory data structures suitable for use as a database, cache, or message broker, ensuring external consistency with durable write-ahead logs.

**6502 Microprocessor Emulator C++ Library**  — C/C++, ASM, CMake, Boost

Dec 2023

- Developed a cycle-accurate emulator for 6502 microprocessor, accurately implementing its instruction set and behavior.
- Implemented a modular architecture using C++ and integrated with Boost library, ensuring code re-usability and extensibility.

### Other Projects

Sep 2021 - Dec 2023

- Various other projects in Rust , Kotlin , Java , & a technical blog .