

Amit Rahman

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EDUCATION

Computer Engineering, Bachelor of Engineering (Honours) , National University of Singapore	2024
<ul style="list-style-type: none">• NUS Engineering Scholar - Awarded to 50 engineering students in faculty cohort of 1500• 2nd Major in Quantitative Finance	(Penultimate)

WORK EXPERIENCE

Fullstack Software Engineer Intern Coditioning <i>EduTech Startup</i> —Python—React—Node.js—PostgreSQL—OpenAPI	Jul 2023 - Sep 2023 <i>Remote</i>
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- Owned the system design & development of a code execution engine, tailored for Coditioning’s e-learning platform.
- Designed a RESTful OpenAPI Schema for a Python-centric backend, laying the foundation for seamless code submission and retrieval, as well as historic data access.
- Initiated comprehensive technology evaluations for an extension of EduTech project, appraising software architectures—finding the optimal balance between scalability and rapid delivery, after writing up POC in GO and Python.
- Devised a suite of intuitive API endpoints to empower frontend functionalities: code submissions, status verifications, result acquisitions, and past submission access.
- Overcame Heroku’s 30-second response time constraints. Designed callback-enabled endpoints for clients to poll effectively, averting timeouts and enhancing the initial prototype’s responsiveness.
- Spearheaded the design of a push-notification mechanism for real-time code execution result alerts, delving deep into websockets and Server-Sent Events to ensure seamless user experience.

DevOps Intern HydraX <i>FinTech SaaS Startup</i> —TypeScript—Python—Linux—AWS—Kubernetes—Prometheus—Grafana	May 2023 - Aug 2023 <i>Singapore</i>
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- Deployed & implemented internal tools in Elastic Kubernetes Service, enabling cost analysis and optimization for the company’s products, increasing granularity from cluster to container level.
- Created custom Grafana dashboards using promQL for cost monitoring and reporting.
- Identified and handled duplication in log ingestion monitoring stack and reduced cloud storage costs in various clusters up to 39.8%.
- Migrated AWS resources to CDK in the infrastructure pipeline for private digital exchanges in development clusters, for increasing automation coverage of CI/CD pipeline.
- Monitored security vulnerabilities for new test cluster images patching and upgrading deprecated packages.
- Enhanced Grafana automation stack, integrating Github actions for versioned deployment of dashboards in new nodes.

Venture Capital Intern K3 Ventures <i>Venture Capital Family Office</i> —Python—Pandas—NumPy—Bs4	Jan 2021 - Mar 2021 <i>Singapore</i>
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- Scraped and visualized data from SEC EDGAR Filing API and identified IPOs stock price trends around lock ups.
- Researched and presented on DeFi opportunities and trends for payment transfer in the under-banked APAC countries.
- Assisted in pitch deck reviews, due diligence, and client networking for ventures targeting of alternative protein startups.

PROJECTS

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

- Developed a C++ library for a 6502 emulator, enabling accurate simulation of the microprocessor as hobby project.
- Utilized CMake for efficient project organization and management. Modern C++ programming techniques used.
- Implemented comprehensive unit tests using the Boost unit testing framework to ensure emulator correctness.

Search and Rescue Robot Vehicle —C/C++—ROS—Linux—Arduino—Baremetal—UART—TLS

- Designed tele-operated robot modelling search and rescue capabilities for terrain mapping and collision avoidance.
- Implemented LIDAR, ultrasonic sensors, and communication protocols on Robot Operating System (ROS) in C++.
- Telemetry and geo-data collected sent from Raspberry Pi (RPi) to Hector SLAM ROS Node on the host laptop via websocket, visualisation of the environment processed via RViz over UART protocol and TLS connections.

Command Line Timetable Manager —Java—Gradle—JUnit—MVC—Github Actions

- Designed OS agnostic CLI based university timetable & academic planner with persistent local storage, written in Java.
- Implemented MVC software architecture in a monolithic app & scraped course data from official university catalog.
- Implemented build automation using Gradle, with JUnit tests. CI/CD pipeline was automated using Github Actions.

SKILLS

Programming Languages Technologies	C/C++, Python, Java, TypeScript, JavaScript, Verilog, Bash, R ROS, React, Vite, FASTapi, AWS, Kubernetes, Docker, Prometheus, CMake, Boost
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