Lam Rong Yi

+65 9179 3673 | lamrongyi@gmail.com | github.com/lrongyi | lam-rong-yi.vercel.app

Education

National University of Singapore Aug 2023 – May 2027
Bachelor of Computing in Computer Science

Tampines Meridian Junior College Jan 2019 – Dec 2020
GCE 'A' Levels

Experience

Software Engineer Intern Jan 2026 – Present
Home Team Science and Technology Agency

- Developed AI-powered enterprise applications (NestJS, PostgreSQL, Prisma) automating government acquisition and approval workflows in a security-sensitive environment
- Designed and implemented a Model Context Protocol (MCP) server within a microservices architecture, enforcing structured input validation and secure API design for automated room-booking operations
- Remediated security vulnerabilities identified via GitLab SAST and dependency scanning, analyzing CVEs, upgrading vulnerable transitive packages, and validating application stability through CI/CD pipelines
- Implemented automated data lifecycle enforcement by developing scheduled cleanup jobs to securely purge soft-deleted PostgreSQL records and associated Amazon S3 objects, reducing residual data exposure

Detachment Commander Jan 2021 – Nov 2022
Singapore Armed Forces

- Completed several leadership courses such as the Commando Small-Unit Leaders Course and the Officer Cadet Course, developing skills in decision-making and structured communication
- Led and mentored 20+ junior trainees through the commando training syllabus, fostering teamwork, resilience, and performance under pressure

Projects

Security Exploitation Projects Aug 2025 – Jan 2026

- Achieved controlled code execution by exploiting stack-based buffer overflows and constructing return-to-libc payloads in 64-bit binaries
- Bypassed address randomization by leaking libc function pointers via PLT/GOT and deriving runtime base offsets
- Conducted binary analysis with radare2 and GDB to reverse engineer control flow and validate exploit chains
- Applied cryptanalysis to break insecure implementations of RSA, AES-ECB, ChaCha20, and weak PRNG-based systems

Itinerary Planner | *Next.js, Prisma, PostgreSQL* Jul 2025 – Aug 2025

- Architected a client-server web application using Next.js and Node.js, separating frontend rendering from backend APIs to enforce controlled data access boundaries
- Designed RESTful APIs for itinerary and participant management with strict server-side validation and authorization enforcement
- Implemented secure Google OAuth 2.0 authentication using Passport.js, validating authorization callbacks and protecting session integrity
- Containerized the application with Docker and integrated a GitHub Actions CI pipeline (linting, TypeScript validation, build checks) to prevent unsafe builds and regressions

Technical Skills

Security & Networking: Linux, GDB, Binary Exploitation (Stack Overflow, Return-to-libc, ASLR Bypass), Packet Analysis, Network Protocols
Programming: Python, Java, C, Typescript, SQL
Systems & Backend: PostgreSQL, Prisma, REST APIs, NodeJS(NestJS), NextJS
DevOps & Infrastructure: Git, GitHub Actions, GitLab CI/CD, Docker, Kubernetes

Certifications

Google Cybersecurity Professional Certificate May 2025