

# Ryan Loh

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Aspiring Site Reliability / Software Engineer passionate about building scalable, reliable systems through automation and strong software engineering practices. Experienced across the full lifecycle of services — from design and deployment to monitoring, optimization, and long-term reliability.

## SKILLS

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- Languages - Python, Go, Java, Rust, Javascript, Typescript, HTML, CSS, C
- Technologies - Linux, Git, Docker, React, NodeJS, Flask, SQL, MongoDB, Kubernetes, Terraform, Ansible, Elasticsearch, Prometheus, Grafana
- Tools - Gitlab CI/CD, VSCode, Excel, PowerBi, Vim, Tmux, Shell

## EXPERIENCE

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### DevOps Engineer Intern

NetVirta Inc

Jan. 2025 - Aug. 2025

- Designed and implemented real-time ingress and connection management system in Go/Rust, ensuring high availability and low latency.
- Enhanced service lifecycle reliability by benchmarking QUIC, HTTP/3, and WebTransport prototypes for production readiness.
- Reduced container startup time and improved deployment velocity with P2P node image caching across Kubernetes clusters.
- Automated AWS EBS snapshot workflows to scale storage seamlessly, minimizing downtime during service expansion.
- Optimized build pipelines and GitLab runner infrastructure, improving system efficiency and reducing operational costs.

### DevOps Engineer Intern

Ensign Infosecurity

Apr. 2024 - Jul. 2024

- Automated infrastructure provisioning with Terraform/Ansible, ensuring reproducible, reliable deployments.
- Built a provider-agnostic orchestration platform with FastAPI and Elasticsearch to improve system observability.
- Designed GitLab CI/CD pipelines to support frequent, reliable code releases.
- Conducted capacity planning and performance tuning, removing bottlenecks and improving responsiveness.

### Technology Director

SMU Whitehats Society

Jul. 2023 - Jul 2024

- Deployed Kubernetes clusters on AWS for Whitehacks 2024, supporting 300+ concurrent participants with high uptime.
- Implemented monitoring, alerting, and capacity planning with Prometheus and Grafana to ensure smooth competition operations.
- Integrated Docker-based challenge servers on AWS EC2, ensuring consistent and reliable service delivery.

### Technology and Infrastructure Executive

SMU Whitehats Society

Oct. 2022 - Jul. 2023

- Developed and launched the CCA's website using Next.js, TypeScript, and Tailwind CSS, improving online presence.
- Integrated Contentful CMS, enabling non-technical members to manage content efficiently

### Full Stack Developer Intern

Reality Detector

Feb. 2022 - Jul. 2022

- Built scalable labeling and visualization tools with ReactJS, Flask, and NestJS.
- Migrated backend services to MongoDB, improving system performance and scalability.
- Automated large-scale data migrations, improving service readiness and reducing manual errors.
- Deployed production workloads on Docker/Linux, improving operational reliability.

## EDUCATION

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**Singapore Management University** | BSc. Computer Science

Aug. 2022 - 2026

**Hwa Chong Institution** | Integrated Programme

Jan. 2014 - Sep. 2019

- Hwa Chong Diploma - Merit
- H2 Computing, H2 Math, H2 Physics, H1 Economics

## CERTIFICATIONS

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**AWS Certified Solutions Architect** – Associate

Apr. 2025 - Apr. 2028

<https://www.credly.com/badges/72c1de4f-77e2-4bb4-a36f-f3af03bf6142>

## PUBLIC/PERSONAL PROJECTS

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**Secure Configuration Monitor** - Final Year Project

MINDEF RAiD

Sep. 2025 - Dec. 2025

- Developed a multi-agent policy management system using LangGraph and Ollama to automate secure configuration audits and remediations.
- Engineered agents with integrated Open Policy Agent (OPA) tooling to dynamically evaluate compliance across configuration files.
- Designed the overall agent orchestration framework, enabling continuous monitoring and automated reporting of security posture.
- Virtualized GPU resources using Proxmox VE to support remote vector database generation for model retrieval and analysis workflows.