

RYAN NG JINGKAI

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EDUCATION

National University of Singapore

Expected Jun 2028

Bachelor of Engineering in Computer Engineering + Master of Science in Computer Engineering, 3+1 Programme

- Major in Computer Engineering (First Class Honours), Concentration in Large-Scale Computing and Communication & Networking
- Honors & Awards: Engineering Scholars Programme; Wee Hur Prize — ranked Top 3 among 626 students for PF1101, AY24/25 Semester 1
- Relevant coursework: Real-Time Operating Systems, Software Engineering & Object-Oriented Programming, Data Structures and Algorithm, Computer Architecture, Cloud Computing

EXPERIENCE

TikTok, Software Development Engineer in Test Intern

Jul 2026 - Present

- Developed and debugged automated testing solutions; implemented platform reliability improvements across distributed service infrastructure; and established AI-assisted workflows to accelerate test-suite development and root-cause analysis

Synapse, DevOps Engineer Intern

Jan 2026 - Jul 2026

- Automated system administration workflows across Windows and Linux environments using Ansible, reducing manual configuration and health-check time by up to 80% across ~3000 servers
- Designed and developed a centralized CMDB and internal operations tool for server management, focusing on backend API design and database schema design, standardizing infrastructure data across 200+ servers and improved visibility for ~20 engineers
- Implemented and optimised CI/CD pipelines to automate application testing, Docker image builds, image publishing, and deployment of containerized applications to an OpenShift cluster, reducing manual release steps and improving deployment consistency
- Built an internal VM-based CI tool for Ansible playbook testing by creating custom VirtualBox base images, automating clone provisioning and lifecycle management, playbook execution, and output capture for validation

Schneider Electric, Software Developer Intern

Jul 2025 - Oct 2025

- Developed and deployed embedded software on STM32 using Zephyr RTOS, integrating an HTTP server, file system, and the LLEXT subsystem for extensible runtime functionality
- Engineered a secure bootloader for STM32 using Zephyr RTOS, implementing RSA-2048 signature verification and SHA-256 hashing to ensure 100% firmware integrity during the boot process
- Created automation scripts to streamline the software build pipeline, reducing manual workload by 75% and ensuring consistency across all build processes

PROJECTS

Homelab

Jan 2026 - Present

- Built and administered a multi-node self-hosted Kubernetes cluster using kubeadm, containerd and Calico, and provisioned and configured supporting cloud VPS infrastructure using Terraform and Ansible
- Configured Tailscale, Cloudflare Tunnel and Kubernetes ingress controllers to provide secure private access and public domain routing to hosted services
- Implemented Prometheus-based metrics collection and Grafana dashboards to monitor cluster nodes, workloads and application health
- Optimised GitHub Actions CI pipelines to automate application testing and container image publishing to GHCR, with Argo CD managing GitOps-based Kubernetes deployments

MigrateOS (Python Migration Tool)

May 2026 - Present

- Developed a Python automation tool to streamline EOSL server migration by generating Ansible playbooks that capture and reproduce legacy system configurations

Operation Einstein (Student Progress Tracking Platform)

Aug 2025 - Present

- Built a RESTful backend in Node.js and Express with 20+ endpoints for core application workflows, and designed a Supabase (PostgreSQL) database from scratch, optimizing API and query performance to support data integrity. Services can support up to 50 concurrent users with sub-200 ms latency
- Dockerized services with a CI/CD pipeline to automatically test and deploy updates to self-hosted infrastructure

SKILLS

Languages: C, C++, Python, Java, Verilog, SQL, HTML, CSS, JavaScript, TypeScript

DevOps/Infrastructure: Ansible, Docker, OpenShift/Kubernetes, Terraform, Git, GitHub Actions (CI/CD), Argo CD, Linux, Prometheus, Grafana, Windows Server, VirtualBox

Frameworks and Tools: Node.js, Express, Flask, Supabase/PostgreSQL, React, Next.js, Supabase/PostgreSQL