

RAHUL MITRA

+65 8515 5413 | mitrasahul2002@gmail.com | linkedin.com/in/rahulmitra-dev | rahul-mitra.com | github.com/Rah-Rah-Mitra

EDUCATION

National University of Singapore

Aug 2023 – Jul 2027

Bachelor of Engineering, Industrial Systems Engineering

- Pursuing a Second Major in Computer Science and a Minor in Mathematics.
- Awarded Certificate of Outstanding Performance in 3D Computer Vision (CS4277): top student in a class of 24, NUS School of Computing.

WORK EXPERIENCE

Operations Research (Contract), STMicroelectronics (NUS System Design Project)

Aug 2026 – Present

- Design an AI-driven put-away recommendation system for STMicroelectronics' Singapore warehouse, replacing experience-based slotting with capacity-aware decisions drawn from 3 live inputs: picking history, demand forecasts, and available capacity.

Global Operational AI Systems & Data Engineer (Contract), Abbott Laboratories

Jun 2026 – Present

- Assemble a 5-stage offline process-intelligence platform for globally distributed spray-drying plants: GPU OCR and layout parsing, recursive chunking, ONNX embeddings, a Chroma vector store, and LangChain over a locally hosted Gemma model.

Robotics Vision Engineer (AI+X Global Challenge), Amazon

Jul 2026 – Oct 2026

- Built vision systems turning raw camera feeds into perception-ready frames across 3 workstreams: camera ISP, super-resolution, and image restoration under real-world blur.

Platform & Solutions Engineer (Sparks Citizen Developer), People's Association

Sep 2025 – Sep 2026

- Delivered a digital garden-plot balloting platform across admin and public frontends, backend, GIS mapping, and deployment, now production-ready for national rollout across Singapore.
- Integrated Singpass Login (OIDC) to secure resident sign-in and Myinfo to verify identity and address, keeping garden-plot balloting fair for 150 residents signed up at release.
- Engineered keyless GitHub Actions CI/CD on IAM OIDC federation across 5 pinned service repos, with gated Fargate migrations, mandatory RDS snapshots, and circuit-breaker auto-rollback.
- Provisioned AWS infrastructure with Terraform across 8 services: ECS Fargate, Multi-AZ RDS Postgres with PostGIS, ALB fronted by WAFv2, Route 53, ACM, KMS, and Secrets Manager.

Data Analytics & Product Management Intern, Abbott Laboratories

Jan 2026 – Jun 2026

- Developed a SimPy discrete-event digital twin and OR-Tools CP-SAT solver for hybrid flow-shop scheduling, then compared 3 approaches (heuristic, MIP, and genetic algorithm) to turn production objectives and constraints into decision-ready schedules.
- Owned cloud deployment and production support for a team-built APC simulator used in manufacturing and engineer training, with Docker packaging, Azure App Service hosting, and documented handover.

PROJECTS

Team Lead & Finalist, Swarmline: SG Defense Tech Hackathon (1,300+ applicants)

Sep 2026

- Directed a 5-person team to architect decentralised drone-swarm coordination on correlated random-walk search, gradient-flow dispersion, delay-tolerant gossip, cross-inhibition consensus, and response-threshold task allocation.
- Implemented a deterministic Unreal Engine 5.8 C++ simulation with Claude Code; under a ground-link jam, 30 drones confirmed all 8 walking targets in 10 of 10 seeded runs, against 2.1 for an operator-run fleet.

Finalist, Volt Pulse SG: SMU Hack For Cities (Top 8 Finalist of 50+ teams)

Jan 2026

- Integrated SEALION embeddings, Supabase vector search, RRF routing, and scheduler-agent planning into an autonomous loop managing electricity and utility savings across multiple HDB households at once, placing top 8 of 50+ teams.

LEADERSHIP AND ACTIVITIES

NTUC Health Active Ageing Centre, Elderly Care Volunteer

Sep 2025 – Sep 2026

- Coordinate weekly senior-engagement activities, building empathy for healthcare, accessibility, and community-focused product design.

SKILLS AND CERTIFICATIONS

Technical: Solution architecture, AWS (ECS Fargate, RDS, ALB, WAFv2, Route 53, ACM, KMS, Secrets Manager), Terraform, AWS SAM, Azure, Docker, Bitbucket CI/CD, API design, Singpass Login & Myinfo (OIDC), RAG architecture, vector search, AI tools (Claude Code, ChatGPT, Codex, Gemini, ComfyUI), Supabase, GIS mapping, stakeholder discovery, manufacturing systems

Certifications: NVIDIA Disaster Risk Monitoring with Satellite Imagery; Reinforcement Learning and Deep RL Python (Packt)