

Aditya Varma

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SUMMARY

Applied AI and full-stack engineer. Built Logan, a multi-agent AI security remediation framework on the Anthropic Agent SDK (AGPL-3.0). Delivered EarlyBuild Studio for a German architectural-AI client: VAE-GNN inference, NSGA-III multi-objective optimisation (DIN 276 cost / energy / carbon / floor area), and AI4AD preference learning. Founded and ship Lattice Look, a multi-tenant WHS compliance SaaS. Delivered AUD \$400K+ labour-cost reduction at Cummins across 1,000+ users in 9 APAC countries.

EXPERIENCE

Lattice Labs Pty Ltd

Founder & Principal Software Engineer

Jun 2025 – Present

Melbourne, VIC

Operating part-time alongside selected contract engagements; available for part-time / contract / full-time work via Lattice Labs Pty Ltd.

- **Lattice Look.** Production multi-tenant SaaS WHS compliance platform (latticelook.au). Designed and shipped the full stack: FastAPI + React/Astro, PostgreSQL with row-level-security multi-tenancy, Redis, Celery/Beat, Stripe embedded billing, and a Go edge gateway (SQLCipher, HMAC-SHA256) providing offline emergency roll call when sites lose connectivity.
- **Modules shipped:** psychosocial health intelligence, ISO 9001 document control, employee inductions, iPad kiosk PWA (visitor sign-in with badge printing), risk management/SWMS, incident management, inspections, PPE/asset management, cross-tenant benchmarking.
- **Applied ML:** designed feature roadmap of 38 ML features across 12 modules (incident forecasting, anomaly detection, hazard clustering) using scikit-learn, XGBoost, and Prophet; tenant-isolated local inference on Dell PowerEdge.
- **Infrastructure:** self-hosted on Dell PowerEdge (Melbourne primary, Sydney hot standby), Patroni/etcd/HAProxy HA cluster, Cloudflare edge (TLS, DDoS, R2), Prometheus/Grafana/Blackbox observability, Discord alerting. Per-tenant isolation, MFA and SSO at base tier.
- **Consulting engagements:**
 - **EarlyBuild GmbH (DE):** Full-stack neural building generator and multi-objective optimisation dashboard ("EarlyBuild Studio"). Built VAE-GNN inference engine (V1 GATConv, 136K parameters, trained on 1.1M building samples) and NSGA-III pipeline with modular objectives across DIN 276 construction cost, 50-year operating cost, embodied + operational CO₂, and floor area; AI4AD preference learning trains a decision-tree classifier on user-saved designs. Stack: Flask + pymoo + PyTorch backend; React 19 + TypeScript + Vite + Three.js + Mapbox GL + Recharts dashboard; runtime-overridable coefficients via YAML or env vars.
 - **Precision Aviation Group (US):** HSE compliance platform for global aviation MRO with 26 FAA repair stations and 1,200+ employees; FAA, OSHA, and state-specific tracking with hierarchical dashboards (React, FastAPI, PostgreSQL, AWS).
 - **MG Waste Management (AU):** Customer→Site→Service data model, external supplier portal, interactive map, SOP module; built on Lattice Look architecture.
 - **MM-Architekt (DE):** full site rebuild for German architectural practice; 93% load-time reduction (30s → <2s) via Astro static generation and Cloudflare CDN.

Cummins Inc.

Software Engineering Intern

Jan 2024 – Nov 2025

Melbourne, VIC

- **Architected** enterprise electrical safety compliance platform replacing manual Excel-based processes; serves 1,000+ users across 55 branches in 9 APAC countries, tracking 450+ high-risk electrical workers with 1,698 active certificates and 27,971 induction records.
- **Delivered AUD \$400K+ labour-cost reduction** by automating biweekly compliance reporting (Director + 2 FTE, 26 cycles/year); eliminated regulatory exposure from manual tracking delays across multi-country electrical safety operations.
- **Engineered full-stack integration** unifying 4 enterprise systems (OnLocation LMS, CLC, Quickserve, MyHR) through a custom Python/FastAPI REST API layer; hierarchical traffic-light monitoring from global operations to individual worker level. Selected for global expansion based on APAC success.

- **Achieved 90% server-load reduction** and AUD \$10K+ infrastructure savings via automated Citrix session management for 1,000+ users.
- **Delivered** legacy PHP to SharePoint intranet migration; contributed to MOVEX-to-SAP migration involving 10,000+ tables and multi-TB AWS archiving.
- **Rapid-turnaround delivery:** GeoTab fleet-management integration, HSE certificate generator API, Legal PowerAutomate workflow repair (resolved 2-year broken automation).

Matrix AI Network

Aug 2023 – Jan 2024

Junior Software Engineer

Sydney, NSW

- **Co-engineered js-rpc library** (9,300+ lines, TypeScript) extracted from Polykey's distributed secret-management platform; implemented stream-based RPC architecture with unary, duplex, server-stream, and client-stream patterns.
- **Core contributor to Polykey:** built timeout middleware and error-serialisation layer; led CLI/UX improvements; deployed product website (polykey.com) using Docusaurus and AWS.
- **Resolved production issues** including vault cloning failures and WebSocket transport-layer bugs; contributed to distributed secret-management architecture for zero-knowledge security platform.

FEATURED PROJECTS

Logan — AI Security Remediation Framework

Open Source · AGPL-3.0

github.com/latticelabs-au/logan

- **Built** a multi-agent AI remediation pipeline (11 agents, 7 phases) that automatically fixes vulnerabilities found by upstream pentest audits and re-runs the audit pipeline to validate fixes. Forked from Shannon (Keygraph) and extended with the remediation, validation, and PR-generation layers.
- **Architecture:** triage → fix planning → 5 parallel category fixers (SQL/command injection, XSS, authentication, SSRF, authorisation) → review → re-validation → before/after comparison → executive report. Outputs a PR-ready git branch with atomic commits per fix group.
- **Stack:** TypeScript, Anthropic Claude Agent SDK, Temporal (durable orchestration with crash recovery), Docker, MCP server, structured tool-use over CVE corpora.

ColorGirl — AI Product Scraper for E-commerce

Open Source

github.com/latticelabs-au/colorgirl

- **Built** an AI-driven product-catalogue scraper with React/Ink TUI that converts supplier e-commerce sites into WooCommerce-ready CSV imports. 9-phase pipeline with human-in-the-loop approval gates, orchestrated through Temporal workflows with query-based UI sync and signal-based approvals.
- **Multi-model cost optimisation:** Claude Opus for site reconnaissance and config generation, Sonnet for SEO metadata, Haiku for batched product descriptions.
- **Multi-tier scraping:** HTTP+cheerio (~100–200 products/min) for static sites, Playwright fallback (~12 products/min) for JS-rendered SPAs; tier auto-selected by Opus during analysis. Stack: TypeScript, Node.js 20, Ink + React, Temporal, Claude Agent SDK, axios + cheerio, Playwright, Vitest, tsup.

EDUCATION

RMIT University — Master of Artificial Intelligence

Jul 2026 – Jul 2028 (commencing)

Part-time, concurrent with founder role

Melbourne, VIC

Specialisation focus: applied ML systems, LLM agents, MLOps.

RMIT University — Bachelor of Computer Science (Distinction)

Mar 2023 – Dec 2025

GPA 3.5/4.0 · WAM 80.23

Melbourne, VIC

SKILLS

Languages: Python, TypeScript, JavaScript, SQL, Go

AI/ML: Anthropic Claude & Agent SDK, multi-agent orchestration, multi-model routing (Opus/Sonnet/Haiku), MCP servers, LLM agents, prompt engineering, RAG, structured tool-use, scikit-learn, XGBoost, Prophet, TensorFlow

Backend: FastAPI, Node.js, Express, PostgreSQL (RLS multi-tenancy), Redis, Celery, Temporal (durable workflows), Docker

Frontend: React, TypeScript, Next.js, Astro, Three.js, Tailwind, HTML/SASS

Cloud / Infra: AWS (EC2, RDS, S3, Lambda), Cloudflare (TLS, R2, CDN), Linux, Dell PowerEdge on-prem, Patroni/etcd/HAProxy HA, Prometheus/Grafana/Blackbox Exporter

Practices: multi-tenant SaaS, RBAC, row-level security, event sourcing, MLOps fundamentals, REST APIs, JWT, open source (AGPL-3.0 maintainer); SAP S/4HANA, MOVEX, Power Automate experience

Awards: Global Recognition Award Nominee (Cummins, 2024); Performance Excellence 2024–2025 (“Far Exceeds Expectations”, 4.0/4.0 peer review, internship extended); Dean’s Merit Award (RMIT) 2023 and 2024.