

MAANAAV MOTIRAMANI

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SUMMARY

AI / Machine Learning Engineer who ships production GenAI end-to-end — from model and data pipeline to deployed product serving 2,000+ users. Combines deep applied-AI engineering with customer-facing, ship-fast delivery: multiple 0 to 1 launches and 50+ user/customer discovery interviews. UNSW International Scientia Scholar (A\$40K merit award).

SKILLS

GenAI & LLM: RAG, LangChain, LangGraph, Multi-Agent, LoRA Fine-Tuning, Vector Search, Hugging Face, Prompt Engineering.

ML & Data Science: PyTorch, TensorFlow, Scikit-learn, XGBoost, Computer Vision, Time-Series, SHAP/Explainable AI, NLP.

Full-Stack & Data: Python, FastAPI, REST APIs, React, Node.js, Next.js/TypeScript, SQL, PostgreSQL, Elasticsearch, MongoDB, ETL pipelines, web scraping, Pandas, NumPy.

Cloud & MLOps: Docker, Azure, AWS, Git, CI/CD, LangSmith, Power BI, Tableau.

EDUCATION

Master of Data Science and Decisions, University of New South Wales (UNSW) *Sep 2024 – Aug 2026*

- Weighted Average Mark (WAM): 78.9 | Specialization: Computational.
- Recipient of the **UNSW International Scientia Scholarship (A\$40K)**, awarded for outstanding academic merit & leadership.

Bachelor of Technology (B.Tech) in Computer Engineering, SVKM's NMIMS *Jun 2021 – May 2024*

- CGPA: 3.91/4 | Honours in Data Science/Analytics.
- [Technical Achievement Award](#) (1 of 3 students for research & innovation), Meritorious Student Award (Dean's List, Top 12 in batch), and Student Ambassador (1 of 8).

EXPERIENCE

AI Engineer (Part-Time) — Edify, Sydney *Feb 2026 – Present*

- Designed and shipped an agentic memory pipeline (A-MEM) end-to-end, in production serving **2,000+ users** using Gemini.
- Designed prompt and context-engineering logic to classify memory salience (critical/relevant/discardable), balancing retrieval completeness against latency and cost.
- Built a 3-embedding retrieval architecture (trait/video/chat) on MongoDB Atlas Vector Search with multi-hop BFS graph traversal, doubling user retention rate.

Research Intern (Part-Time) — UNSW (Supervisor: A/Prof. Rohitash Chandra), Sydney *Apr 2026 – Present*

- Predicting Mars dust-storm intensity from pre-storm atmospheric conditions by merging the storm catalog (MDAD) with dust-opacity climatology (Montabone CDOD) across 5 Mars years.

Founding Engineer (Part-Time) — Classiqo, Sydney *May 2026 – Jul 2026*

- Building an AI question-generation platform for a Monash University course, ahead of a pilot with ~350 students: hybrid RAG (embeddings, full-text & RRF on Supabase, OpenAI), deterministic combinatorial question expansion decoupled from the LLM, and an independent solver using structured Pydantic outputs that verifies every generated answer, and tracking token usage and latency across pipeline stages.

Co-Founder & CTO — Aegis AI, Sydney / San Francisco *Jan 2026 – May 2026*

- Co-founded a real-time agentic AI safety system for construction sites; secured **US\$100K** in Microsoft for Startups Azure credits; Columbia AI Startup Challenge Semifinalist; interviewed with **Y Combinator** and other accelerators (<3% reach YC stage).
- Architected a multimodal vision pipeline (LLaVA and YOLOv11) for zero-shot hazard reasoning on live camera feeds, prioritizing minimal false-negative misses for safety-critical, human-monitored deployment.
- Deployed the FastAPI backend to Azure Container Apps with Docker and Azure Container Registry (ACR).

Founding Engineer, AI & Full-Stack (Internship) — MentorAll, Sydney *Aug 2025 – Jan 2026*

- Shipped a full-stack MVP to **100+ pilot users** (UNSW Peter Farrell Cup Top-10 Finalist) using an agile development approach; engineered a two-stage mentor-matching pipeline using LLM multi-label classification and LLM-as-a-judge A/B testing, improving match quality and user trust.
- Architected a Next.js (TypeScript) app with Google Analytics event tracking; designed the Airtable data model and Make.com automation workflows to recompute matches on specific events.

Machine Learning Engineer (Internship) — Creative Innovation, India

May 2023 – Nov 2023

- Built semantic search over a 10K+ MCQ repository using BERT embeddings, reducing manual drafting workload by 25%.
- Fine-tuned Seq2Seq T5 on educational Q&A pairs to automate question generation (~5 min saved per question).
- Built a churn-prediction model (Logistic Regression, Random Forest) on 3K survey responses; achieved ROC-AUC 0.86 (5-fold CV), enabling targeted retention outreach.

Data Engineer (Internship) — Analystt.AI, India

Dec 2021 – Apr 2022

- Migrated **20M records** from SQL to Elasticsearch, reducing query latency and enabling full-text search at scale.
- Engineered an NLP pipeline (spaCy NER, regex parsing) to extract 50K+ structured records from unstructured PDFs.
- Architected 12+ scrapers/APIs (Scrapy, Selenium) updating 20K+ records daily (saving 8 hrs/week) and a React/FastAPI analytics platform to audit data quality.

PROJECTS

Autonomous Grocery Pricing Agent ([Peter Farrell Cup participant](#)) | [Video Demo](#)

Jan 2025 – Dec 2025

- Built a real-time price-intelligence agent (Ollama) for semantic product matching across Woolworths, Coles & IGA; validated product-market fit via interviews with **50+ shoppers and 10 local grocers**.
- Designed a multi-node LangGraph workflow with tool-use, Human-in-the-Loop (HITL) interrupts, & structured post-processing.
- Built async FastAPI with custom scrapers to aggregate live pricing; used LangSmith for observability and session-based threads for persistent conversations — cutting manual price-comparison time by 86%.

Plastic Detection (1st of 770 teams from 19 countries, Kyndryl Hackathon) | [Video Demo](#)

Jul 2023 – Sep 2023

- Developed a YOLOv8 ensemble with DBSCAN, yielding a 49.18% uplift in recall over a single YOLOv8 model.
- Cut training time by clustering 6K images via VGG16 embeddings, PCA and K-Means; annotated and augmented a 300-image Saigon River dataset for local edge cases.
- Led a 4-member team to build a plastic-drift algorithm mapping movement to water bodies using hydrographic data (FastAPI, Power BI, Dropbox pipeline).

Predictive Maintenance Railway | [IEEE Paper](#)

Jun 2023 – Aug 2023

- Built a fault-detection pipeline (LSTM, Random Forest, XGBoost, Isolation Forest) on 1.5M+ multivariate sensor time-series; LSTM reached 95% recall where failures were <1% of data.
- Applied Explainable AI (SHAP, Global Surrogate Models) and Grouped Permutation Importance to handle time-series multicollinearity and validate engineered features.

CERTIFICATIONS & PUBLICATIONS

- **30+ ML/DS credentials:** UWash Machine Learning Specialization (Regression, Classification, Clustering & Retrieval) and DeepLearning.AI's Deep Learning Specialization (Neural Networks, Hyperparameter Tuning, Time Series) ([Full List](#)).
- **Co-authored 9 IEEE/journal publications** in NLP, Computer Vision & Applied Machine Learning ([Google Scholar](#)).

HACKATHONS & AWARDS

- **1st of 770 teams (19 countries)** — Kyndryl 'Plastic-Free Rivers with AI' Hackathon; awarded US\$1,800 ([Photos](#)) (Sep 2023).
- **Mistral AI Worldwide Hackathon** — multi-agent legal simulator fine-tuned on Australian case law (Mistral 7B, LoRA, RAG, LangChain, Chroma); received a US\$5,000 API credit offer from Isaacus ([Product Demo](#)) (Feb 2026).
- **DataSoc x Atlassian Datathon** — analyzed a 100K-user cohort (Power BI); proposed an Enterprise pricing model for a \$228M ARR portfolio, projecting 1.16% net-churn reduction ([Business Case Study](#)) (Sep 2025).
- **Hack2Heal (UNSW AI Soc & Preve)** — built a voice agent automating physiotherapy check-ins ([Pitch Video](#)) (Nov 2025).
- **Competed in 10+ global hackathons** (NASA, Indian Govt., Strong Compute, Relevance AI, etc.).

EXTRA-CURRICULAR

- **Engineering Mentor, ACM** — mentored 8 junior developers on version control workflows, code review standards, and engineering best practices, establishing habits that carried into their subsequent project work (2021–2023).
- **Outreach Lead, What's On!** — managed 50+ mentor outreaches, tracked via JIRA with docs in Confluence; delivered data-viz insights for Marketing (2025).
- **Freelance Illustrator** — 25+ illustrations on Dribbble (7.5K+ views); placed top 3 in the UNSW Founders T-shirt Design Competition (200+ entries).
- **Community** — Arc Volunteer (UNSW), event crowd management for 200+ guests, and other community service.