

Pugalenthi Magendran

FORWARD DEPLOYED AI ENGINEER | APPLIED AI & ML SYSTEMS

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Turning complex business requirements into secure, scalable and production-ready AI systems.

TECHNICAL SKILLS

Programming Languages

Python, SQL, Bash

ML and Deep Learning

PyTorch, scikit-learn, NumPy, Pandas, CNNs, ResNet-style encoders, Transformers, vision-language models, computer vision pipelines

LLMs and Generative AI

LLaMA, Qwen 2.5, FLAIR, OpenCLIP, BiomedCLIP, OpenAI APIs, LoRA and PEFT fine-tuning, embeddings and vector stores, prompt engineering, LLM-as-judge and ROUGE evaluation

Engineering and MLOps

FastAPI, JWT, bcrypt, Pydantic, SQLAlchemy, Streamlit, Docker, LangGraph, PostgreSQL, JSONL pipelines, Git, CI/CD, Jupyter, Colab, AWS, Azure, MLX and Apple Silicon

EDUCATION

Master of Artificial Intelligence (CGPA

3.7/4.0): Monash University, Dec 2025

- **Thesis:** “From Prompts to Probes: Zero-Shot and Few-Shot Transfer of Foundation Models for Retinal Fundus Classification,” supervised by Dr Yasmeen George.

Bachelor of Business (Finance) – Minor:

Accounting: Monash University, May 2023

CORE STRENGTHS

- Forward Deployed AI Engineering
- Technical Discovery & Solution Design
- Enterprise AI Deployment
- Technical Pre-Sales & Commercial Scoping
- Applied ML & Foundation Models
- Computer Vision & Medical AI
- AI Security, Privacy & Governance
- Commercial & Market Intelligence
- Training Data Generation & Fine-Tuning
- Startup Intelligence

PROFESSIONAL SUMMARY

Forward Deployed AI Engineer with a Master of Artificial Intelligence and a background spanning enterprise AI deployment, technical discovery, commercial solution design and applied ML research. Experienced working directly with stakeholders to identify high-value problems, define success criteria, make architecture trade-offs and deliver end-to-end AI workflows. Combines hands-on engineering with venture analysis, market intelligence and hyperspectral machine-learning experience.

SELECTED ACHIEVEMENTS

- Contributed to **AI and software opportunities approaching A\$1M in aggregate value**, spanning technical discovery, pre-sales, solution design and delivery planning.
- Built a hyperspectral ML system across **285 spectral bands**, improving hematite detection **AUPRC from 0.266 to 0.533 (~2x)** on held-out geographic data.
- Designed and executed **63+ foundation-model experiments across ~3,000 labelled retinal images**, achieving **0.921 AUROC** for glaucoma detection.
- Built structured market intelligence across **400+ Southeast Asian startups and 3,000+ company signals** during venture capital analysis.
- **Selected for Perplexity AI’s inaugural Global Fellowship**, collaborating with a global cohort spanning 30+ countries to explore enterprise AI adoption, AI-assisted research workflows, and commercial applications of generative AI.
- Built privacy-preserving enterprise AI infrastructure covering **6+ categories of sensitive data**, combining authentication, access control, auditability and automated prompt anonymisation.
- Led **technical discovery and solution design across 6+ enterprise and mid-market engagements**, translating ambiguous business problems into scoped AI opportunities, architectures and delivery plans.

CAREER EXPERIENCE

ZeroFold — Melbourne, Australia

Jan 2026 – Present

Forward Deployed AI Engineer (Contract)

- Led **technical discovery, pre-sales and solution design across 6+ enterprise and mid-market engagements**, working directly with stakeholders to map workflows, systems, data, constraints and success criteria before defining where AI could create measurable value.
- Contributed to **AI and software opportunities approaching A\$1M in aggregate value in a span of under a year**, supporting opportunity qualification, technical scoping, business cases, proposals, architecture decisions and delivery planning from early discovery through commercial negotiation.
- Conducted deep discovery across a **large-scale enterprise procurement environment**, identifying where AI, automation and analytics could address contract leakage, supplier performance, invoice assurance, operational cost and fragmented workflows, and translating the findings into a scalable implementation roadmap.
- Designed and delivered **end-to-end applied AI systems spanning agentic workflows, RAG, LLM applications, APIs and human-in-the-loop controls**, making architecture trade-offs across security, privacy, reliability, integration complexity, latency and cost.
- Owned delivery from **discovery and stakeholder alignment through architecture, implementation, testing, deployment and handover**, working between customers and engineers to turn ambiguous requirements into operational systems.

Business Fellow & Campus Ambassador, AI Product & Research

- Designed and tested **AI workflow prototypes** using **Perplexity Enterprise Pro**, focusing on **company intelligence, research synthesis and content operations**.
- Built and evaluated **AI-assisted research systems** across finance, healthcare, legal, technology, venture capital, and content operations use cases.
- Assessed trade-offs between **single-prompt and staged reasoning workflows**, identifying improvements in source coverage, output structure, consistency, and reusability.
- Created **repeatable prompt frameworks and workflow** templates that improve consistency across research, content generation and intelligence gathering activities.
- Participated in masterclasses and workshops with global technology leaders, including **NVIDIA CEO Jensen Huang and Box CEO Aaron Levie** to strengthen understanding of enterprise AI deployment and adoption strategies.

Monash University, Melbourne VIC

Feb 2025 – Nov 2025

AI Researcher, Foundation Models for Ophthalmology

- Designed and executed **63+ controlled foundation-model experiments across ~3,000 labelled retinal images**, comparing **zero-shot prompting and few-shot linear probing** across diabetic retinopathy, glaucoma, cataract and pathological myopia.
- Engineered reproducible **Python and PyTorch experimentation pipelines** incorporating retinal image preprocessing, quality filtering, **patient-level dataset partitioning**, cached embedding generation and configuration-driven execution.
- Evaluated model behaviour across **MESSIDOR, REFUGE and ODIR** using **5%, 10% and 20% labelled-data budgets** to measure adaptation efficiency under limited supervision.
- Benchmarked **FLAIR, OpenCLIP, BiomedCLIP and ResNet-based encoders**, comparing representation quality and downstream classification performance across multiple transfer settings.
- Achieved **0.921 AUROC for glaucoma detection** and **0.735 Macro-F1 for diabetic retinopathy**, outperforming OpenCLIP and BiomedCLIP zero-shot baselines under the controlled benchmark.
- Built **end-to-end experiment tracking and reproducibility workflows**, enabling regeneration of model outputs, evaluation metrics and benchmark comparisons from a single configuration.

AUG Melbourne, Melbourne VIC

2024 – 2025

Digital Systems and Applied AI Developer

- Worked with business stakeholders to identify operational bottlenecks and translate them into **AI-enabled workflows, backend services and automation solutions**, bridging requirements, governance constraints and technical implementation.
- Engineered a **secure internal AI gateway** with authentication, role-controlled access, model access management and audit logging, creating the control layer for safer organisational use of conversational AI.
- Built a **privacy-preserving LLM middleware layer covering 6+ categories of sensitive data**, including Tax File Numbers, Medicare numbers, passport details, student identifiers, financial information and personal contact data before prompts reached external models.
- Designed **automated anonymisation and data-restoration workflows** that removed sensitive information before model submission and reconstructed usable outputs afterward, reducing the trade-off between privacy compliance and employee usability.
- Supported end-to-end AI adoption from **stakeholder discovery and risk identification through architecture, development, testing and implementation**, helping convert experimental LLM usage into governed enterprise workflows.

1337 Ventures, KL

2022

Venture Capital Analyst

- Built structured market intelligence across **400+ Southeast Asian startups and 3,000+ company signals**, using 8+ commercial and investment dimensions to identify emerging sectors, competitive patterns and companies warranting deeper diligence.
- Produced **market maps, competitive landscapes and prioritised shortlists from a 400+ company universe**, turning fragmented startup information into decision-ready intelligence for the firm's accelerator and investment pipeline.
- Conducted cross-sector diligence across **fintech, biotech, SaaS and technology**, evaluating market attractiveness, competitive differentiation, business models, traction, founder execution and commercial risk to inform investment decisions.

AI ENGINEERING PORTFOLIO**SpectraShift: Hyperspectral ML & Representation Learning**

2026

Python, PyTorch, hyperspectral imaging, representation learning, zero-shot & few-shot learning

- Built an end-to-end **hyperspectral ML pipeline across 285 spectral bands**, covering spectral preprocessing, wavelength-aware representation learning, feature extraction and held-out evaluation.
- Compared **spectral baselines, PCA-logistic regression and a frozen DOFA foundation model** across zero-shot and few-shot-style evaluation settings to test **representation transfer under limited labelled data**.
- Improved **hematite detection AUPRC from 0.266 to 0.533 (~2x)** against the baseline approach on held-out geographic data.
- Adapted a **111.2M-parameter pretrained encoder while training only 2,307 parameters**, testing whether learned representations could transfer efficiently to a new hyperspectral sensing problem.