Naga Narala

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naganarala.me github.com/naga-narala Melbourne, Australia
Subclass 485 Full Australian Work Rights (valid until Aug 2028)

Summary : *AI Engineer skilled in building intelligent agent workflows using LangChain, CrewAI, and n8n, with hands-on expertise in ML, CV, and NLP. Passionate about deploying scalable AI solutions and driving real-world impact.*

Education

Master of Artificial Intelligence **July 2023 - June 2025**
Monash University, Clayton *Graduated with credit average*

- Relevant Coursework: Machine Learning, Deep Learning, Intelligent Image Analysis, Multi-Agent Systems, Data Analytics
- Academic Achievements: Final Semester Project Expo Winner, High Distinction in Machine Learning Computing

Technical Skills

Programming & Others: Python, SQL, Data analaysis and Preprocessing
Frameworks: PyTorch, TensorFlow, Scikit-learn, OpenCV, Pandas, NumPy, Matplotlib, Seaborn
AI Agents & Automation: LangChain, CrewAI, n8n, OpenAI API, Hugging Face, Prompt Engineering, LLM Integration,
MLOps & Deployment: Flask, FastAPI, Streamlit, Docker (basic), Git, GitHub, CI/CD (basic), REST APIs, MLflow, SageMaker
Data & Cloud Platforms: Google Cloud Platform (GCP), AWS (basic), Jupyter Notebook, NLP, Model Training & Evaluation.

Projects

PulseLab – Privacy-First Health Analytics Platform | *Multi-Agent ML* | *Openrouter APIs* | *SQLAlchemy* | **Live** **Jul – Oct 2025**

- Built 6-agent (Cardiovascular, Sleep, Fitness, Medical, Anomaly, Insights) ML system processing 700K+ records in <3 minutes using streaming algorithms, z-score outlier detection, and LLMs (Claude/GPT-4) achieving 85%+ confidence with automated retry logic.
- Architected privacy-first pipeline with zero-persistence streaming parser handling up to 1GB of sensitive data—ephemeral in-memory processing, stateless architecture, and HIPAA-aligned compliance without database storage.
- Engineered production infrastructure with FastAPI backend, multi-agent orchestration, Docker containerization, and 15+ interactive visualizations achieving 69% project completion in 14.5 days.

RipCatch-v2.0 - AI-Powered Rip Current Detection | *YOLOv8* | *PyTorch* | *CUDA* | *OpenCV* | *Hugging face* | **Live** **Feb – Jun 2025**

- Engineered production-grade computer vision system detecting rip currents from beach surveillance footage with 88.64% mAP@50 accuracy, targeting prevention of 60-70 annual global drowning deaths through automated real-time alerts—designed for integration with sites like BeachSafe.org.au.
- Optimized YOLOv8m deep learning model (25M parameters) on 16,907-image dataset achieving 89.03% precision and 89.51% recall, delivering 12-15 FPS real-time video inference
- Implemented advanced training pipeline with gradient accumulation (effective batch 64), mixed precision (AMP), cosine LR scheduling, and early stopping—achieving 65% training time reduction (7.15h → 4-5h) and +9.64% accuracy improvement over v1.0

FirePrint - AI-Powered Wildfire Pattern Analysis | *Tensorflow* | *CNN* | *GeoPandas* | **Github** **Oct – Dec 2024**

- Developed computer vision system analyzing 324,741 Australian bushfires (1898-2024) using novel 4-channel fingerprint encoding (boundary shape, distance transform, curvature, fractal dimension) for automated fire pattern classification and wildfire forensics
- Built multi-task CNN achieving 71% accuracy across 4 classification heads (fire type, ignition cause, location, size) with 500 fires/minute inference; engineered 23-feature extraction pipeline achieving 0.72 CV accuracy

Achievements & Certifications

- **MLOps: Machine Learning Operations Specialization** – Duke University (Coursera)
- **Introduction to Data Analytics** – IBM (Coursera)
- **Generative AI: Introduction and Applications** – IBM (Coursera)
- **CrewAI Initial Course** – Certified in building multi-agent systems for AI automation workflows
- Completed multiple AI & automation mini-projects, applying LangChain, n8n, and CrewAI for real-world workflows

Additional Information

- **Open Source & Projects:** Actively contributing to personal and collaborative GitHub repositories, exploring and implementing emerging AI and automation technologies.
- **Leadership & Communication:** Strong interpersonal and communication skills with proven ability to collaborate across teams, adapt quickly to new tools and environments, and build positive working relationships.