

JOSHUA BINU KOCHIYIL

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PROFESSIONAL SUMMARY

Advanced Computing (Honours) graduate specialising in Machine Learning with experience building AI-powered full-stack applications, backend services, and automation pipelines. Skilled in developing practical AI solutions that improve operational efficiency, support decision-making, and solve real-world business problems. Seeking to contribute strong engineering ownership and product thinking within an innovative high-impact team.

EDUCATION

The Australian National University Canberra, Australia
Bachelor of Advanced Computing (Honours) 2021 - 2025

- **Specialisation in Machine Learning**
- GPA: **6.31 / 7.00**
- Recipient of **ANU Chancellor's International Scholarship**
- **Relevant Coursework:** Software Engineering, Database Management, Data Structures and Algorithms, Systems & Networks Programming, Natural Language Processing, Computer Vision, Statistical Machine Learning

TECHNICAL SKILLS

Programming: Python, Java, C/C++, JavaScript/TypeScript, SQL, Unix/Linux

AI & ML: LLMs, RAG, Generative AI, NLP, TensorFlow, Keras, Scikit-Learn, OCR

Full-Stack: React, Remix, Tailwind CSS, Flutter, Flask, FastAPI, REST APIs

Databases: MySQL, PostgreSQL, Firebase, Supabase

Testing: Selenium (E2E), Pytest (Unit & Integration)

DevOps & Tools: AWS, Docker, CI/CD (GitHub Actions), Git

Engineering Practices: Agile Scrum, User Story Mapping, Test-Driven Development, Technical Documentation

WORK EXPERIENCE

Machine Learning Researcher Intern Nov 2024 - Jul 2025
The Australian National University Canberra, Australia

- Designed and deployed an **LLM-based optimisation pipeline** that reduced SHAP computation cost by **20%**, improving scalability of explainability workflows.
- Integrated an **LLM-powered conversational interface** into a React-based dashboard, enabling non-technical users to query and interpret ML outputs through natural language interactions and interactive visualisations.
- Implemented **Retrieval-Augmented Generation (RAG)** pipelines and **prompt engineering** workflows to reduce hallucinations and improve response reliability.
- **Containerised backend services using Docker** to support scalable deployment and integration.
- Collaborated with stakeholders to define **success metrics and usability criteria**, ensuring outputs aligned with real-world decision-making needs.

Full-Stack Software Engineer Feb 2024 - Dec 2024
Ohna Canberra, Australia

- Designed and developed a **real-time logistics automation system** using a Remix frontend and PostgreSQL database (Supabase), increasing packing throughput by **15%** across **500+ weekly orders**.
- Built and integrated **Python & PostgreSQL data pipelines** to **automate data validation and cleanup**, reducing manual overhead and improving query performance.
- Designed **secure relational database schemas** with **row-level security (RLS)** and **role-based access control**, ensuring safe multi-user access in a production environment.

- Maintained and optimised a production **Flutter-Firebase e-commerce mobile app** by identifying and resolving critical bugs, improving overall app stability and user experience.
- Secured a **\$30,000 Innovation Connect Grant** from the Canberra Innovation Network by delivering **live technical demonstrations** and presenting the platform's **community and operational impact**.
- Led end-to-end product delivery in an **Agile Scrum** environment, contributing to system design decisions, sprint planning, and production deployments.

OTHER EXPERIENCE

Casual Sales Assistant

Shaver Shop

Jul 2025 - Present

Canberra, Australia

- **Customer Engagement & Needs Analysis:** Consistently exceeded sales KPIs through effective customer needs analysis and tailored product recommendations, demonstrating strong communication and active listening.

Casual Retail Team Member

JB Hi-Fi

Jan 2024 - Dec 2024

Canberra, Australia

- **Problem Solving:** Resolved customer complaints and defective product cases through calm, solution-oriented thinking.

SOFT SKILLS

Stakeholder Communication: Collaborated with cross-functional teams and non-technical stakeholders to understand requirements, translate them into effective software solutions, and provide ongoing user support.

Problem Solving & Continuous Improvement: Analysed operational challenges, identified inefficiencies, and implemented practical solutions that improved workflows, reduced manual effort, and enhanced system performance.

Adaptability & Rapid Learning: Quickly learnt and applied emerging technologies, frameworks, and AI tools to deliver core system components in a fast-paced startup environment.

PERSONAL PROJECTS

AI Expense Tracker

[GitHub](#)

Tech Stack: Remix, FastAPI, PostgreSQL, OCR, LLM Integration, Gemini API, GitHub Actions, Selenium

- Built an **AI-powered expense analytics platform** with a multi-stage pipeline to extract, validate and structure data from receipt images using **OCR** and **LLMs**.
- Developed a **natural language-to-SQL query engine** to enable intuitive querying of financial data.
- Designed interactive dashboards to **visualise spending patterns, trends, and anomalies** for decision-making.
- Engineered **backend APIs** and asynchronous processing pipelines to support AI-assisted querying, receipt ingestion, and dashboard analytics.

MADI - AI Medical Diagnostic Platform

[GitHub](#)

Tech Stack: Python, Flask, TensorFlow, Keras, Scikit-Learn, XGBoost, CNNs

- Developed a **unified AI diagnostic platform** integrating multiple independently trained disease prediction models handling heterogeneous inputs including structured patient data and medical imaging.
- Built a **Flask-based backend** to orchestrate multi-model inference workflows and manage session-based aggregation of prediction results.
- Built and integrated an **LLM-powered diagnostic assistant** to interpret model outputs and **generate patient-friendly explanations**, improving accessibility of complex medical insights.

ACHIEVEMENTS

- **McCusker Prize in Humanitarian Engineering (2024):** Awarded for real-world impact of project *Ohna* in tackling food insecurity through technology, demonstrating engineering excellence with humanitarian value.
- **ANUEC Hackathon Finalist (2024):** Advanced to the final round in the ANU Entrepreneurship Club (ANUEC) 24-hour hackathon with project *MADI*. Demonstrated the project's technical depth and social impact to a panel of industry experts, highlighting innovation in healthcare accessibility and technical execution.