

JINHAO LUO

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SUMMARY

AI Software Engineer and Master of Computer Science graduate with experience building data-driven internal platforms, RAG-based conversational agents, and graph neural network recommender systems. Skilled in Python, SQL, TypeScript, Next.js, PostgreSQL, Supabase, LangGraph, and AI evaluation, with strengths in requirements analysis, workflow design, stakeholder communication, and translating business needs into practical AI and data solutions.

EDUCATION

The University of Sydney

Master of Computer Science

Feb. 2024 – Dec. 2025

Sydney, Australia

- **Average Score:** Distinction; relevant coursework includes **Machine Learning, Database Systems, Data Structures and Algorithms**, and **IT Project Management**.

Nanchang University

Bachelor of Mechanical Engineering

Sep. 2019 – Jun. 2023

Nanchang, China

- **GPA:** 3.2/4.0; received scholarship with distinction for three consecutive years.

EXPERIENCE

Sundao Ventures

AI Software Engineer

Sydney, Australia

Mar. 2026 – May 2026

Results

- Achieved up to **70%** reduction in fund onboarding time by redesigning data capture, onboarding, and deal-review workflows in the SunDAO Intelligence Platform.
- Supported onboarding and platform operations for **211 paid startup customers** from a pipeline of **1,700+ startups**, contributing to an estimated **12% paid conversion rate**.
- Maintained and supported **2 internal platforms**, ensuring reliable authentication, data access, storage, and operational continuity.

Projects

- **SunDAO Intelligence Platform:** built an internal data-driven platform for startup discovery, fund/member management, intent matching, deal tracking, and AI-assisted review.
- **SunDAO Website:** redesigned and maintained the public-facing website to improve navigation, information structure, and onboarding experience.
- **Core Platform Maintenance:** maintained authentication, database, storage, deployment, access control, and operational workflows across SunDAO systems.

Responsibilities

- Built and maintained platform features using **Next.js 15, TypeScript, React 19, Supabase Auth, PostgreSQL, Supabase Storage**, and **Google Drive API**.
- Structured startup, fund, member, intent, and match-status data into organised records to support tracking, reporting, analysis, and future recommendation workflows.
- Designed intent-driven matching logic that converted startup needs, investor goals, urgency, stage, sector, and preference signals into structured profiles for data-driven decision support.
- Supported issue triage, data updates, access-control checks, documentation, and workflow improvements to reduce manual review effort and ensure reliable internal operations.

PROJECT EXPERIENCE

MindPal – AI Mental Health Companion Agent

Jan. 2026 – Mar. 2026

- Designed a **LangGraph-based conversational agent** with separate empathy, knowledge retrieval, crisis detection, memory, and tool-execution nodes orchestrated through conditional edges.
- Built a dual-path **RAG pipeline** using **BGE-M3 embeddings**, **pgvector** retrieval, SerpAPI fallback, and **Redis caching** to support safer real-time mental-health knowledge retrieval.
- Implemented a **3-layer memory architecture** with **Redis** session memory, **PostgreSQL** long-term structured memory, and **pgvector** semantic memory for cross-session personalization.
- Developed an offline **RAGAS evaluation pipeline** with **20 test queries** covering faithfulness, answer relevancy, context precision, and context recall.
- Improved **RAG faithfulness from 0.56 to 0.75** using **RAG Fusion** and **Reciprocal Rank Fusion**, achieving **0.86 context precision** and **0.71 context recall** across a **24-document knowledge base**.

Heterogeneous Graph Neural Network Recommender System

Aug. 2025 – Nov. 2025

- Built a heterogeneous graph recommender system for sparse **Amazon-Reddit** data, focusing on rating prediction, relation-level explainability, and data-driven model comparison.
- Constructed **PyTorch Geometric HeteroData** graphs with users, items, reviews, and bought-together relations, and modelled higher-order structures such as **U-I-U** and **I-U-I**.
- Integrated **Word2Vec**, **HeteroGNN**, and **MetaPathAggregator** models, evaluating performance using **5-fold cross-validation**, **RMSE**, and **MAE**.
- Found that Meta-Path augmentation increased error on Beauty (**RMSE**: 1.2217 → 1.3534, **MAE**: 0.9452 → 1.0486) and Fashion (**RMSE**: 1.3078 → 1.4269, **MAE**: 0.9881 → 1.0924), clarifying **HGNN's** suitability boundary in sparse and noisy recommendation graphs.

SKILLS & CERTIFICATIONS

Data Analysis: SQL, Python, Data Analysis, Data Cleaning, Data Processing, Data Modelling, Pattern Recognition, Business Insights, Reporting, Evaluation Metrics

Databases & Pipelines: PostgreSQL, Supabase, Redis, pgvector, Structured Data, Unstructured Data, Data Pipelines, Data Retrieval, Database Systems

AI & Machine Learning: Machine Learning, AI Applications, RAG Pipelines, AI Evaluation, RAGAS, GNNs, LangGraph

Tools & Programming: Python, SQL, TypeScript, JavaScript, React, Next.js, PyTorch Geometric, Google Drive API, Trello, Claude; IELTS 6.5, PTE 72, Chinese, English

REFERENCES

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