Hari Prasad Rangaraj

Unrestricted work rights in Australia | Temporary Graduate visa (subclass 485)
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Professional Summary

Software engineer with 3.5 years at Oracle Cerner building clinical and financial reports on the Millennium EHR platform, including query and index tuning across 45+ programs. Recent Master of Artificial Intelligence and Machine Learning graduate (August 2026), with research applying NLP to predict mental health recovery trajectories. Currently building What Does Research Say, a RAG application with hybrid keyword and semantic retrieval and citation checks across 1,150 research papers, using Python, FastAPI and React. Held four leadership roles, including Vice President, in a 700+ member student association.

Professional Experience

Oracle Cerner | Software Engineer I **Oct 2020 – Mar 2024**
Bangalore, India

- Engineered custom financial and clinical reports using Cerner Command Language (CCL) and Discern Visual Developer across Revenue Cycle Management, RevWorks and Millennium (EHR platform)
- Developed 30 reports from scratch and executed 50+ report corrections on Discern Analytics 2.0, utilising the layout builder to support reporting requirements
- Built 6 reports and maintained 10 reports on MPages using HTML, CSS, JavaScript and CCLJSON to connect Millennium data with the PowerChart front end
- Maintained 10 scheduled OPS jobs and performed performance tuning, index tuning and query optimisation across 45+ programs cutting execution time by 36%
- Corrected 20 charges, 30 registration records and 10 Charge Services issues to support accurate billing, insurance and guarantor information
- Validated 500+ front-end outputs across Cerner platforms and conducted 100+ code reviews to identify defects and deviations from coding standards
- Collaborated in a 17-member agile development team and mentored 6 new team members on development workflows and reporting practices

Research Project

Predicting Mental Health Recovery Trajectories **Feb 2026 – Aug 2026**
Adelaide University | Master's Research Project

- Engineered a Python NLP pipeline to process 4,735 posts and 306,334 comments across 9 Beyond Blue forum categories, assembling 4,428 longitudinal threads for modelling
- Extracted 5 behavioural features and 150 TF-IDF features from early interactions, fitting vectorisation and scaling on training data only to limit data leakage
- Benchmarked Logistic Regression, Random Forest, Linear SVM, XGBoost and DistilBERT on macro-F1 and minority-class recall; best final macro-F1 0.424 (Logistic Regression) vs 0.309 random baseline
- Resolved primary key collisions by constructing category-based composite IDs, preventing duplicate row multiplication during relational joins
- Implemented author-isolated VADER labelling with asymmetric thresholds, reducing the proportion labelled Improved from 92% to 68% and limiting bias from supportive replies
- Built an HTML annotation tool and manually labelled 60 blinded threads, using Cohen's kappa and 2,000 bootstrap resamples to identify weak VADER agreement with human judgement (kappa = 0.20)
- Evaluated 5 alternative labelling methods, including RoBERTa, Flan-T5 and BART-MNLI, and documented how label quality constrained downstream model performance

Personal Project

What Does Research Say | RAG Application **Jul 2026 – Present**

www.whatdoesresearchsay.com

- Developed a responsive React/Vite frontend for topic exploration, paper explanations and claim checking, with light/dark themes, saved examples and 9 source-linked public demos
- Built a Python/FastAPI backend for PDF/XML ingestion, deduplication and SQLite storage, supporting 1,150 research papers across 23 collections and 127,770 indexed passages
- Implemented hybrid retrieval combining SQLite FTS5/BM25 keyword search with MiniLM semantic embeddings through reciprocal rank fusion, with collection filters and source-diversity controls
- Integrated Ollama and Qwen3.5 for local research generation, implementing background jobs, progress tracking, PDF uploads, versioned caching, saved results and Markdown exports
- Engineered citation, numerical and scope-validation checks with traceable source quotations; evaluated 4B and 9B models for evidence fidelity, completeness, readability and response time to identify pipeline improvements

Skills Summary

Programming and Web: Python, C++, Java, SQL, CCL, TypeScript, JavaScript, HTML, CSS, React, Vite, FastAPI

Machine Learning and NLP: Logistic Regression, Random Forest, SVM, XGBoost, TF-IDF, VADER, transformer embeddings, Reinforcement Learning, Deep Learning, Federated Learning

Libraries: scikit-learn, pandas, NumPy, NLTK, Hugging Face, PyTorch, TensorFlow, Matplotlib

LLMs & Retrieval: RAG, Ollama, hybrid search, reciprocal rank fusion, LLM evaluation

Tools and Platforms: Git, GitHub, Jupyter, Colab, Kaggle, Jira, SQLite, Visual Studio Code

Healthcare IT: EMR, EHR, Revenue Cycle, DvDev, PowerChart, Millennium, HIPAA compliance

Education

Adelaide University **2024 – 2026**

Master of Artificial Intelligence and Machine Learning | GPA: 6.23/7.0

B.M.S. College of Engineering **2015 – 2019**

Bachelor of Engineering in Information Science and Engineering | GPA: 7.92/10.0

Certification: Microsoft Technology Associate - Cloud Fundamentals

Leadership Experience

Adelaide University Soccer Club White | Social Media Manager **Feb 2026 – Present**

- Led visual strategy and mentored 2 digital creators, assigning tasks, standardising design workflows and providing feedback to meet publishing deadlines

MiTSA | Masters in Technology Student Association **Jan 2025 – Nov 2025**

Events Officer → Director of Events → Vice President → Director of Memberships

- Directed 4 event officers and presided over 6+ executive committee meetings with a team of 8, aligning monthly KPIs, plans and responsibilities
- Championed sponsorship outreach to 20+ external organisations and coordinated 150+ departmental tasks, implementing fortnightly reviews to track delivery
- Managed a community database of 700+ students, conducting weekly data audits and delivering monthly analytics reports to executive leadership

Additional Experience

Woolworths Group | Replenishment Team Member | 2025 - 2026. Restocked 250+ grocery items across 7 pallets and 5 cages, and supported the Fruit and Veg team

Adelaide University Sports Association | Food and Beverage Attendant | 2026 - Present. Delivered beverage service at the Adelaide University Boat Club annual dinner. Handled $2,000+ in daily sales at a 3-day hockey carnival canteen

Adelaide University | Volunteer | 2025. Identified 5 enrolment system issues and proposed 5 areas for improvement