

Houston Karnen

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EDUCATION

Master of Information Technology - Distributed Computing

University of Melbourne | Jan 2024 - Present | WAM: 77.5

Key Areas: Distributed Systems, Cloud Computing, Software Projects

Bachelor of Science - Computing & Software Systems

University of Melbourne | Jan 2021 - Dec 2023 | WAM: 79.15

Key Areas: Algorithms, Databases, Software Design, Cybersecurity

PROFESSIONAL EXPERIENCE

Full Stack Developer - Unimelb x UEF

Mar 2025 – Present

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- Collaborated on an AI-driven clinical simulator to be used by medical students and researchers at the University of Eastern Finland (UEF)
- Built a real-time simulation engine using XState v5, with a **RESTful** backend integrated with **PostgreSQL** and a **React** frontend
- Developed a natural language chat interface using **LLaMA 3.5** on **Groq** and **Langchain** to interpret student input and trigger clinical state transitions
- Authored onboarding documentation and API test collections using Postman for easier developer handoff and QA
- Completed product 3 weeks faster due to early research on state machines

Intern - Full Stack Developer - Queue Solutions

June 2024 – Dec 2024

- Built motivational modelling tools for project planning with **React** and **MaxGraph**; used in Unimelb's IT Project subject
- Rewrote legacy jQuery modules accounting for **30%** of codebase; implemented graph features (reset, export, themes)

Co-Founder - Full Stack Developer - StudyGenie

Jan 2024 – Dec 2024

- Built Azure-hosted ed-tech platform with **Azure Storage** and **App Services**; received Microsoft funding
- Generated quizzes leveraging Azure OpenAI from study documents and built progress dashboard using **Flask** and **React**

Full Stack Developer – Longbeach Community Centre

July 2023 – Nov 2023

- Developed website, attendance subsystem & tutor interface on MERN stack; fully removed the use of paper-based attendances

TECHNICAL SKILLS

Coding Languages: Python, Java, JavaScript, TypeScript, C, C#, SQL, HTML, CSS

Frameworks/Libraries: React, Node.js, Express, Flask, REST APIs, MongoDB, XState

Tools: Git, GitHub, GitLab, CI/CD, Jira, Confluence, Postman

Others: Unity, DBMS, Linux CLI, Jupyter, Machine Learning, SLURM

Languages Spoken: English (Fluent), Indonesian (Native), Chinese (Basic)

Awards & Activities

Scholarships: Melbourne International Undergraduate Scholarship

Certifications: Melbourne Employability Accelerator

Clubs: CISSA, InfoSec, Anime & Manga, Chess, URT

References available upon request