

Jenul Ferdinand

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Summary

Upcoming CS Grad | 1 Year Startup & Industry Experience | High-Performance Backend Architecture |
SIL Autonomous Vehicle Systems | Engineering Team Leadership | Internal Tooling & Automation | DDD, TDD, EDA

Education

Bachelor of Computer Science at Monash University, Clayton Campus

Graduating November 2026

Work History

Computer Science Intern

August 2025 – October 2025

Hawthorn Football Club

- Mentored by the tech and data GM, tasked to build a workflow optimisation project to assist the coaching staff.
 - Enterprise AI integration using Google Agentspace within GCP to facilitate data analysis for AFL coaching staff.
 - Implemented tabular RAG for transactional AFL data offered by ChampionData hosted on Snowflake Cloud.
 - Integrated tailored AI agents and ML models using the Google Agent Development Kit (ADK) and Vertex AI.
 - Delivered a presentation on prompt engineering for coaches outlining how to prompt LLMs effectively.
 - Developed a one-shot data analysis workflow for the data analysts built using Claude Code subagents.

Software Engineer

July 2025 – Present

Remote, VIC

- Engineered the backend using FastAPI, Pydantic, and SQLAlchemy to support high-volume transactions.
 - Architected with Domain Driven Design (DDD) ensuring strict separation of concerns and scalability.
 - Designed a 40-table PostgreSQL schema with optimised indexes reducing query time by 40%.
 - Reduced API latency by 32% via Redis caching and optimised container resource allocation.
 - Integrated Google Places API to aggregate external reviews alongside internal user reviews.
 - Implemented secure Google Calendar sync with encrypted token storage and CSRF protection.

Automation Developer

March 2025 – June 2025

Eastern Suburbs, VIC

- Identified a bottleneck in the student reporting process and engineered an automation to generate PDF reports.
 - Wrote JavaScript code in the Google Apps Script environment for a zero-cost student reporting solution.
 - Optimised script execution flow to handle high-volume batch processing within the strict execution time limits.
 - Deployed a web interface allowing non-technical admins to trigger report generation and manage student data.
 - Implemented CI/CD using Github Actions, utilising clasp and git for local development and version control.
 - Wrote unit tests using Jest for an automated test suite that runs before deployment in production.

Programming Tutor

October 2024 – Present

Eastern Suburbs, VIC

- Teaching weekly Python, Java, C & JavaScript classes to primary school students across 8 different schools.
 - Achieved a 90% in-class completion rate for my students by consistently keeping classes engaging and fun.
 - Used supplied lesson sheets to break down core coding concepts, allowing students to independently learn.
 - Provided patient coding guidance to students when debugging, quickly identifying logic errors and bugs.
 - Schools: McKinnon PS, Leibler Yavneh College, Ruskin Park PS, Mulgrave PS, Burwood East PS, Greythorn PS.

Student Teams and Extracurriculars

Software Engineer

August 2025 – Present

Clayton, VIC

Monash Connected Autonomous Vehicle (student team)

- Final year project, a SIL simulation framework bridging the ROS 2 autonomy stack with a ride-hailing app.
 - Designed a concurrent Rust backend architecture for real-time vehicle telemetry ingestion using WebSockets.
 - Engineered ROS to HTTP bridges to translate Autoware topics into external JSON endpoints.
 - Authored the technical proposal and feasibility analysis, utilising the Spiral Model to mitigate integration risks.
 - Designing a data pipeline, utilising Apache Kafka for ingestion of vehicle route performance and emissions data.

AI Engineer	August 2025 - Present
<i>Monash Assistive Tech Team (student team)</i>	<i>Clayton, VIC</i>
<ul style="list-style-type: none"> Collaborated on PhD-led research into responsible conversational AI to support individuals with disabilities. Evaluated ML approaches and papers for emotional intelligence and communication pattern recognition. Built an agentic AI application using Python, FastAPI, LangChain, and LangGraph. Experimented with emoji similarity search using PyTorch embeddings and sentence transformers. Implemented AI as a Judge evaluation patterns to benchmark model performance. 	
Project Lead	May 2024 – June 2025
<i>Faculty of Information Technology Society (student society)</i>	<i>Clayton, VIC</i>
<ul style="list-style-type: none"> Led a team of 8 students to build projects that benefit the student community at Monash University. Mentored colleagues in full-stack and project maintainance best practices for version control and pull requests. Facilitated a productive and inclusive team environment, prioritising time management to fit the busy uni schedule. Oversaw project timelines using Jira, defining & monitoring issues, epics, and sprint goals. 	
Solutions Architect Intern	January 2025
<i>UNICEF (MIG 2025)</i>	<i>Docklands, VIC</i>
<ul style="list-style-type: none"> Designed a secure SaaS architecture for UNICEF's uSupport platform to integrate third-party services. Modeled API integration flows to enable secure data exchange between external apps and the core platform. Presented the technical roadmap to stakeholders, awarded with a High Distinction for the solution's feasibility. 	

Computer Science YouTube Channel	July 2023 – October 2024
<i>@ferdinandcoding</i>	<i>Online</i>
<ul style="list-style-type: none"> Produced educational videos on algorithms, data structures, and theoretical computer science. Grew the channel to over 700 subscribers and accumulated a total of 500K+ views. Simplified computer science topics for a broad audience via short form and long form content. 	

Projects

md2data: A Tool to Convert Markdown Documents into Structured Data	npm PyPi Crates.io GitHub
<ul style="list-style-type: none"> A high-performance library and CLI tool to convert markdown into JSON, TOML, YAML, or XML. Wrote parsing logic in Rust by constructing an Abstract Syntax Tree, utilising the pulldown-cmark pull parser. Created FFI bindings for Node.js and Python, with a GitHub workflow publishing to NPM, PyPi, and Crates.io. 	
MonSTAR: Monash University's Open-Source Course Review and Search Platform	Website GitHub
<ul style="list-style-type: none"> A digital platform built for Monash University students to easily browse and review subjects and electives. Maintains average 1,000+ monthly visits with official endorsement from the Monash IT Faculty. Developed the backend using Node.js and MongoDB, implementing RESTful API endpoints. Designed WebCoLa course progression graphs using requisites data from backend APIs. Populated the MongoDB Atlas database using scraped course and subject data. Optimised GEO/SEO strategies to maximise search visibility across 10,000+ generated pages. 	

Licenses

<i>Australian Computer Society</i>	Associate Member
<i>Victorian Government</i>	Working with Children Check
<i>NVIDIA</i>	Developer Program Member

Technical Skills

Languages: Python, TypeScript, Rust
Technologies: Angular, Node.js, MongoDB, PostgreSQL, FastAPI
Tools: Linux, Google Cloud, AWS, npm, uv, cargo
Concepts: Algorithms, Data Structures, Full-Stack, CI/CD, EDA, Actor Model, Databases