Jenul Ferdinand

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Australian Citizen | Knoxfield, Victoria, 3180

Education

Bachelor of Computer Science | Monash University | Clayton Campus   Studying

Projects

md2data: A Tool to Convert Markdown Documents into Structured Data   *npm* *PyPi* *Crates.io* *GitHub*

- 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 bindings for Node.js and Python, with a GitHub workflow that publishes to NPM, PyPi, and Crates.io.

MonSTAR: Monash University's Open-Source Course Review and Search Platform   *Website* *GitHub*

- 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.
- Developed a reactive frontend using Angular with a Model-View-Controller architecture.
- 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.

Work History

Computer Science Intern   August 2025 – October 2025
Hawthorn Football Club   *Mulgrave, VIC*

- 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
Plandid   *Remote, VIC*

- Developed the backend using Python, FastAPI, Pydantic, and SQLAlchemy, exposing APIs to the frontend.
- Architected with Domain Driven Design (DDD) ensuring strict separation of concerns and scalability.
- Incorporated caching using Redis alongside vertical scaling to improve serverless performance.
- Designed a 40-table PostgreSQL schema with optimised indexes reducing query time by 40%.
- Integrated Google Places API to aggregate external reviews alongside internal user reviews.
- Implemented secure Google Calendar sync with encrypted storage and CSRF protection.

Automation Developer   March 2025 – June 2025
Digimaker   *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
Digimaker   *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.

Volunteering

AI Engineer
Monash Assistive Tech Team (student team)

August 2025 - Present
Clayton, VIC

- 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.

Software Engineer
Monash Connected Autonomous Vehicle (student team)

August 2025 – Present
Clayton, VIC

- 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.

Project Lead
Faculty of Information Technology Society (student society)

May 2024 – June 2025
Clayton, VIC

- 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
UNICEF (MIG 2025)

January 2025
Docklands, VIC

- 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
@ferdinandcoding

July 2023 – October 2024
Online

- 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.

Licenses & Certifications

Australian Computer Society	Associate Member
Victorian Government	Working with Children Check
NVIDIA	Developer Program Member

Technical Skills

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