Henry Routson

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Hi, I'm Henry. I have extensive experience knowledge and experience in relation to modern AI systems and Software Engineering.
I am currently working as an AI Engineer.

Education

The University of Melbourne

The University of Melbourne is considered to be the most competitive and academically challenging university in the country.
Over my time I did work for top clubs, created numerous personal projects, and developed high-level software engineering skills.

Bachelor of Science, Major in Computing and Software Systems - distinction

Ballarat Grammar

Academic scholarship
VCE: Software Development, Specialist and Methods Mathematics, Chemistry and Physics

Experience

KPMG, AI Engineer - (2025 June > Present) - https://kpmg.com/au/en.html

Built internal document processing pipeline for sensitive documents which largely exceeded the performance and speed of Microsoft's API.
Built a pipeline to automate legal compliance checks.
Extensive LLM context and prompt engineering experience.

Bet Right, Data Science Intern - (2025 Jan > April) - https://www.linkedin.com/company/bet-right/

Working with a broad range of tools including SQL, Snowflake, Databricks, PowerBI, Azure and DevOps.
Headed improved abuse detection ML model to improve performance by between 40-15% with stacking.

DSCubed, DS AI team vice head - (Nov 2024 > now) https://www.dscubed.org.au/

Working on Retrieval Augmented Generation, Vector databases, LLM frameworks and APIs to create flagship club projects.
Contributing to leading open source Github projects like llama index.
Co-leading a group of 10 high performing university students to create an agentic bot to interact with club databases and automate tasks.

Aerospace and Rocket Engineering Society (ARES), The University of Melbourne - (2023) - https://www.linkedin.com/company/aresunimelb

ARES is the rocket society at the University of Melbourne.
Each year we launch a 2 meter tall composite rocket with the goal of hitting as close to 30k feet as possible.
My role was to develop 3D software to assist engineers in simulating the trajectory of the rocket across supersonic and subsonic speeds.

Queen's College IT support - (2022)

Leetcode competitive programming : https://leetcode.com/u/HenryRoutson/

Open-source contribution

Cached File Explorer - in rust : https://github.com/conaticus/FileExplorer/pull/47

- This was a project to create an ultra fast file explorer using caching and the low-level rust language.
- I fixed poisoned thread issue which can arise when using multi threading.

Supabase Auth UI https://github.com/supabase-community/flutter-auth-ui/pull/108

- SupaBase is a very popular PostgreSQL company which handles application authentication and tooling.
- I added additional configuration options and added documentation to the authentication UI for use in my personal project.

Llama index : https://github.com/run-llama/llama_index/pull/17393

- In relation to my AI engineer role, for data intake we required data from notion for which a quality API wrapper did not exist.
- I create a merge to fix multiple bugs, add new features and improve code quality in the notion reader.

Academics

Machine learning (Keras, Scikit-learn)

- Created a stacked ML model including a neural network.

AI (Python)

- Implemented a game engine and Monte Carlo tree search

IT Project (JavaScript / TypeScript, React, HTML, CSS)

- Increased code quality and redesigned stack visualisation for a Quicksort visualisation
- **Try Here!** https://dev-aia.vercel.app/

Models of Computation (Haskell)

- My Haskell code was chosen as the solution for numerous practice problems within a cohort of 600

Computer Systems (C)

- Functional memory allocator for operating systems and multi threaded web server.

Algorithms and Data Structures (C)

- Implemented a Quad-tree, Linked list, Dijkstra and A*

Foundations of Computing (Python)

- Achieved overall 98%, one of the highest marks in the cohort

Personal projects

https://github.com/HenryRoutson/Auto_Avail (JS / TS)

- This is my current flagship personal project which is a further development on the when to meet application, https://www.when2meet.com/.
- Uses location data and preferences to generate continuous periods.
- Utilises Supabase, previously Firebase, Flutter, React native, SQL / Postgres, pgTAP, user authentication, Expo, Typescript, cloud functions, Cursor IDE.

https://github.com/HenryRoutson/CHelp (C)

- When learning C in university I was frustrated when trying to find bugs with memory debuggers like Valgrind.
- Created a valgrind alternative. Tracks dynamic allocations in C and catches issues early to assist debugging.

https://github.com/HenryRoutson/autoheader (Rust)

- Generates header files for C automatically.

https://github.com/HenryRoutson/Soil-value-calculator (Python)

- This was my 3/4 VCE Software project in year 11 which I received 100% for.
- Matches fertilisers to soils using vector math to optimise plant growth on industrial scales.

References

(Please contact me to request references)

Els has master’s degrees in Mathematics and Finance, a PhD, and is an Associate Director at KPMG. https://www.linkedin.com/in/elsgodecharle/

Pranav is a Data Scientist at NAB. https://www.linkedin.com/in/pranavjayanty/