

James Homer

Sydney, Australia

jameswatsonhomer@gmail.com | +61 478 630 057 | jameshomer.dev | github.com/JamesWHomer |
linkedin.com/in/jameswatsonhomer

Profile

Computer Science Student at The University of Sydney and former Senior Engineer at USYD Rocketry Team. Early adopter and enthusiast in AI, planning on honours and a PhD in AI.

Education

The University of Sydney

Bachelor of Advanced Computing (Computer Science) (Dalyell Scholar - WAM: 80) Sydney, Australia
2024 – Expected June 2028

The International High School of the Gothenburg Region

International Baccalaureate Diploma Gothenburg, Sweden
2021 – 2024

Experience

Senior Modelling and Control Engineer, University of Sydney Rocketry Team

Aug 2025 – Aug 2026

- Led integration of airbrakes into USYD Rocketry's "Ironbark" trajectory simulator.
- Mentored 2 junior members of the team and contributed to the team's design process and documentation.
- Instrumental in developing Ironbark to enable its use in determining oxidizer fill levels and fitting control algorithms which USYD Rocketry used to (again) win category first place at IREC (International Rocket Engineering Competition) 2026.

Ground Control Software Engineer, University of Sydney Rocketry Team

Sep 2024 – Aug 2025

- Created CLI data management tools with FTP to safely handle telemetry data.
- Designed panels to be laser cut and aided in design of launch controller.
- Built data tooling that USYD Rocketry team used to win first place at IREC 2025 at Midland, Texas against 142 university teams from 22 countries.

Projects

Jarv - AI Agent TUI

- Built a scriptable and interactive Python TUI agent interface that interfaces with several model providers.
- Used httpx for direct provider API transports, supporting several agent tools, allowing the agent to browse the web, edit codebases, change computer settings, etc.
- Includes automatic cost tracking as well as automatic model listing using /models endpoint with regex to display the most up-to-date model and pricing without updating Jarv.
- Automatic auditor review of risky commands to reduce the effectiveness of prompt injection attacks or unwanted behavior.

Ironbark - 6-DOF Rocket Trajectory Simulator

- Lead developer and maintainer of Ironbark, USYD Rocketry Team's proprietary trajectory solver.
- Implemented airbrake simulation and a modular framework for control algorithms into Ironbark, USYD Rocketry's first actively controlled rocket.
- Migrated Ironbark aerodynamics from panel solver techniques to Gaussian Processes (scikit-learn) using CFD-derived aerodynamic data, significantly improving sample efficiency, simulation accuracy, and interpolation simplicity.

Core Technical Skills

Languages: Python, Java, C, R, SQL, Bash

Frameworks & Tools: PyTorch, scikit-learn, NumPy, Docker, Git, CI/CD, Agile/Scrum