

Jack Ulbrich-Baker

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EDUCATION

Monash University

Bachelor of Engineering (Honours) Mechatronics (Artificial Intelligence)

Australia

March. 2019 – May 2025

Monash University

Bachelor of Commerce Behavioural Economics

Australia

March. 2019 – December 2024

EXPERIENCE

Neutron GNC Intern

November 2024 - March 2025

Rocket Lab

APC, New Zealand

- As an Intern at Rocket Lab in the GNC Team I was able to both get a holistic view of the company and rocket development as well as an incredibly in depth technical view of the GNC algorithms involved with flying (and landing) a rocket!
- During my internship I was primarily tasked with the automated analysis of algorithms and control systems. The final deliverable was an automated report system that would analyse the simulation of 250+ vehicles and determine the performance of GNC algorithms.
- I was able to produce 3 systems for automated Monte Carlo (MC) Simulation reporting, allowing for automated evaluation of Hardware in the Loop (HITL), MC Simulated Landing and in flight performance

Chief Executive Officer

July 2023 - July 2024

Monash Nova Rover

Clayton, Australia

- Responsible for managing the teams' overall trajectory, including a multi-tiered network of sub-teams comprising of over 100 students.
- Achieved a high retention rate of new team members in 2023 (over 90%), due to the implementation of positive changes after reflecting on the teams' strengths and limitations in 2022.
- Utilising effective leadership skills to ensure goals are completed to a high standard, team members are motivated and key deliverables are met for the competitions we attend

Electrical Engineer

September 2022 - Present

Monash Nova Rover

Clayton, Australia

- Worked with NVIDIA Jetson Carrier board development, CAN bus, motor control, SPI, PCIe, I2C and SMD soldering and PCB assembly.
- As well as being responsible for the development of PCBs I was also responsible for the programming and overall system design to ensure the PCBs work as intended within the system they are going in.
- Worked on mechanical aspects of the rover and have knowledge of SolidWorks, including FEA, sheet metal assemblies and 3D printing

Electrical Technician

July 2023 - Nov 2024

Versatile Technology

Clayton, Australia

- Versatile Technology is the number one producer of beverage can testing gauges worldwide, responsible for 95% of all global production.
- My role is to assemble, test and verify the gauges in production, where I am involved in wiring harness design and construction
- Furthermore, I am familiar with working with ATMEL AVR, STM32 and ARM processors for embedded sensor data collection, motor driving and for sensor fusion

ACHIEVEMENTS

- Achieved 2nd Place in Australian 2024 Rover challenge
- Innovated the team structure in response to feedback from team members
- Authored paper published in the IEEE robotics and automation magazine

TECHNICAL SKILLS

Languages: Python, C++, HTML/CSS, Verilog

Developer Tools: Git, Linux, Bash, Neovim, VS Code, L^AT_EX

Libraries: pandas, NumPy, Matplotlib, pytorch