JACK ULBRICH-BAKER

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ABOUT ME

I am a passionate Engineering student with a drive to develop and work with cutting edge technology. My interests include space exploration, rocketry and development of robotics for space, where I am particularly interested in embedded hardware and hardware development. I was the CEO of the Monash Nova Rover student team from 2023-2024, which is the highest achieving rover team in the southern hemisphere.

EDUCATION

Monash University | 2025

Bachelor of Engineering (Honours)
- Mechatronics (Artificial Intelligence)

Bachelor of Commerce
- Behavioural Economics

KEY SKILLS

Programming

- MATLAB
- C++
- Python
- Nix
- VHDL
- Verilog and R

Technological Fluency

- Altium
- Solidworks
- Microsoft Excel, Word and PowerPoint
- Linux/Unix Experience

Soft Skills

- Problem Identification and Solution
- Critical Thinking
- Emotional Intelligence and Empathy
- Effective Communication
- Intercultural Competence
- Time Management

PROFESSIONAL EXPERIENCE

Chief Executive Officer

Monash Nova Rover | July 2023 - July 2024

- *Monash Nova Rover* is a student team that competes in the Australian Rover Challenge (ARC) and the University Rover Challenge (URC) held in Utah, where 104 universities from around the world apply, and 36 are invited to compete.
- Responsible for managing the teams' overall trajectory, including a multi-tiered network of sub-teams comprising of over 100 students.
- Utilise 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
- Use emotional intelligence to manage several relationships with key internal and external stakeholders pertaining to outreach, public events, sponsorships and social advocacy.
- I am particularly proud of the high retention rate of new team members in 2023 (>90%), due to the implementation of positive changes after reflecting on the teams' strengths and limitations in 2022.
- Utilise critical thinking to incorporate the technical aspects of engineering with socio-cultural aspects such as climate action, women in STEM and Indigenous inclusivity.

Electrical Technician

Versatile Technology | July 2023 - Current

- Versatile Technology is the number one producer of beverage can testing gauges worldwide and is 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.

ACHIEVEMENTS

2024
- Achieved 2nd Place in Australian Rover challenge.
- Innovated the team structure in response to feedback from team members.

2023
- Achieved 1st Place while operating the rover in the *Australian Rover Challenge*
- Selected from more than 100 students to attend the *University Rover Challenge*
- Represented Monash Nova Rover at the Avalon Airshow

2018
- Top 2% of Victorian Students in VCE Chemistry

COMMUNITY

2023
- Facilitated robotics workshops with primary students at the Space Forum
- Facilitated Women in STEM Workshops at numerous secondary schools
- Represented Monash Nova Rover at Space Convention
- Participant in MS 24-Hour Swim Charity Fundraiser
- Event Organiser for Women in STEM Information Night
- Facilitated public event with NISA
- Facilitated US Consulate visit

PROFESSIONAL EXPERIENCE

Senior Electrical Engineer

Monash Nova Rover | September 2022 - Current

- Monash Nova Rover came first in the ARCh, while I operated the rover for two of the tasks (Equipment Servicing & Extreme Delivery), where I achieved the highest scores in this competition for both tasks
- Represented Monash Nova Rover in the URC, held in Utah, USA, where the team came 2nd for the second year in a row.
- The electrical sub-team of MNR handles all the hardware for power delivery, communications and computing on the rover.
- In this team I have worked with 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.
- Secured sponsorships with external companies.
- Conceptualised, designed and assembled circuits, where I developed extensive experience and knowledge of Altium and Kicad.
- I have also worked on mechanical aspects of the rover and have knowledge of SolidWorks, including FEA, sheet metal assemblies and 3D printing

Technical Sales Engineer

Sunlock | October 2022 - July 2023

- Assisted customers with solar array system design and feasibility, including technical details on specific products and their ability to withstand structural loads.
- Lead the development of new adjustable tilt system that is expected to sell over 100,000 units each year
- Utilised communication skills to assist customers with various technical issues.

Bar Tender

Young's Wine Rooms | 2021 - 2022

- Trained new staff, created new cocktail menu items and managed servicing with various equipment e.g. coffee machine, beer taps, soda water machine, etc.

References can be provided upon request.