Kobey Rafferty

Personal and Contact Details

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Career Overview

Engineer with a background in mechatronics, embedded systems, and software development, experienced building hardware-integrated systems in a fast-paced R&D environment. Skilled at rapidly prototyping and delivering software spanning Linux servers, embedded devices, sensors, and real-time control systems. Motivated by solving challenging multidisciplinary engineering problems and building reliable, high-performance technology.

Key Skills

- **Programming:** C, C++, Python, MATLAB, Rust, Java
- **Embedded Systems:** STM32, Raspberry Pi
- **Electronics and Hardware:**
  - **PCB Design**: Altium, KiCad
  - **Manufacturing and Debugging:** Soldering, Rework, Debugging
- **Control Systems and Signal Processing**: PID, MPC, Kalman Filtering, Sensor Fusion
- **Systems Engineering**: Requirements, Version Control, Documentation
- **Mechanical and Robotics Design:** Actuators, CAD
- **Computer Vision:** Machine Learning, Real-time image processing, TensorFlow / PyTorch
- **Communication:** Written, Verbal
- **AI**: Modern Agentic Workflows

Education & Training

Bachelor of Mechatronics Engineering (Artificial Intelligence and Robotics) and Bachelor of Science (Computational Science) | 2020 – 2025

Monash University, Clayton, Victoria

Professional Experience

Graduate AI Engineer – BAE Systems Australia

Melbourne, VIC | Feb 2026 – Present

- Develop rapid prototypes for AI and mechatronic systems within an R&D environment, delivering practical software and hardware solutions under tight budget and schedule constraints.

- Design, implement, and deploy end-to-end software pipelines spanning Linux server infrastructure, GPU compute, embedded edge devices, and integrated sensing hardware.
- Rapidly evaluate new technologies and translate research concepts into robust engineering prototypes through iterative development and testing.
- Collaborate across software, electronics, and systems engineering disciplines to integrate hardware and software into functional demonstrators and proof-of-concept platforms.
- Develop production-quality software using Python, Git, collaborative code reviews, and CI workflows while balancing speed of development with maintainability

Mechatronics Engineering Intern – BAE Systems Australia

Melbourne, VIC | Nov 2024 – Feb 2025

- Contributed to systems engineering for a range of projects, covering requirements definition, high level design, validation planning and safety analysis.
- Developed system block diagrams and interface definitions, ensuring traceability between requirements and implementation
- Participated in design reviews, stakeholder discussions and integration planning across multidisciplinary teams
- Gained practical experience with defence-grade documentation standards and procedures.

Extracurricular Experience

Payload Team Lead / Avionics Vice Lead – Monash High Powered Rocketry

Clayton, VIC | 2021 – 2025

- Led development of advanced avionics and CubeSat-style payloads for competitive high-power rockets.
- Designed and integrated embedded systems for sensor fusion, flight data logging, and telemetry, using STM32 microcontrollers and FreeRTOS.
- Developed a modular sensor platform with IMUs, barometers, and GPS to collect high-fidelity flight data under harsh vibration and thermal conditions.
- Played a key role in achieving top 10 global placement at the 2023 Spaceport America Cup.
- Organised and managed documentation and systems engineering across a broad range of projects.
- Assisted in running STEM outreach programs at primary and secondary schools, helping to inspire the next generation of engineers.
- Designed and implemented embedded software for a thrust vector control rocket simulator, achieving low-latency, high-speed servo actuation and precise closed-loop attitude control using repurposed multirotor flight hardware.

Referees

Rohan Armitage
Anzac Engineering Manager
BAE Systems Australia
Available upon request

Karl Toos
Anzac Engineering Team Lead
BAE Systems Australia
Available upon request

Aaron Hector
Data Science SME
BAE Systems Australia
Available upon request