

AARON ROBINSON

Software Engineer | Cyber Security

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PROFESSIONAL SUMMARY

Software Engineer with experience in the Australian Department of Defence, holding a First Class Honours degree in Network and Software Engineering. Proficient in Python and C/C++ with demonstrated skills in malware analysis, reverse engineering, and low-level systems programming. Experienced in designing and developing security-focused tools, building network infrastructure, and conducting penetration testing. Combines strong technical capability with proven team leadership and a genuine passion for cyber security and protecting national interests.

TECHNICAL SKILLS

Languages	Python, C, C++, basic x86 Assembly, Bash/Shell scripting, Java, learning Rust
Security Tools	Ghidra, gdb, WinDbg, Wireshark, Nmap, Mimikatz
Platforms	Linux (Arch, Fedora, Ubuntu), Windows Server, Windows Domains
Tools & DevOps	Git, Docker, PyQt, PyTorch, TensorFlow
Networking	TCP/IP, network tunnelling, client-server architecture, acoustic channel modelling, message brokers
Concepts	Reverse engineering, malware analysis, penetration testing, OS internals, static & dynamic analysis

WORK EXPERIENCE

Software Engineer | Department of Defence | *December 2025 – Present*

- Developing software solutions in C and Python for internal defence projects within a classified environment.
- Contributing to the design, coding, testing, and documentation of software tools aligned with mission requirements.
- Collaborating with multidisciplinary teams of engineers and analysts to deliver fit-for-purpose capabilities.

Software Engineering Cadet | Department of Defence | *2023 – December 2025*

- Developed internal tooling and GUI applications using Python (PyQt) to support operational workflows.
- Designed and implemented a forward network tunnel using a client-server architecture in C, enabling secure data transmission between endpoints.
- Configured and administered Windows Active Directory domains for testing and development environments.
- Evaluated open-source penetration testing tools (including Mimikatz) against domain environments to identify vulnerabilities and inform defensive posture.
- Performed software testing, code reviews, and contributed to internal projects in C and Python.
- Operated within a secure, classified environment requiring adherence to strict security protocols.

Team Leader | Questcare Disabilities | *2020 – 2024 (Team Lead from 2022)*

- Led a team of approximately 5 support workers, coordinating shift schedules, delegating tasks, and ensuring quality of care for residents.
- Communicated effectively with staff at all levels, external stakeholders, and families to meet diverse needs.
- Demonstrated strong interpersonal skills, resilience, and adaptability in a high-responsibility care environment.

EDUCATION

Bachelor of Engineering (Honours) | University of Canberra | *Graduated 2025*

Network and Software Engineering | **First Class Honours** | 5 Dean's Excellence Awards

Honours Thesis: "Evaluation of a Deep JSCC Stack for Underwater Autonomous Drone Networks"

- Designed and implemented a Deep Joint Source-Channel Coding (JSCC) network stack in Python using PyTorch for image transmission over simulated underwater acoustic channels.
- Achieved 3.375:1 and 33.2:1 compression ratios while maintaining superior error resilience compared to traditional methods at SNR values below 15 dB.
- Conducted a systematic literature review across IEEE Xplore, ACM, and Springer, and developed channel models (AWGN, Rayleigh, underwater) for performance evaluation.
- Research directly applicable to Defence underwater drone fleet communications, addressing gaps in compression efficiency for bandwidth-constrained acoustic networks.

CERTIFICATIONS & TRAINING

- SANS FOR610: Reverse Engineering Malware – Malware analysis tools and techniques
- Advanced C/C++ Training – Plus Plus Training
- Linux Malware and Reverse Engineering – Infosect

NOTABLE PROJECTS

- **Forward Network Tunnel (C):** Built a client-server application implementing a forward network tunnel for secure data transmission, demonstrating proficiency in socket programming and network protocols.
- **Deep JSCC Underwater Comms Stack (Python/PyTorch):** Honours research project developing AI-integrated semantic communication for underwater drone networks. Implemented encoder-decoder architecture with adaptive SNR-aware channel models.
- **Low-Level Arduino TX/RX [IOTSHH](C/Embedded):** Developed custom transmit/receive pin definitions at the register level for data transmission on Arduino hardware, bypassing standard library abstractions.
- **Message Broker Performance Analysis:** Conducted comparative analysis of message broker systems, evaluating throughput, latency, and scalability characteristics.