LUKE LAZAR

📞 (+61)401601554 ✉ lazarluke02@gmail.com 💼 linkedin.com/in/luke-lazar ⯎ github.com/lazarr1

EDUCATION

University of Sydney   **Mar 2020 – Nov 2024**
Bachelor of Engineering (Mechatronics), First-Class Honours, WAM: 86   *Sydney, NSW*
- Dean's List of Excellence in Academic Performance (2022-2024)
- Extra-Curricular: Sydney Computing Society (SYNCS) System Administrator

EXPERIENCE

Cochlear Limited   **Nov 2023 – Present**
Graduate Software Engineer   *Macquarie Park, NSW*

Test Systems Engineer   *Operating System Development, C/C++*
- Designed and implemented a comprehensive firmware framework for STM32 microcontrollers, with an API wrapper to configure hardware dynamically via USB commands.
- Developed low-level OS code including hardware driver code and memory virtualisation providing robust peripheral control, modularity, and scalability for future applications.

Machine Learning Engineer   *Machine Learning, DNNs*
- Directed and delivered a comprehensive research package, including a detailed technical report, a fully documented codebase, and multiple presentations which successfully achieved technology-readiness level 3.
- Designed and implemented deep learning pipelines for speech bandwidth extension for Cochlear Microphones.

Android Developer   *Kotlin, Android App Development*
- Delivered incremental features to a new internal Bluetooth test application, enhancing functionality and user workflow.
- Independently diagnosed and resolved a critical connectivity bug within the test application, improving system reliability and reducing connection failures by approximately 30%.

Embedded Software Engineer Intern   *Python, Real Time OS*
- Implemented a classifier to detect misalignment between the external Sound Processor and Cochlear Implant, automating data collection and analysis in Python, ultimately achieving a 94% detection accuracy.
- Directed the misalignment algorithm development process and synthesized insights from over 10,000 data points into clear, data-driven presentations that persuaded internal stakeholders and facilitated feature adoption.
- Architected a custom debug firmware build for Cochlear Sound Processors, collaborating with multiple cross-functional teams to define logging formats, priorities, and a feature set.

PROJECTS

Cochlear Hackathon 2025: Manufacturing Dashboard — *Next, React, TypeScript, MongoDB*
- Built a real-time dashboard displaying the operational status of manufacturing machines, enabling faster issue detection and improving production visibility for the manufacturing team.
- Designed and implemented a backend API using MongoDB time-series collections to ingest and store machine telemetry, allowing historical trend analysis and performance insights.

Online Circuit Simulator 🔗 *C++, Graph Theory, Algorithm Design, HTML/CSS, JavaScript*
- Designed and developed a full-stack circuit simulator web application, integrating a performant back-end simulation engine with a responsive front-end interface.
- Designed an efficient representation of an electronic circuit in C++, using an adjacency list and a disjoint set that was able to efficiently run a simulation of a circuit to find node voltages/currents.
- Architected a serialisation framework to efficiently communicate to the backend the state of the circuit built by the user.

TECHNICAL SKILLS

Languages: Kotlin, C, C++, Python, Assembly, TypeScript, JavaScript
Technical Skills: Operating Systems, Embedded Systems, Machine Learning, Android Development, Accessible Technologies
Developer Tools: Git, Gitlab CI/CD, Shell Scripting, Linux, Vim, Android Studio