Luke Banicevic

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Experience

ResMed **Dec. 2021 — Present**

Software Engineer – Product Development *Bella Vista, Sydney*

- Implemented cellular connectivity in C++ including AT command handling, IPv4/v6 network stack integration, and connectivity state machines; led IPv4/v6 certification testing on a Rohde & Schwarz LTE callbox and delivered over-the-air firmware upgrade support.
- Developed a BLE RPC data pathway in C++, enabling the patient smartphone app to act as an HTTPS proxy for cloud communication from the device, and implemented firmware-side over-the-air upgrade delivery over this channel.
- Built the initial device-side prototype of a cloud-to-device patient nudge messaging feature, designing firmware message parsing and rendering for personalised notifications driven by cloud-side usage analytics.
- Designed end-to-end BLE-to-cloud device registration testing, integrating embedded firmware, a patient app emulator, and real iOS; surfaced certificate and authentication blockers before production rollout.
- Built device provisioning tooling in Python integrating the Vodafone API for IMSI (SIM identity) management and automated SIM profile switching, eliminating manual setup steps and enabling repeatable environment switching across development teams.
- Diagnosed EU SMS delivery failures affecting device configuration after SIM assignment, working with Vodafone and Telit to trace the fault across modem firmware, SMSC (carrier message routing), and backend API behaviour.

UNSW Solar Racing Team – Sunswift Racing **Feb. 2020 – Dec. 2021**

Embedded Software Engineer – Embedded Systems Team *Kensington, Sydney*

- Key contributor to the design and development of embedded systems for UNSW's Sunswift solar car, competing in the 2021 Bridgestone World Solar Challenge.
- Developed and programmed CAN bus nodes for seamless integration with vehicle drive-by-wire systems, delivering reliable and efficient communication protocols in C.

Technical Skills

Programming Languages: Python, Java, C++, C, SQL, Bash/Zsh
Cloud & Infrastructure: AWS EKS/Kubernetes, Hazelcast, Terraform, Docker, Jenkins, CI/CD
IoT & Connectivity: BLE/Bluetooth, Cellular (LTE/2G/3G), Device Provisioning, TLS/PKI, REST APIs
Observability & Tools: Datadog, Snowflake, Java Profiling (JFR/JVM), Git, Linux

Education

University of New South Wales (UNSW) **Feb. 2018 – Jan. 2023**

B.E Computer Science, B.E (Hons) Mechatronic Engineering *Kensington, Sydney*

- Relevant coursework: Engineering Design 2 (HD), Programming Fundamentals (HD), Database Systems (HD), Object Oriented Design & Programming (D), Data Structures and Algorithms (D)
- Societies: UNSW Solar Racing Team Sunswift, UNSW Heroes Program, UNSW Chess Club

Notable Projects

AI-Assisted CVE Applicability Pipeline | *Python, LLMs, Grype, Embedded Linux*

- Designed a 3-tier matching engine for an embedded Linux medical device to automate Linux kernel CVE triage, combining deterministic rule filtering with LLM analysis for ambiguous cases, replacing a previously manual security review process.

Mechanical Prosthesis – Project Bionic Hand | *Python, C, Raspberry Pi*

- Led development of the Raspberry Pi API bridge between the Python server and the Arduino-driven mechanical rig for a multidisciplinary prosthetics engineering project.