

Jake Makaling

(669) 272-3280 | jakemakaling@hotmail.com | [linkedin.com/in/jakemakaling](https://www.linkedin.com/in/jakemakaling)

EXPERIENCE

Software Engineer

Apr 2024 – Present

ResMed - Product Development

- Developed embedded software in C / C++ (OOP) for sleep devices, used by **over 20 million users worldwide**.
- Designed a Python-based automated system for global device provisioning, **boosting efficiency by 97%**.
- Optimized retry backoff algorithms (RTOS) to resolve a critical field device defect and, consequently, boosting the efficiency of firmware over-the-air upgrades for **over 5 million cloud-connected devices internationally**.
- Developed low-level cellular access library software to enable seamless communication between embedded devices and mobile networks, optimizing LTE/GSM data transmission and facilitating over-the-air upgrades.
- Utilized Python and Django to enhance the frontend and backend of a web application with RESTful APIs used for cloud management of globally widespread medical devices, improving traceability with valuable metadata.
- Leveraged Snowflake and SQL to write complex queries and integrate data from multiple sources, analyzing logs for root cause analysis and to enhance system performance.
- Managed Linux-based systems on AWS, handling deployment, configuration, and performance optimization to ensure the stability of cloud infrastructure.

Electronics Engineer

Feb 2022 – Oct 2024

ResMed - Product Development

- As Product Delivery and Technical Lead, project managed the transition of medical devices from concept to mass production in EU, leading a team of Electronics Engineers and overseeing manufacturing test development.
- Designed and implemented radio-frequency (BLE and cellular) circuitry, including antennas, to allow region-specific wireless communication (GSM, WCDMA, and LTE) of medical devices across **over 15 countries worldwide**.
- Led wireless and EMC certifications for Class II medical devices in the US, devising robust protocols for external certification labs to validate requirements and ensure compliance with regulatory standards like IEC 60601-1.
- Prototyped and tested Wireless cellular and Bluetooth SoCs with network emulators, such as CMW500, integrating them with PCBs for early-stage development and blast-mode testing in collaboration with software stakeholders.
- Designed and reviewed complex schematic circuits and PCB layouts using Altium Designer, authoring detailed design specifications to ensure seamless integration and compliance with technical requirements.

Hardware Engineer

Aug 2019 - Mar 2021

BOSCH - Mobility

- Conducted electronic/radio-frequency design verification testing of BOSCH's automotive 'Perfectly Keyless' project, innovating the use of smartphones as car keys.
- Collaborated with cross-functional engineers to troubleshoot interface issues, including JTAG, UART, and CAN bus debugging, as well as signal integrity and Bluetooth GTEM testing using RF diagnostic tools.

EDUCATION

Monash University

Feb 2016 – Dec 2021

Bachelor of Electrical and Computer Systems Engineering / Bachelor of Biomedical Science

Key Courses: Neural Networks and Deep Learning, Medical Instrumentation, Computer Architecture, Mobile Apps, Control System Design, Analogue Electronics, Digital Signal Processing

ACHIEVEMENTS

- 1st Place in ResMed CMD+CTRL 'Capture The Flag' cybersecurity ethical hacking competition
- JK Ellis Scholarship for Academic Excellence and Leadership Potential (2017)
- Lyle Buntine Memorial Prize for Science and *Graduate Scholar* 98.85 ATAR - **top 1.15% country-wide** (2015)

TECHNICAL SKILLS

Languages and Frameworks: Python, C/C++, Django, Node.js, MATLAB, JavaScript, Verilog, HTML/CSS

Developer Tools: Git, SVN, Bitbucket, Selenium, JUnit, AWS, Postman, Wireshark, Confluence, Jira, Jama, VS Code

Electronic Tools: Altium Designer, CMW, LTSpice, spectrum analyzers, oscilloscopes, signal generators

OTHER INTERESTS

Medhack (assistive technology hackathon), Robogals (robotic engineering) STEM volunteer, Filipino Association of Monash Committee, Street-Style Dancer/Choreographer/Teacher, Music and Video Production (Final Cut Pro, iMovie)