

# Chris Rieger

Hardware – Senior Embedded Firmware & Electrical Engineer



## EXPERIENCE

### Electron Labs (Contractor), San Francisco CA — Sr Embedded Engineer

Feb 2022 – Ongoing · 8 months

Delivering on embedded + electronics hardware design projects for multiple clients.

### Spin (Ford), San Francisco CA — Senior Embedded Firmware Engineer

Feb 2020 – Jan 2022 · 2 years

Successfully delivered Spin's first in-house designed Scooter, the S100T.

Played a critical role in the core hardware team. A key firmware architect, designer, and developer, it was my responsibility to ensure S100T delivered on its product and engineering requirements. Involved deeply in all design stages including hardware bring-up on several PCBAs, developing modern & modular firmware architectures, integrating firmware systems to backend servers, developing manufacturing & test tools, working with and managing vendors.

Key technologies included IoT /w LTE modem, Wi-Fi + Cellular OTA capability, on-device Geofencing, custom bootloader, BLE, NFC, BMS, Motor Control, CAN.

### Kite Labs, Brisbane Australia — Founder

Feb 2018 – Ongoing · 4 years 2 months

Hardware design consultancy with a mission of delivery engineering excellence.

### Boosted Boards, Mountain View CA — Embedded Firmware Engineer

Dec 2016 – Nov 2019 · 3 years

Designed firmware systems on Boosted V2 (2016), V3 & Mini (2018), and the Rev Scooter (2019).

Driving force for battery management systems and telemetry architecture. Led firmware efforts on primary scooter controller with BLE/App integration, as well as accessory products. Frequent travel to Asia (Taiwan, China) to support manufacturing and production builds, test firmware, EE support.

Successfully identified dsPIC silicon issue and submitted to Microchip, contributing directly to the XC16 compiler. Ability to diagnose and resolve these complex issues was of immense value, affecting all major Boosted products.

### Boeing Defence Australia, Brisbane Australia — Electrical Engineer

Jul 2015 – Dec 2016 · 1 year 6 months

Designed and delivered a low power rugged computing platform. Carried out high level design, component selection, schematic design, signal routing, full manufacture and testing of platform. Notable technologies included Gigabit copper & fiber Ethernet controllers, high speed PCIe signal routing, USB 3.0 design, Power over Ethernet, Linux kernel interfacing to various peripherals, EMI / EMC and environmental testing. The prototype platform was successfully delivered within project budget and timeframes. Importantly, the design proved a significant opportunity within the business, resulting in additional funding allocated to further develop the product.

Further work included more military grade circuit designs, designing filters to meet MIL-STD-461 (Electromagnetic Compatibility). Visited the Boeing Everett Facility in Seattle (US) to further understand business operations and applications.

✉ [chrisrieger@live.com](mailto:chrisrieger@live.com)

in [/chrisrieger1](#)

📍 **Brisbane, Australia +  
San Francisco, CA**

## SKILLS & TECH

8/16/32 bit MCUs, ARM Cortex M0/M3/M4, STM32x, ESP32, dsPIC, nRF528xx, TI MSP430, TI C2000, AVR, AT91SAM7

CAN, I2C/SMBus, SPI, DMA, NOR+NAND Flash, BLE, Ethernet, Cellular (LTE, Cat M-1, NB-IoT), GPS, RS-232/485, RTC, I2S, various 1-wire, NFC, Battery Management, Motor Controls, Zephyr RTOS, FreeRTOS, FSMs, PID/Control Systems, Inertial & Environmental Sensors

C/C++, Python, git, Go, Bash, HTML/CSS/Javascript, LaTeX

VSCode, GitHub, Altium Designer, BitBucket, Jira, AutoCAD, MatLab, Office Suites

OS Agnostic (OSX/Windows/Linux)

## REFERENCES

**Angus Peart** – Senior Embedded Engineer / Firmware Manager at Spin

**Barrett Heyneman** – Senior Systems Analyst / Advanced Product Development at Intuitive

✓ **Details Available on Request**

## PATENTS

**Electrically Powered Transport Vehicle with a Lighting System**  
US10398962, US2019091554,  
US2019321711

## **Repono, Brisbane Australia — Lead Technical Engineer**

Oct 2015 – Nov 2016 · 1 year 2 months

Biomedical Instrumentation Hardware, Firmware and Software Design.

Tasked with designing a biomedical sensing hardware platform from the ground up. Development of hardware, firmware and software. Applied machine learning techniques used, creating biomedical signal classification software using Neural Networks. Extensive use of MatLab / Python for algorithm generation and software creation. Advanced materials development and interfacing for human sensing / signal acquisition were a necessary component of the project.

## **Centre for Educational Innovation and Technology, Brisbane Australia — Research Engineer**

Nov 2011 – Feb 2012 · 4 months

Research undertaken into tracking human interactions through wireless smart tags and localisation.

Developed a RFID tracking system consisting of wearable tags using wireless sensor networks to measure interactions between people and / or things producing tag-positional data integrated to a publish/subscribe network (MQTT). The system used localization techniques (random forests) whereby RSSI (signal strength) of tags in a mesh network provided positional information using a set of known 'beacons'.

## **University of Queensland, Australia — Researcher & Tutor**

Nov 2011 – Jul 2016 · 4 years 3 months

Significantly involved in the design of a new University course, CSSE3010 (Embedded Systems); selected, designed and assembled various hardware, wrote code tutorials and modules of coursework. This was done whilst still in 2nd year of University, taking on the accelerated role with two other lecturers.

Tutored a variety of courses in the electrical, computer and software engineering curricula with over 4 years of experience tutoring students. Lead tutor (team lead) for two 3rd year electrical courses as well as taking on leadership roles in introductory courses. Full list of courses tutored:

ELEC3004 (3<sup>rd</sup> year) – Signals, Systems & Control

ELEC3400 (3<sup>rd</sup> year) – Electronic Circuits

CSSE3010 (3<sup>rd</sup> year) – Embedded Systems Design & Interfacing

ENGG2800 (2<sup>nd</sup> year) – Engineering Team Project 1

ENGG1300 (1<sup>st</sup> year) – Introduction to Electrical Systems

ENGG1100 (1<sup>st</sup> year) – Engineering Design

PHYS1002 (1<sup>st</sup> year) – Electromagnetism and Modern Physics

## **EDUCATION**

### **Bachelor of Electrical Engineering & Master of Electrical Engineering University Of Queensland | Australia**

2010 – 2016

Final Weighted GPA: 6.91 / 7.00

2015 RWH Hawken Scholar

2015 ITEE Tutoring Award

2014 RWH Hawken Scholar

2013 GHD Industry Scholarship in Electrical Engineering

2012 Physics Summer Research Scholarship (UQ)

Employed to develop a 3rd year digital design course CSSE3010

2011 Summer Research Scholarship with CEIT (UQ)

Member of Electrically Based Engineering Student Society (EBESS)

### **Bachelor of Business Management University Of Queensland | Australia**

2010 – 2015

Final GPA: 6.78 / 7.00

UQ Dean's Honor Role for Outstanding Academic Excellence

## **OTHER ACCOMPLISHMENTS**

### **Startup Catalyst Alumni**

A mission to Silicon Valley for twenty young people who have the potential to be Australia's next batch of globally successful Tech entrepreneurs. Visited offices and engaged with engineers and entrepreneurs at global Tech companies such as Google, Facebook, Twitter, Atlassian, Amazon AWS, Equinix, Cloudera, Xero, 99 Designs, Startup House, Hack Reactor, IBM, Zero AI and Accel Partners.

### **Australia Government Baseline Security Vetted (AGSVA)**

**Recreational Marine Driver's License (RMDL), Personal Watercraft License (PWC), Open Car License (C), Motorcycle License (RE), Taekwondo (Black Belt II), CPR + First Aid Trained**

**Scuba Diving** – SSI Advanced Adventurer Certified & PADI Open Water Certified

**Fitness Hobbies** – Hiking, Weight Training, Running

**Spoken Languages** – German & English

**Travel Experience** – Australia, USA, Germany, China, Taiwan, New Zealand, France, Italy, Spain, Sri Lanka, Czech Republic, India, United Arab Emirates (Dubai), Oman, Malaysia, Indonesia, Cambodia, Laos, Vietnam, Myanmar (Burma), Vanuatu, Fiji, Thailand, Maldives, Philippines, Singapore.