

## EXPERIENCE

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- **Data61 @ CSIRO** Sydney, Australia  
*Engineer (part-time)* Nov. 2015 - Present
  - **eChronos RTOS**: Currently main developer of the open-source eChronos Real-Time Operating System. Designed & implemented new features (such as embedded memory protection unit support), platform ports (e.g. armv6m), drivers and demos. Spread use of the RTOS beyond the group through public presentations (see talks section) and incorporating it into external projects.
  - **Hardware Design**: Designed & assembled custom high-density electronics for various research projects. One such design was a 4-layer quadcopter single-board-computer PCB, used in a successful DARPA demo in the US.
- **Dolby Laboratories** Sydney, Australia  
*Intern DSP Engineer* Dec. 2017 - Feb. 2018
  - **Automated Device Tuning**: Worked with an engineering team (specifically geared at TVs/Soundbars). Developed & implemented new DSP algorithms to achieve faster, more accurate automated device tunings.
  - **Patent Disclosures**: Named on 3 patent disclosures filed during the internship. Currently being processed.
- **University of New South Wales** Sydney, Australia  
*Casual Academic* Feb. 2016 - Nov. 2017
  - **COMP9242 Advanced Operating Systems (17s2)**: Tutored 2 consult classes
  - **COMP3231 Operating Systems (17s1)**: Taught 2 classes of 25 students + marking & administration.
  - **COMP1917 Higher Computing 1 (16s1)**: Taught 1 class of 25 students.

(extended list of work experience available on request)

## EDUCATION

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- **University of New South Wales** Sydney, Australia  
*BE Electrical Engineering; HD average [WAM:88]* Feb. 2015 - Dec. 2018 (projected)

## TALKS & WORKSHOPS

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- **Sane Behaviour on Teeny Hardware** linux.conf.au - Sydney, Australia  
*On memory protection support in eChronos. Recording @ [youtu.be/HKsaG7U55Pk](https://youtu.be/HKsaG7U55Pk)* Feb. 2018
- **ELSOC KiCAD Workshop** UNSW Sydney, Australia  
*PCB CAD tutorial for students. Contents @ [sebholtzapfel.com/kicad-workshop-elsoc-17](http://sebholtzapfel.com/kicad-workshop-elsoc-17)* Aug. 2017
- **eChronos & lwIP - high assurance IoT** linux.conf.au - Geelong, Australia  
*On TCP/IP stack porting. Recording @ [youtu.be/-ScwR0L1iSk](https://youtu.be/-ScwR0L1iSk)* Feb. 2016

## AWARDS

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- **Kudos Award**: "... for his great skill and expertise in embedded system software and hardware development ..." - CSIRO internal award, Engineering & Technology. Chosen by committee annually. (2017)
- **Deans Honours List**: Dean's award (2016). Highly Commended (2017)
- **NICTA-UNSW Undergraduate Scholarship**: Total award: \$48,000 over 4 years (2015 - 2018)
- **ResMed Higher Computing Prize**: Best performance across both semesters in COMP1917. (2016) Prize: \$500
- **1st prize: Razer App Development Contest**: App was distributed to all 'deathstalker' keyboard users. (2013)

## PROJECTS

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- **libopencm3 & Tomu**: Upstreamed libopencm3 driver framework & USB stack support for the Tomu project. (tomu.im), an open-source 2-factor authentication device.
- **YouTube Channel**: I have a small electronics YouTube channel with 1.3k subscribers. My projects have been featured on Hackaday (see: [goo.gl/n4SzKu](https://goo.gl/n4SzKu) and [goo.gl/8BmdzP](https://goo.gl/8BmdzP)). A few videos have > 10,000 views ([youtube.com/c/vk2seb](https://youtube.com/c/vk2seb)).
- **Bluesat Off-World Robotics**: (Student Space Projects) As electrical team lead, competed in the European Rover Challenge in Poland (2016). Placed 9th of 40 teams in the world. Tough competition!

## SKILLS

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C · C++ · Python 2/3 · Assembly (armv7m) · Hardware Design · SMT soldering · Altium Designer · KiCAD · Linux/UNIX · Test Equipment · RF engineering · Haskell · Systems Programming · DSP · Profiling