Sebastian Holzapfel

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EXPERIENCE

- **Senior Embedded Engineer** — Feb. 2022 - Present
  Vay Technologies GmbH — *Berlin, Germany*
  - **ISO26262**: I work on the embedded systems at the core of Vay's teledriving technology.
- **Hardware Engineer** — Feb. 2019 - Aug. 2021
  Waymo LLC (Formerly 'Google Self-Driving Car Project') — *Mountain View, USA*
  - **Sensing**: Intersection of hardware and software development, focussed on our primary LiDAR technology. My work has spanned from contributing to embedded drivers used onboard, to developing calibration & test stations for our LiDAR manufacturing lines, to building performance-critical software infrastructure for fleet analytics.
- **Embedded Software Engineer** — Nov. 2015 - Dec. 2018
  Data61 (CSIRO Australia) — *Sydney, Australia*
  - **eChronos, seL4 RTOS**: Key contributor to open-source eChronos and seL4 Real-Time Operating Systems. Designed & implemented new features, platform ports, drivers and demos.
  - **Hardware Design**: Designed & assembled custom high-density electronics for various research projects.
- **DSP Engineer (full-time, intern)** — Dec. 2017 - Feb. 2018
  Dolby Laboratories — *Sydney, Australia*
  - **Distortion Tuning**: Developed & implemented new DSP algorithms to automatically optimize for minimal percieved audio distortion during the final stages of TV & Soundbar manufacture. (see also: patents below)

<div align="center">(extended list of work experience available on request)</div>

EDUCATION

- **BE Electrical Engineering (Hons. Class I)** — Feb. 2015 – Dec. 2018
  University of New South Wales — *Sydney, Australia*

TALKS

- **FPGAs, music synthesis and open tools** — FOSDEM 2022 - Brussels, Belgium
  The Eurorack PMOD project. See `https://youtu.be/Wbd-OfCWvKU` — *Feb. 2023*
- **Sane Behaviour on Teeny Hardware** — linux.conf.au - Sydney, Australia
  Memory protection model in the eChronos RTOS. See `youtu.be/HKsaG7U55Pk` — *Feb. 2018*

PUBLICATIONS & PATENTS

- **'User-Level Mixed Criticality Systems Scheduling on Multicore'**: Honours Thesis (link), published 2018
- **'Automatic characterization of perceived transducer distortion'**: (patent #US10805723B2), granted 2020
- **'Audio enhancement in response to compression feedback'**: (patent #WO2019246449A1), published 2019
- **'Manual characterization of perceived transducer distortion'**: (patent #US20190379973A1), published 2019

AWARDS

- **Google Kudos (whilst @ Waymo)**: 3x manager spot bonus awards, 9x peer bonus awards. (2019/2020)
- **NICTA-UNSW Undergraduate Scholarship**: Total award: $48,000 over 4 years (2015 – 2018)

PERSONAL PROJECTS

- **Eurorack PMOD**: An open hardware project which makes it easy to get started with FPGAs and hardware music synthesizers (`github.com/apfelaudio`).
- **2.5GHz VNA Adapter**: Designed & built a 2.5GHz 2-port VNA adapter which allows 2-port software defined radios to perform S-parameter measurements (details here).
- **YouTube Channel**: I have a small electronics YouTube channel with 5k subscribers. My projects have been featured on Hackaday (see: `goo.gl/n4SzKu` and `goo.gl/8BmdzP`). A few videos have $> 50,000$ views (`youtube.com/c/vk2seb`).
- **libopencm3 & Tomu**: Upstreamed libopencm3 driver framework & USB stack support for the Tomu project. (`tomu.im`), an open-source 2-factor authentication device.

SKILLS

C · C++ · Python · Linux · Real-Time Systems · KiCAD · Altium · RF/Microwave · Product Bringup