

TREVOR VAN LEEUWEN

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WORK EXPERIENCE

Qualcomm — Engineer, Linux Audio Software

C, C++, Python

Apr 2019 – July 2023

Common Audio Driver (AudioReach)

Developed driver for signal processing framework common across all Qualcomm chips and OSes, as part of broad audio framework rearchitecture (AudioReach). This central component (GSL) abstracts the DSP interface to provide use-case level control APIs, and is the entry point to the new framework

- GSL component maintainer: managed and guided contributions from globally distributed teams using internal open source model
- Balanced complex requirements of different OSes and platforms to create low-profile modular component with support for broad variety of device configurations
- Created extensible error detection mechanism to recover from fatal scenarios without device restart
- Implemented data transfer mode using run-time application-layer-allocated memory with no memcpy for Android Codec 2.0. Optimized this mode to meet power & latency KPIs of modes which use setup-time driver-allocated memory

Tools & Mentorship

- Created debugging tool to log binary command packets and make them human-readable, with automatic error detection. Eliminated significant dev time spent looking through binary packet dumps, and improved ability of external customer teams to extend AudioReach framework
- Trained members from device teams on GSL component to improve their ability to develop new features, accelerating time from design to completion. Refined workflows to move framework towards full open source

Microsoft — File System Developer Intern

C, C++

Aug – Dec 2017

- Implemented dehydrated cloud file copy protocol, saving significant bandwidth and disk space when copying cloud-stored files
- Filed patent on the cloud copying technique

Magna International — Database Developer Intern

MySQL, VB.NET

Aug – Dec 2016

- Overhauled Defect Detection & Classification system backend to improve mean query time by a factor of 5
- Optimised job scheduling to reduce bottlenecks, allowing all defects to be tracked. Previously 15% of defects were not tracked

PROJECTS

Chorus — Inexpensive High Quality Recording (Capstone)

Python, MATLAB, PyTorch, FASST

- Using machine learning and digital signal processing techniques, created a system to allow amateur musicians to record better quality vocals using cheap, available microphones (cell phones)
- Focused on applications for a *capella* groups, using source separation to allow independent mixing of voices recorded together

EDUCATION

University of Waterloo, Canada

- Bachelor of Applied Science, 2018
COMPUTER ENGINEERING
With Distinction

TECHNICAL SKILLS

SKILLED	C/C++, SQL
FAMILIAR	Python, MATLAB, C#
TOOLS	Git, P4, GDB, Valgrind, Bash, Linux, Jenkins
CONCEPTS	DSP, Embedded, Operating Systems, Kernel Drivers, Latency, Memory & Power Optimization

INTERESTS

- Competitive sailor
- Calligraphy
- Leadership roles in Qualcomm's New Grad Network, UW Orientation Week, UW Grad Committee
- Fluent in English and French, basic knowledge of Dutch

OTHER INTERNSHIPS

Shopify Jan – Apr 2016
Full Stack Developer

TD Canada Trust May – Aug 2015
Android Developer

Nanometrics Sept – Dec 2014
Firmware Developer

Recognia Jan – Apr 2014
Backend Developer