

# TREVOR VAN LEEUWEN

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## WORK EXPERIENCE

### Qualcomm — Engineer, Linux Audio Software

C, C++, Python, C#

Apr 2019 – Present

#### Common Audio Driver (AudioReach)

Developed audio DSP driver common to all Qualcomm chips and OSs as part of broad audio framework rearchitecture (AudioReach). Commercialized on Snapdragon 8 Gen 1. Driver component is responsible for setup of use-case and data transfer to DSP, abstracting DSP interface

- Owned DSP management layer component. Designed new APIs & interactions. Point of contact for complex bugs, particularly for multiple DSP scenarios
- Built performant, low-profile, modular driver using restricted language set to support full range of SoCs, including IoT and Auto
- Created extensible error detection mechanism to recover from fatal scenarios without device restart

#### Open Source AudioReach Framework

Released AudioReach framework as internal open source project. Working towards release as external open source project

- Adapted DSP code and build into generic linux base. Set up dynamic loading for open source portion of DSP framework code
- Ensured quality in contributions from wide user base by implementing procedures and automation for tests, style, and builds
- Managed contributions from globally distributed teams

#### Tools

- Managed remote device pool, allowing developers access to latest device hardware from their remote workplaces
- Created debugging tool to log binary command packets and make them human-readable, with automatic error detection

### Microsoft — File System Developer

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

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, Java, C#
TOOLS	Git, P4, GDB, Valgrind, Bash, Linux, Jenkins
CONCEPTS	Embedded, Operating Systems, DSP, Power & Memory Optimization,

## INTERESTS

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

## OTHER INTERNSHIPS

### Shopify

Full Stack Developer

Jan – Apr 2016

### TD Canada Trust

Android Developer

May – Aug 2015

### Nanometrics

Firmware Developer

Sept – Dec 2014

### Recognia

Backend Developer

Jan – Apr 2014

## WORK AUTHORIZATION

- Canadian citizen
- Irish citizen
- H-1B valid through 2026