

# TREVOR VAN LEEUWEN

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## WORK EXPERIENCE

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### Qualcomm — Engineer, Audio Software

C, C++, C#, python

April 2019 – Present

#### Common Audio Driver

Developed audio DSP driver common to all Qualcomm chips and OSs as part of broad audio framework rearchitecture (AudioReach). Driver is responsible for setup of usecase and data transfer to DSP, abstracting the DSP interface

- Built performant, low-profile and modular code using restricted language set to support of range of SoCs, including IoT/embedded
- Designed & built memory management system for ad-hoc data memory allocation as part of Android Codec 2.0. Prior system required data memory allocation at use-case setup
- Migrated common driver to internal open-source product. Mentored & empowered other engineers to contribute and debug

#### Open Source Framework

Released AudioReach framework as open source project

- Adapted Android code into generic linux base

#### Tools & Mentoring

- Created debugging tool to log binary communication between processors and create human-readable sequences, with automatic error detection
- Mentored 3 interns, helped onboard & orient several new hires

### Microsoft — File System Developer

C, C++

Aug – Dec 2017

- Designed and implemented dehydrated cloud file copy protocol, saving significant bandwidth and disk space when a copy is issued on cloud-stored files (i.e. on OneDrive)
- 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 database server job scheduling to reduce performance bottlenecks, allowing all defects to be properly tracked. Previously 15% of defects were not tracked

## PROJECTS

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### 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

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### University of Waterloo, Canada

- Bachelor of Applied Science, 2018

COMPUTER ENGINEERING

With Distinction

- Key courses: Programming for Performance, Digital Signal and Image Processing, Computer Architecture, Embedded Systems

## TECHNICAL SKILLS

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SKILLED	C/C++, Java, SQL
FAMILIAR	Python, Perl, C#, Javascript
TOOLS	Git, P4, GDB, WinDbg, Bash, Valgrind suite

## INTERESTS

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- Competitive sailor
- Leadership roles in Qualcomm new grad network, UW Orientation Week, UW grad committee
- Nordic ski coach
- Calligraphy
- Fluent in English and French, basic knowledge of Dutch

## OTHER INTERNSHIPS

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### 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