




# WALKER HILDEBRAND

 wbhildeb    walker99113@gmail.com    wbhildeb

## TECHNICAL STRENGTHS

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**Languages**   C++ · C# · Python · Javascript · Shell Scripting · Java · SQL  
**Tools**   UNIX · Git · PyTorch · Node.js · .NET · gdb · NoSQL Databases · OpenGL

## EDUCATION

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**University of Waterloo** *Apr 2022*  
Bachelor of Computer Science (88% major avg) *President's Scholarship of Distinction*

## WORK EXPERIENCE

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**Facebook/Meta** | Network Delivery Systems - Monitoring *August 2021 - December 2022*

- Implemented a stream processing pipeline to analyze the health of Meta's entire network
- Drastically improved error-identification by providing more accurate, actionable and live data
- Presented my research into pipelined network analysis to help plan future versions of this service

**NVIDIA** | TensorRT - Graph Compiler Integration *January 2021 - April 2021*

- Implemented validation for engine compilation and inference of Tacotron2 + Waveglow speech synthesis using Jasper model for speech recognition, primarily testing dynamic sequence length input
- Developed accuracy tests for TensorRT's INT8 support via Quantization-Aware Training with BERT, compared to ONNX runtime and native PyTorch over the Stanford Question Answering Dataset
- Prepared the release of TensorRT 8.0 by working on several compiler-related, release-blocking bugs

**NVIDIA** | Hardware Infrastructure *May 2020 - August 2020*

- Implemented a QuadTree class and nearest neighbour algorithm using a thin template design
- Optimized object deserialization and cached common resources, reducing boot time from 6 mins to 1
- Implemented several important general enhancements throughout the suite of NVIDIA's CAD tools
- Researched and implemented changes for porting several CAD tools to use an updated version of Qt and summarize methods for faster rendering of objects using the Qt's OpenGL interface

**McAfee** | WebAdvisor *Sep 2019 - Dec 2019*

- Developed a messaging system between the testing framework and extension that exposed internal functionality to testers, but kept the application's internals secure from the public
- Created a proxy server with C# and Powershell to mimic responses of the extension's HTTPS requests
- Researched, built and modified Chromium source code to provide a McAfee browser proof of concept
- Created an internal tool for manipulating and backing up the LevelDB and IndexedDB implementation of Chrome and Firefox's `browser.storage.local` API

**Rocscience** | Settle3D Developer *Jan 2019 - Apr 2019*

- Created a CAD module to model the construction of complex 3D embankment loads and conduct time-dependant vertical soil consolidation analysis using C++, MFC and OpenGL

**Payworks** | Testing Automation Framework *May 2018 - Oct 2018*

- Deployed the automated testing framework, developing it in C# from a preliminary phase into a working product ready to perform smoke, end-to-end, acceptance and regression tests

## PROJECTS

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### 🎤 **Soprano for Spotify** (Node.js, Firebase, Angular)

*October 2019 - April 2020*

- A web app that allows users to setup playlist trees – songs added to a playlist get added to ancestors
- Lead a small dev team of classmates, developing skills in project management and software design
- Structured the project to be easily extendible and allow new features such as locking playlists, tracking listening habits, and auto-generate playlists with the user's most listened songs

### 📄 **EasyDocs (DeltaHacks V)** (Python, SQL, Django & Javascript)

*January 2019*

- A web application for general practitioners that generates patient information templates, highlighting important data & potential medical issues
- Designed an intricate **SQL** database to relate medical ailments, treatments, side-effects, conflicting medicines, family histories, as well as HCP, patient and scheduling data
- Implemented risk assessment for medical conditions based on patient data & other risk factors
- Analyzed patient illnesses, treatments & side-effects to warn healthcare providers of potential conflicts

### 🔑 **LocalizeCS** (Bash)

*October 2018*

- Created a command-line program allowing users to create and sync local versions of remote environments as a solution to the frustrations of completing assignments on UWaterloo's remote servers
- Built Git-inspired functionality to push, pull, sync and “diff” changes between the environments
- Implemented features that allow remote execution of commands and easy connection to the remote
- Shared the program amongst classmates and peers who frequently use it for assignments

### **Bite-sized fun Projects** (Various Languages)

- 🎮 FoosBoard - A modular express application that allows users to track workplace foosball games via Slack with team names, smart leaderboards and player stats
- 🦊 10FasterFingers - Chrome extension that allows users to cheat on several typing test websites. Used a javascript OCR library to outwit the anti-cheat measures.
- 🚌 Ride The Bus - Developed a program in **C#** that simulates a card game. Programmed and analysed different playing strategies and their efficacy