WALKER HILDEBRAND

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TECHNICAL STRENGTHS

Languages C++ · C# · Python · Javascript · Shell Scripting · Java · SQL
Tools UNIX · Git · Angular · Node.js · .NET · Qt · MFC · NoSQL Databases · OpenGL

EDUCATION

University of Waterloo *Expected Apr 2022*
Bachelor of Computer Science (85% major avg) *President's Scholarship of Distinction*

WORK EXPERIENCE

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**
- Developed algorithms to validate, discretize, and analyze the loads using a graph-theory approach
- Improved accuracy of settlement analysis while connecting the CAD module to the engine

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
- Played a decisive role in the design and implementation of the framework's core architecture
- Reinvented the method of interacting with inconsistent grid components throughout the site, immensely reducing the amount of boilerplate code and greatly improving maintainability

PROJECTS

Soprano for Spotify (Node.js, Firebase, Angular) *October 2019 - Present*

- A web app that allows users to setup subplaylists 'trees' – songs added to a playlist get added to ancestors
- Leading a small dev team of classmates using 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 anit-cheat measures.
- Ride The Bus - Developed a program in **C#** that simulates a card game. Programmed and analysed different playing strategies and their efficacy

ACADEMIC & PERSONAL ACHIEVEMENTS

Third place in University of Manitoba Math Contest	*2017*
Placed in the top 15% in several national math contests	*2014-2017*
3 WSD Academic Achievement Awards	*2014-2017*
Manitoba Provincial Record in Swimming - 400m Medley Relay	*2010-Present*

EXTRACURRICULAR INTERESTS

Playing Music - Guitar, Bass & Piano
Visual Art - Programmatic & Geometric Art, Abstract Drawing
Martial Arts - Judo & Muay Thai
Hiking & living up to my name as a Walker
Reigning Foosball Champ at McAfee's Waterloo Office