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## TECHNICAL SKILLS

### Software Development

- Strong understanding of developing device drivers for different types of hardware
- Extensive experience of audio and image signal processing in C/C++ and Matlab
- Good knowledge of computer graphics programming techniques

### Web Development

- Very strong client-side web application development skills (HTML, JavaScript and CSS)
- Familiar with a number of server-side languages including Google Go, JavaScript (node.js) and Java

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## EDUCATION

### Carnegie Mellon University; Sep 2013 - Apr 2015

*Candidate for Masters in Music and Technology*

#### Musician Recommendation Engine (Master's Thesis)

- Researching and developing a musician recommendation engine
- Work with existing musicians to test if outputted collaborations are good
- Will evaluate and defend the thesis in Spring 2015

#### Machine Learning for Signal Processing 18-797

- Learn about how machine learning techniques are used to help process digital signals
- Will complete a group project on a topic to be determined

### University of Waterloo; Sep 2008 - Apr 2013

*Bachelors of Software Engineering, Honours Software Engineering*

#### Second Screen (Design Project)

- Developed an application for Android that identifies what TV you are watching
- Modified the open source audio fingerprinter Echoprint to return the timestamp of the match
- Designed the back end database that handles metadata for TV shows

#### Research Project (SE 499)

- Investigated the use of the Stockwell transformation in audio fingerprinting
- Modified Codegen for Echoprint to use a Stockwell transformation
- Performed multiple tests against both algorithms and analysed the results

#### Computational Vision (CS 484)

- Learned digital signal processing techniques for image processing
- Developed a program for recognizing and stitching images into a panorama
- Implemented a panoramic stitching program in Matlab

#### Introduction to Computer Graphics (CS 488)

- Lectures gave a broad overview of many graphics concepts
- Developed final project implementing flocking, L-System, terrain erosion and water rippling

## WORK EXPERIENCE

**Co-founder and CTO**, Nebulus, Pittsburgh, Pennsylvania; May 2014 - Current

- Oversee the technical process of Nebulus.io
- Develop fullstack for a cloud-based, collaborative DAW in a browser
- Design database syncing model so multiple users see real-time audio updates

**Research Intern**, Primal Inc., Waterloo, Ontario; Sep - Dec 2012

- Investigated a new algorithm for scoring web content against concepts
- Designed a new algorithm for converting user queries into concepts and then synthesising new concepts
- Researched combining synthesis results together to store user intent over multiple queries
- Will be listed as a collaborator on multiple patent applications

**Software Engineer Intern**, Microsoft Corp., Redmond, Washington; Jan - Apr 2012

- Ported a virtual surround sound processing library from Windows to an Xbox 360 device driver
- Improved CPU performance by over 750x and memory usage by over 5200x using a profiler
- Worked with testing engineers and program managers to ensure code quality and that it met the spec

**Software Engineer Intern**, Google Inc., Mountain View, California; May - Aug 2011

- Added accessibility for low-vision and blind users to the Pepper Plugin API (PPAPI)
- Modified existing Native Client applications to work with the new PPAPI version
- Added accessibility to existing Native Client applications

**Software Engineer Intern**, Sybase iAnywhere, Waterloo, Ontario; Sep - Dec 2010

- Researched the possibility of replacing native mobile applications with web applications
- Developed a JavaScript library to create native quality mobile web applications
- Cloned a CRM native application as a web application, matching performance

**Software Engineer Intern**, Qualcomm Innovations Center, San Diego, California; Jan - Apr 2010

- Worked with the Symbian OS Multimedia Audio Team
- Designed and developed a physical device driver for the Windows emulator
- Wrote a debugging tool to log running processes on the target device

**Ground Segment Intern**, Canadian Space Agency, Saint-Hubert, Quebec; Apr - Aug 2009

- Launched an internal development application using Java, JSP and JavaScript
- Wrote SQL queries for Oracle 10g Database

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## OTHER INTERESTS

### Music

- Perform, compose and record music on various instruments
- Have played piano in multiple musical theatre performances
- Instruments include the guitar, piano, upright bass, drums, vocals and mandolin

### Sports

- Class athletic representative, organizing teams, liaisoning with the league and developing plays
- Captain of soccer, volleyball, ultimate frisbee and slo-pitch intramural teams
- Played many competitive sports including allstar teams in soccer and baseball