

## EDUCATION

**Carnegie Mellon University;** Sep 2013 - Apr 2015  
*Candidate for Masters in Music and Technology*

**University of Waterloo;** Sep 2008 - Apr 2013  
*Candidate for Bachelor of Software Engineering, Honours Software Engineering*

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## RELEVANT COURSES

### **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

### **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 where the match occurs in the source audio
- 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 either the Stockwell transform, or the already existing filter bank analysis
- 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 how images go together and composed the 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 a final project implementing flocking, L-System, terrain erosion and water rippling systems

### **Other Related Courses**

- Digital Signal Processing (ECE 413)
- Numerical Computation (CS 370)

# AWARDS

- President's International Experience Award; Spring 2012
  - Leslie Klein Engineering Entrance Scholarship; Fall 2008 & Winter 2009
  - University of Waterloo President's Scholarship of Distinction; Fall 2008
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# TECHNICAL SKILLS

## Software Development

- Extensive knowledge of C/C++ with experience in device drivers, digital signal processing and graphics
- Very strong web application development skills for both client and server side in JavaScript, Google Go, Python and Java
- Good knowledge of Matlab for various applications

## Computer Audio Experience

- Extensive use of Cakewalk Sonar and Steinberg Cubase digital audio workstations
  - Contributed a source code patch to the Audacity open source project
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# WORK EXPERIENCE

## 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 with help from a code profiler
- Worked with testing engineers to ensure code quality and program managers to ensure that the code 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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## MUSIC EXPERIENCE

### Instruments

- Guitar (Electric and Acoustic)
- Piano
- Bass Guitar (Electric and Upright)
- Drums, Mandolin and Vocals

### Solo Gigs; Ongoing

- Play at various venues during coffee house and open mics
- Play guitar and vocals, using a loop station pedal to record and playback backing tracks

### The Orfs; Sep 2010 - Sep 2011

- Psychedelic rock band based in Waterloo, ON
- Played at various local venues in Kitchener, Waterloo and Toronto
- Played keyboards, using mainly piano, organ, electric piano and clavichord patches

### University of Waterloo Stage Band; Jan - Apr 2010

- Played piano and had solos for a number of songs

### The Cam Jervis Experience; Sep 2007 - Aug 2008

- Indie / Grunge Rock band based in Cowichan Valley, BC
- Played at school events, local fundraiser and community events
- Played lead guitar, vocals and piano

### Musical Theatre Experience; Sep 2005 - Jun 2008

- Performed piano in high school musical performances of
    - The Mystery of Edwin Drood
    - You're a Good Man, Charlie Brown
    - Snoopy!!! The Musical
  - Co-wrote the music and performed piano with the Shawnigan Lake Players for Peter Pan
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## OTHER INTERESTS

### Sports

- Class athletic representative, organizing teams, liaising 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