Daniel Johnson

Graduate Student, Systems Design Engineering, University of Waterloo
135 Moore Ave, Waterloo, ON, N2J1X4

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d3johnso@uwaterloo.ca

Skills

- **Modeling:** 2-D and 3-D Dynamics, Simulation of mechanical systems, control systems
- **Development:** Objective-C/Cocoa, C/C++, Python, MATLAB, .NET and Visual Studio.
- **Robotics:** Autonomous Mapping, Computer Vision, Image processing.
- Discovering and implementing new ideas. Give me a problem to solve and I'll find a way to solve it.
- Communication: excels at writing clear and concise documents and presenting and explaining ideas.
- Learning: loves to learn new things and explore new areas of research.
- Leadership: organizes and enables other workers to perform their tasks. Leads by example.

Research and Work Experience

University of Waterloo (Vision and Image Processing Lab) Waterloo, ON
Research Assistant *May-Aug 2011*

- Developed algorithms for processing SAR imagery of sea-ice in the Canadian North
- Implemented algorithms within existing image processing software in Visual C++.
- Gained knowledge of current computer vision algorithms and techniques
- Supervised another student building a website for the lab

Apple Inc. Cupertino, CA
Software Engineering Intern - iOS Location Software *Sep-Dec 2010 and Jan-Apr 2010*

- Designed and implemented a testing framework for location algorithms on iPhones and iPads.
- Improved location algorithms used in iOS.
- Developed internal mobile applications using Objective-C, C and C++ for iPhone.

Trimble Navigation Christchurch, NZ
GPS Software Tester *Summer 2009*

- Tested hand held GPS devices for accuracy and interface.
- Developed and performed experiments on software keyboards for mobile devices.
- Established reliable methods for testing software on Windows Mobile.

CREZ Basketball Waterloo, ON
Software developer *Sep 2007 - Dec 2007 and Jan 2007 - April 2007*

- Developed software for basketball coaches in Visual Basic .NET and C#
- Provided technical support through direct interaction with customers
- Created new features and fixed bugs in previous code.

Education

University of Waterloo Waterloo, ON
MASc - Systems Design Engineering *2012-2014(est.)*

- Created a comprehensive golfer swing model using MapleSim and Matlab
- Includes a 4 degree of freedom golfer with realistic joint torques as inputs, flexible shaft modelled using Rayleigh beam theory, impulse-momentum impact model, and a simple aerodynamic flight model for the ball
- Input torques are determined for an optimal golf swing based on the flight path of the ball

University of Waterloo Waterloo, ON
BASc - Honours Systems Design Engineering, Co-operative Program *2007 - 2012*

- ***SYDE 461/462****: Sep 2011-Apr 2012* - Developed location and mapping algorithms for the NASA Sample Retrieval Challenge.
- ***SYDE 553/653*** *Sep 2011-Apr 2012* - 3-D Modeling and computer simulation of robotic soccer ball kicking leg for use in testing equipment.

Other Activities

Hymnal Mobile Application Objective-C, C, Java
Personal Programming Project *2010*

- Developed a mobile application for iPhone and Android to search and display hymns
- Negotiated with publisher for release of hymns in electronic form
- Unable to release due to copyright issues

The Water Boys - UWaterloo Male A Cappella `www.waterboysuw.com`
President *2009-2012*

- Interact with the community to plan gigs and organize events
- Rehearse weekly with a group of 16 male singers
- Hold auditions for the group at the beginning of each term

Awards

- *NSERC Alexander Graham Bell Scholarship* - Sep 2012
- *NSERC Undergraduate Student Research Award* - May 2011
- *President's Research Award* - Sep 2011
- *NSERC Undergraduate Student Research Award* - Sep 2008

Personal

Hobbies: Singing (A Cappella and Barbershop in particular), Ultimate Frisbee, Soccer, Basketball, Squash

My Ideal Position: Working with a team solving interesting problems related to 3-d dynamic modelling, biomechanics, and sports. I'm passionate about playing sports competitively and getting involved in improving sports equipment or training would be fascinating. My Master's thesis is focused on the biomechanics of golf and I'd be excited to work on similar problems within other sports.