Josh Bradshaw

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Experience

EEG Analysis Researcher, *uWaterloo: Supervised by Professor Edith Law*, Sept 2015–Apr 2016, Waterloo.

- Developed and ran online experiments to measure expert agreement on EEG feature identifications.
- Crowd sourced the identification of EEG features to build data sets for the development and testing of automatic sleep stage classifiers.
- Replicated and extended upon *Sleep-spindle detection: crowdsourcing and evaluating performance of experts, non-experts and automated methods* by Warby et al.

Research Engineer in Medical Imaging, *SickKids Research*, Jan–Apr 2015, Toronto.

- Developed a $200 open-source invasive blood pressure MRI triggering device, comparable in functionality to a $13,500 commercial unit, helping scientists around the world do fetal cardiac research that would otherwise be prohibitively expensive.
- Prototyped an MRI compatible amplifier for invasive blood pressure transducers
- Designed and implemented a system for gating MRI scanners based on direct arterial blood pressure measurements.
- Created anatomy models of the carotid arteries and the aortic arch, complete with simulated blood flow, for the validation of cardiac MRI scanning protocols.

Research Automation Developer, *Watrhub Inc.*, Sept 2013–Aug 2014, Toronto.

- Implemented web crawlers to download municipal planning documents, historical permits and GIS information about the wastewater treatment systems of several major cities.
- Implemented a machine learning classification system to categorize the documents collected by the web crawlers, and through freedom of information act requests.
- Built an internal search engine with nested category selection, auto-correct, fuzzy matching, and result highlighting to help the research analysts find documents in the internal database.

Performance Test Automation Developer, *CIBC*, Jan–May 2013, Toronto.

- Initiated and implemented a tool which automatically populated the internal performance testing reports with all of the required data, saving each test analyst several minutes of tedious work every day.
- Executed performance tests on www.pcfinancial.ca and helped developers and system administrators identify and fix performance problems.

Projects

SMRT WATR Interactive Fountain Game, *Group Design Project for SYDE 351.*

- Our team built an interactive fountain which users interact with by playing an online quiz game. My role was designing the controls firmware, and hardware.
- Won the people's choice award at the systems design engineering showcase event.

Cube Satellite Communication System, *WatSat Student Design Team.*

- Designed the interface between motherboard and radio transceiver; facilitating data transfer to and from the satellite while its orbit places it above North America. See watsat.ca for details.

Ski-Bracing Device for Children with Developmental Disabilities, *Design Project Course.*

- Designed a bracing device which enforced correct ski alignment, and allowed the instructor to steer and stop the student when required.
- Held design consultations with parents of disabled children, and several instructors from the Canadian Association for Disable Skiing to ensure that the device was practical and safe.

De Nova Peptide Sequencing Tool, *UROC 2015 Project*.

- Designed and built a tool for protein identification using De Nova peptide sequencing under the supervision of Professor Bin Ma while attending the Undergraduate Research Opportunities Conference at the University of Waterloo.

Education

Candidate for B.A.Sc. in Systems Design Engineering, *University of Waterloo*, 2012–2017 (expected).
Focusing on biomedical signal processing and instrumentation

Awards

Undergraduate Research Award, *NSERC*, 2015.
Granted in recognition of my research accomplishments at SickKids.

Engineering Co-op Student of the Year, *University of Waterloo*, 2014.
Only first year student ever to win. Granted in recognition of achievements at Watrhub Inc.

Technology Co-op Achievement Award + Impact Award, *CIBC*, 2013.

Community Involvement Scholarship, *P.E.O.*, Hamilton-Burlington Chapter, 2012.
Granted in recognition of my volunteer work at a community day camp.

Engineering Entrance Award + President's Scholarship, *University of Waterloo*, 2012.

Third Place, *Physics@Mac Competition*, McMaster University, 2012.

Activities

- Founder of the UW slackline club, which currently has $\tilde{5}0$ active members.
- I play the saxophone, play in the UW jazz ensemble and frequently perform at local jam sessions.
- I'm involved in the engineering society. I've been an orientation week leader, winter fun director, quidditch director, and a performer at several talent shows.
- I love to hike, rock climb, and canoe in the back country.