

Josh Bradshaw

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Experience

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

- Ran online experiments that encouraged neurologists to work collaboratively on EEG analysis tasks, to address the problem of inconsistent analysis of sleep study EEG recordings between clinicians.
- Built an open-source EEG analysis web application which has been adopted by an EKG research group at Emory University, and is about to be used in a human computer interaction study in collaboration with Microsoft Research.

Research Student in Medical Imaging, SickKids Research Institute, 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.
- Build numerous electronic instrumentation systems, developed firmware for triggering the MRI scanner in real time, and worked with surgeons and veterinarians to test the device for animal imaging applications.

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 populates the internal performance testing reports with all of the required data, saving each test analyst 45 minutes of tedious manual effort every day.
- Executed performance tests on www.pcfincancial.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 50 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.