Stephanie T. Cheung

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Research Interests

- biomedical engineering; auditory-motor coupling; interactive computer play; neurorehabilitation; physiological models.

Education

Doctoral Student (Biomedical Engineering & Collaborative Program in Neuroscience) **Toronto, ON**
University of Toronto *Sept, 2015 - present*
Dissertation: Movement through Music: Video Games for Music-Supported Physical Rehabilitation.
Supervisors: Dr. Elaine A. Biddiss and Dr. Joyce L. Chen.

Master's of Applied Science (Electrical & Computer Engineering) **Hamilton, ON**
McMaster University *Sept, 2012 – Sept, 2014*
Thesis: Modelling the Neural Representation of Interaural Level Differences for Linked and Unlinked Bilateral Hearing Aids.
Supervisor: Dr. Ian C. Bruce.

Bachelor of Engineering (Electrical & Biomedical Engineering) **Hamilton, ON**
McMaster University *Sept, 2008 – May, 2012*
Capstone: "MACBot": A Robotic Toy for Children with Autism Spectrum Disorders.
Thesis: A Comparison of Wavelet and Short-Time Fourier Transform Techniques for Analysis of Auditory Cortex Beta-Band Activity.
Supervisors: Dr. Hubert de Bruin; Dr. Laurel Trainor; Dr. Takako Fujioka

Associate of The Royal Conservatory of Music (Piano Performance), First Class Honours **Toronto, ON**
The Royal Conservatory of Music *Conferred Jan, 2009*
Studied with Tanya Tkachenko and Boris Zarankin.

Awards & Scholarships

2015 – 2016: Wildcat Graduate Scholarship

2015 – 2016: Bloorview Research Institute Student Fellowship

2014: Certificate of Excellence for Outstanding Thesis

2014: International Hearing Aid Research Conference Student Scholarship

2012 – 2014: McMaster University Graduate Scholarship

2011: Ward Family Summer Student Scholarship

Research Experience

Research Assistant **Toronto, ON**
PEARL Lab, Bloorview Research Institute *Nov, 2014 – Aug, 2015*
- Developed sound processing algorithms and protocols for the design and evaluation of music-supported therapy video games.

Ward Family Research Summer Student **Toronto, ON**
PEARL Lab, Bloorview Research Institute *May, 2011 – Aug, 2011*
- Worked on a communication interface which converts physiological signals to music for anxiety detection (84% accuracy).

Research Assistant (Volunteer) & Database Developer **Hamilton, ON**
Infant Studies Group & McMaster Institute for Music and the Mind *May, 2010 – Jan, 2011*
- Conducted infant and adult EEG studies in music cognition. Developed a digital database for thousands of participants.

Teaching/Grading & Supervising Experience

Co-Supervisor, Music Games for Therapy Project **Toronto, ON**
PEARL Lab, Bloorview Research Institute *Feb, 2015 – present*
- With Dr. Elaine Biddiss, co-supervisor to two game developers (Feb, 2015 - Aug, 2015; Sept, 2015 - present).

Essay Reviewer, National Essay Contest **Washington, D.C.**
EngineerGirl, National Academy of Engineering *Mar, 2015 – Apr, 2015*
- Graded over 30 elementary and high school essays entries in a contest on the topic: "Engineering in Sports".

Teaching Assistant, "Cellular Bioelectricity" **Hamilton, ON**
Dept. of Electrical & Computer Engineering, McMaster University *Jan, 2013 – April, 2014*
- Sole teaching assistant to cohorts of 30-40 students each (Winter 2013; Winter 2014). All student feedback was positive.
- Topics include: bioelectricity; ionic transport in cellular membranes; cardiac and neural physiology; electrical stimulation.

Teaching Assistant, "Structure of Biological Materials" **Hamilton, ON**
Dept. of Electrical & Computer Engineering, McMaster University *Sept, 2012 – Dec, 2013*
- Sole teaching assistant to cohorts of 30-40 students each (Fall 2012; Fall 2013). All student feedback was positive.
- Topics include: biomaterials; biocompatibility; biomechanics; physiological fluid mechanics; artificial organs; medical imaging.

Conference Presentations

Cheung, S.T. & Bruce, I.C. (2015). "Can auditory brainstem and midbrain processing of interaural level difference cues really explain perceptual performance?" at 169th Meeting of the Acoustical Society of America, Pittsburgh, PA. doi: 10.1121/1.4920775

Cheung, S.T. & Bruce, I.C. (2014). "Modeling the neural representation of interaural level differences for linked and unlinked bilateral hearing aids." at International Hearing Aid Research Conference (IHCON), Lake Tahoe, CA.

Other Presentations

Cheung, S.T. (2015). "PEARL Lab: Interactive media for the home, clinic, and beyond." at Bloorview Research Trainee Rounds, Bloorview Research Institute, Toronto, ON.

Basaran, M., **Cheung, S.T.**, Hernandez, H., Khan, A., Lopez, A., Zaman, M., Biddiss, E. (2015). "PEARL Lab Research: Screenplay and Interactive Computer Play." at Ontario Accessibility Innovation Showcase, MaRS Discovery District, Toronto, ON. (public showcase)

Cheung, S.T. & Bruce, I.C. (2014). "Modelling the lateral superior olive response to sound localization cues in impaired and aided hearing." at Dept. of Electrical & Computer Engineering Seminar Series, McMaster University, Hamilton, ON.

Cheung, S., Han, E., & Biddiss, E. (2011). "Signals to songs: Sonification of physiological data for anxiety detection." at Ward Summer Student Research Day, Bloorview Research Institute, Toronto, ON.

Extracurricular Leadership

Trainee Events Chair **Toronto, ON**
Bloorview Research Institute Trainee Executive *October, 2015 – present*
- Planning and organizing workshops and activities for Bloorview research trainees.

Director (various: Communications; External Communications; Member Learning) **Hamilton, ON**
McMaster University Chapter, Engineers Without Borders Canada *May, 2009 – May, 2012*
- Awards: Most Improved Chapter 2010. Chapter of the Year 2011.
- Served on national office's communications advisory panel. Co-chaired Ontario retreat, planned two conferences.