

# Stefanie Hutka, PhD

Experience Researcher

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## EXPERIENCE

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- 2017/9 - Present **Experience Researcher, Design Research and Strategy, Adobe, [www.adobe.com](http://www.adobe.com)**  
Conducting design research for Adobe's immersive technology initiatives, focusing on augmented and virtual reality.
- 2015/8 - 2017/9 **Research Scientist, DAQRI, [www.daqri.com](http://www.daqri.com)**  
Led research program for user testing of new augmented reality hardware and software products to increase product usability.
- 2010/9 - 2015/8 **MA/PhD, Psychology: University of Toronto, [www.stefaniehutka.com](http://www.stefaniehutka.com)**  
Led research on how different types of experience with pitch processing (e.g., music training, speaking a tone language) are associated with changes to perception and cognition.
- 2008/12 - 2015/8 **President, Strings in Motion Inc., [www.stringsinmotioninc.com](http://www.stringsinmotioninc.com)**  
Founded and ran music company focused on presenting high-impact performances.
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## EDUCATION

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- 2011/9 – 2015/8 **PhD, Department of Psychology, University of Toronto**  
**Concentration:** Auditory Cognitive Neuroscience; concurrently enrolled in the University of Toronto's Collaborative Program in Neuroscience (CPIN). PhD Dissertation entitled, Pitch processing experience: Comparison of musicians and tone-language speakers on measures of auditory processing and executive function.
- 2010/9 – 2011/9 **MA, Department of Psychology, University of Toronto**  
**Concentration:** Auditory Cognitive Neuroscience; concurrently enrolled in CPIN. MA Thesis entitled, Age-related differences in the perceptual organization of speech sounds.
- 2006/9 – 2010/6 **HonBSc with High Distinction, University of Toronto (St. George Campus)**  
**Concentration:** Psychology Research Specialist (CGPA: 3.89)  
Honours thesis entitled, Pitch memory, pitch labelling, and language: Behavioural differences between tone and non-tone language-speaking musicians with and without absolute pitch.

2007/9 – 2010/1 **Associate of the Royal Conservatory of Music (ARCT) Diploma,**  
**Royal Conservatory of Music (Toronto)**  
**Concentration: Violin Performance**

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## SCHOLARSHIPS

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- 2013/9 – 2015/8 **Ontario Graduate Scholarship (OGS)**  
\$15,000 per year (Doctoral level, 2013-2015)
- 2011/9 – 2013/8 **National Sciences and Engineering Research Council of Canada (NSERC)-Create: Training in Auditory Cognitive Neuroscience**  
\$21,000 per year (Doctoral level, 2011-2013)
- 2010/9 – 2011/8 **NSERC Alexander Graham Bell Canada Graduate Scholarship**  
\$17,500 (Master's level)
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## PUBLICATIONS

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- Hutka, S.,** Carpentier, S., Bidelman, G. M., Moreno, S., & McIntosh, R. A. (2016). [Musicianship and tone language experience are associated with differential changes in brain signal variability.](#) *Journal of Cognitive Neuroscience*, 28(12), 2044-2058. doi: 10.1162/jocn\_a\_01021
- Hutka, S.,** & Alain, C. (2015). [The effects of absolute pitch and tone language on pitch processing and encoding in musicians.](#) *Music Perception*, 32(4), 344-354. doi: 10.1525/mp.2015.32.4.344
- Hutka, S.,** Bidelman, G. M., & Moreno, S. (2015). [Pitch expertise is not created equal: Cross-domain effects of music and tone language experience on neural and behavioural discrimination of speech and music.](#) *Neuropsychologia*, 71, 52-63. doi:10.1016/j.neuropsychologia.2015.03.019
- Hutchins, S., **Hutka, S.,** & Moreno, S. (2015). [Symbolic and motor contributions to vocal imitation in absolute pitch.](#) *Music Perception*, 32(3), 254-265. doi: 10.1525/MP.2015.32.3.254
- Alain, C., Bidelman, G. M., **Hutka, S.,** & Zendel, B. R. (2014). [Turning down the noise: The benefit of musical training on the aging auditory brain.](#) *Hearing Research*, 308, 162-173. doi: 10.1016/j.heares.2013.06.008
- Hutka, S.,** Bidelman, G. M., & Moreno, S. (2013). [Brain signal variability as a window into the bidirectionality between music and language processing: moving from a linear to a nonlinear model.](#) *Frontiers in Psychology*, 4(984), 1-11. doi: 10.3389/fpsyg.2013.00984

- White, E.J., **Hutka, S.**, Williams, L.J., & Moreno, S. (2013). [Learning, neural plasticity and sensitive periods: Implications for language acquisition, music training, and transfer across the lifespan.](#) *Frontiers in Systems Neuroscience*, 7(90), 1 – 18. doi: 10.3389/fnsys.2013.00090
- Hutka, S.**, Binns, M., Bidelman, G. M., & Alain, C. (2013). [Age-related differences in the perceptual organization of speech sounds.](#) *Journal of the Acoustical Society of America*, 133(6), 4177 – 4187. doi: 10.1121/1.4802745.
- Bidelman, G. M., **Hutka, S.**, & Moreno, S. (2013). [Tone language speakers and musicians share enhanced perceptual and cognitive abilities for musical pitch: Evidence for bidirectionality bidirectionality between the domains of language and music.](#) *PLOS ONE*, 8(4), e60676. doi:10.1371/journal.pone.0060676

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**OTHER REFEREED CONTRIBUTIONS; \* = presenting author**

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- Hutka, S.\***, Schellenberg, G., Trehub, S., Hutchins, S. (2015, August). Within- versus cross-domain plasticity: Musicianship and tone language are linked to benefits in auditory processing but not visual working memory. Talk presented at the Society for Music Perception and Cognition, Nashville, TN, USA.
- Hutchins, S. \*, **Hutka, S.**, & Moreno, S. (2015, August). Comparing vocal imitation and discrimination abilities in speech and singing. Talk presented at the Society for Music Perception and Cognition, Nashville, TN, USA.
- Hutka, S.\***, Carpentier, S., Bidelman, G. M., & McIntosh, R. (2015, June). Using brain signal variability to examine how music and speech shape auditory processing. Poster presented at the Organization for Human Brain Mapping, Honolulu, HI, USA.
- Carpentier, S.\*, **Hutka, S.**, & McIntosh, R. (2015, June). Tonal language straddles EEG connectivity patterns of musicians and English non-musicians. Poster presented at the Organization for Human Brain Mapping, Honolulu, HI, USA.
- Hutka, S.\***, Carpentier, S., Bidelman, G. M., & McIntosh, R. (2015, June). Using brain signal variability to examine how music and speech shape auditory processing. Poster presented at the Brain Connectivity Workshop, San Diego, CA, USA.
- Hutka, S.\***, Bidelman, G. M., & Moreno, S. (2014, May). Is the cognitive stimulation of music training specific to music? Poster presented at The Neurosciences and Music V: Cognitive Stimulation and Rehabilitation conference, Dijon, France.
- Hutchins, S. \*, **Hutka, S.**, & Moreno, S. (2014, May). The electrophysiological correlates of vocal imitation and discrimination abilities. Poster presented at The Neurosciences and Music V: Cognitive Stimulation and Rehabilitation conference, Dijon, France.

- Hutka, S.\***, Bidelman, G. M., & Moreno, S. (2014, May). Is the cognitive stimulation of music training specific to music? Poster presented at Centre for Human Adaptive Systems and Environment (CHASE) Summer School: The Dynamics of Music and Language workshop, Yosemite, CA, USA.
- Hutka, S.\***, Bidelman, G. M., & Moreno, S. (2013, August). On the bidirectionality of music-to-language transfer effects. Talk given at Society for Music Perception and Cognition (SMPC) conference, Toronto, ON, CA.
- Hutchins, S.\* , Williams, L., **Hutka, S.**, Javier, C., & Moreno, S. (2013, August). Imitation and discrimination of the human voice. Poster presented at SMPC, Toronto, ON, CA.
- Hutka, S.\***, Bidelman, G. M., Moreno, S. (2012, October). The bidirectionality in music-to-language transfer effects. Poster presented at Neuroscience 2012, Society for Neuroscience (SfN), New Orleans, LA, USA.
- Hutka, S.\***, & Alain, C. (2011, November). Age-related differences in sequential stream segregation using natural speech stimuli. Poster presented at Neuroscience 2011, SfN, Washington, DC, USA.

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## NON-REFEREED CONTRIBUTIONS

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### **Industry:**

**Human-Computer Interfaces Presenter, “Dublin Hacks” Hackathon and “4D@4DameLane” (Web Summit Conference)**, Dublin, Ireland. (2015, October/November).

**Finalist (runner-up), *Get Your Bot On! Robotics Hackathon Competition***, Toronto, ON, CA. (2014, November). Team: Stefanie Hutka, Ross McKegney, and Varun Vachhar. Our robot, entitled “Snakes on a Brain”, was designed and built from scratch in a three-day-long competition, judged by a panel including Sabrina Greupner (Ontario Science Centre), Dr. Alex Mihailidis (IATSL, UofT), Dr. Rosalie Wang (IATSL, UofT), and Prof. Norman White (Ryerson). Snakes on a Brain was designed in the theme of melodic intonation therapy, a speech production therapy for non-fluent aphasia patients. Specifically, our robot (a plush snake, which was chosen because its shape lent itself well to embed hardware) would allow patients to practice therapy outside of a clinical setting in a fun, interactive way. The robot presented phrases with and without a metronome click, illustrated prosody of the phrase with a servomotor-powered tongue, had an interface for tapping along to the rhythm (to facilitate auditory-motor integration), and had LED lights to indicate how many steps of the therapy session remained.

**Subject Matter Expert, 3D brain explorer** (previously at brained.io), powered by Verold, a Toronto-based start-up company that focused on technology to facilitate 3D on the web (2013, December – 2015, January).

**1st place winner of the Design category, *Get Your Bot On! Robotics Hackathon* competition**, Toronto, ON, CA (2012, November). Team: Stefanie Hutka and Ross McKegney. Our robot, entitled “Lady Stirling,” was designed and built from scratch in a three-day-long competition, judged by Nora Young (CBC), Dr. James MacLean (Google), and Prof. Norman White (Ryerson). Lady Stirling was designed in the theme of the cocktail party problem, in which a person has to listen to a particular talker amongst background sounds. Specifically, the robot's eyes responded to different stimuli, such as quiet speech, loud speech, and music.

### **Academia:**

**Hutka, S\*.** (2016, March). A proposed human-computer interface system for cognitive and physical stroke rehabilitation. Invited talk given at the University of Southern California's Neurorehabilitation seminar, University of Southern California, Los Angeles, CA, USA.

**Hutka, S\*.** (2016, March). Careers in Science: Human-Computer Interfaces. Invited talk given at the Claremont Colleges, Los Angeles County, CA, USA.

**Hutka, S\*.** (2014, November). Studying the music-speech association using linear and non-linear frameworks. Invited talk given at the University of Toronto's Neuroscience Journal Club, University of Toronto, Toronto, ON, CA.

**Hutka, S.\*, Bidelman, G. M., & Moreno, S.** (2014, July). Studying the music-speech association using linear and non-linear frameworks. Invited talk given at the International Laboratory for Brain, Music and Sound Research (BRAMS) MindMeld, BRAMS, Montreal, QC, CA.

**Hutka, S.\*** (2014, June). Understanding cognition through the bidirectional music-language relationship. Invited talk given at Dr. Laurent Cohen's Laboratory, Institut de Cerveau et de la Moelle Epiniere, Paris, France.

**Hutka, S.\*, Bidelman, G.M., & Moreno, S.** (2014, April). On the neural responses underlying bidirectionality of music-to-language transfer. Poster presented at the Collaborative Program in Neuroscience Research Day/International Symposium on Synaptic Plasticity & Brain Disorders, University of Toronto, Toronto, ON, CA.

**Hutka, S.\*, Bidelman, G. M., & Moreno, S.** (2013, August). On the neural responses underlying bidirectionality of music-to-language transfer. Poster presented at the NSERC-CREATE: Auditory Cognitive Neuroscience Workshop, McMaster University, Hamilton, ON, CA.

**Hutka, S., Gordon, C.\*, Bidelman, G. M., McIntosh, R., & Moreno, S.** (2013, August). The behavioural aspects of bidirectionality in music-to-language transfer. Poster presented at the NSERC-CREATE: Auditory Cognitive Neuroscience Workshop, McMaster University, Hamilton, ON, CA.

- Hutka, S.\***, Bidelman, G. M., & Moreno, S. (2013, June). The bidirectionality in music-to-language transfer effects. Poster presented at the Collaborative Program in Neuroscience Research Day/ International Symposium on Structural Neurobiology, University of Toronto, Toronto, ON, CA.
- Hutka, S.\*** (2012, August). Age-related differences in the perceptual organization of speech sounds  
Invited talk given at the NSERC-Create: Auditory Cognitive Neuroscience Workshop, McGill University, Montreal, QC, CA.
- Hutka, S.\*** (2012, August). Age-related differences in the perceptual organization of speech sounds.  
Invited talk given at the NSERC-Create: Auditory Cognitive Neuroscience Workshop, McGill University, Montreal, QC, CA.
- Hutka, S.\***, & Alain, C. (2012, April). Age-related differences in sequential stream segregation using natural speech stimuli. Poster presented at the Southern Ontario Neuroscience Association conference, University of Toronto, Toronto, ON, CA.
- Hutka, S.\***, & Alain, C. (2011, December). Age-related differences in sequential stream segregation using natural speech stimuli. Poster presented at MA Poster Day, University of Toronto, Toronto, ON, CA.
- Hutka, S.\*** & Alain, C. (2011, April). Preliminary findings on age-related differences in sequential stream segregation using natural speech stimuli. Poster presented at the Collaborative Program in Neuroscience Poster Day, University of Toronto, Toronto, ON, CA.
- Hutka, S.\***, & Alain, C. (2010, April). Pitch-encoding differences between tone and non-tone language-speaking musicians with and without absolute pitch. Poster presented at the Psychology Research Specialists Poster Day, University of Toronto, Toronto, ON, CA.

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## MEDIA

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- 2014/10 **Guest Neuroscientist at SciFri! Youth Outreach Event, Ontario Science Centre**  
Presented research on music and the brain to youth aged 14-19
- 2014/7 **Guest Neuroscientist at ScienceROCKS! Event, Ontario Science Centre**  
Presented research on music, the brain, and memory to a public audience
- 2013/10 **Interviewed** for [Music Education No 'Frill'](#) article, The Whole Note Magazine
- 2013/4 **Multiple sources of press** for Bidelman, G. M., Hutka, S., & Moreno, S. (2013), including: [The New York Times](#), [Huffington Post](#), [Globe and Mail](#), [Science Daily](#)

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## LEADERSHIP ROLES

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- 2011-2015 **Training and mentoring summer students, Rotman Research Institute**
- 2008-2009 **Psychology Students' Association (PSA) Representative, University of Toronto**  
Class Representative for PSY389H1F, PSY399H1F, and PSY3091S; liaised between classes and PSA, informing students of upcoming events and career opportunities.
- 2008-2015 **Founder and President, [Strings in Motion Inc.](#)**

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## TEACHING EXPERIENCE

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- 2013-2014 **Guest Lecturer, *Music and the Brain* Graduate Course, University of Toronto**  
Delivered guest lectures on the music-speech association in the brain and behaviour
- 2014/09 **Guest Lecturer, *Live Sound Reinforcement* Course, Durham College**  
Delivered invited guest lecture on music perception and cognition, and led three laboratory courses, illustrating relevant concepts via live violin performance
- 2008-2015 **Violin and Theory Teacher, Strings in Motion Inc.**  
Prepare students for Royal Conservatory examinations, as well as upcoming performances and auditions. Specialization in teaching adult students.

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## AWARDS

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### Fellowships:

- 2013/5-2015/3 **Max and Ruth Wiseman Graduate Student Fellowship, \$7,126**
- 2009/9 **C. L. Burton Open Scholarship, \$250**
- 2009/9 **Rakoczi Prize in Hungarian, \$300**
- 2008/9-2010/6 **Dr. James & Connie Dickson Scholarship for Science and Math, \$750**
- 2006/9-2010/6 **J.S. McLean Scholarship \$5,000**
- 2006/9-2010/6 **Dean's List**

**Travel awards:**

- 2015/6 **Jack and Rita Catherall Fund Award, \$415**
- 2014/5 **Jack and Rita Catherall Fund Award, \$500**
- 2014/3 **Faculty of Arts and Science's (FAS) Graduate Student Conference Travel Grant, \$300**
- 2014/2 **Neurosciences and Music V Conference: Full Scholarship, €200**
- 2013/10 **Jack and Rita Catherall Fund Award, \$500**
- 2012/11 **School of Graduate Studies (SGS) Conference Grant, \$140**
- 2012/10 **Jack and Rita Catherall Fund Award, \$277**
- 2012/12 **FAS Graduate Student Conference Travel Grant, \$300**
- 2011/11 **SGS Conference Grant, \$380**

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**PROFESSIONAL DEVELOPMENT**

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- 2014/5 CHASE Summer School: The Dynamics of Music and Language
- 2013/10 Coursera, *Learn to Program: The Fundamentals*: Earned Certificate of Accomplishment
- 2013/8 NSERC-CREATE: Training in Auditory Cognitive Neuroscience Workshop
- 2013/7 MITACS Workshop: Foundations of Project Management
- 2013/6 MITACS Workshop: Effective Networking & Business Etiquette
- 2012/8 NSERC-CREATE: Training in Auditory Cognitive Neuroscience Workshop



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## PROFESSIONAL AFFILIATIONS

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- 2013-Present Society of Composers, Authors and Music Publishers of Canada
- 2013-Present Society for Music Perception and Cognition
- 2010-Present Society for Neuroscience
- 2015-2016 Organization for Human Brain Mapping
- 2009 – 2010 American Psychological Association, Student Affiliate
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## UNDERGRADUATE LABORATORY EXPERIENCE

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- 2010/9 – 2010/4 **Co-investigator, Rotman Research Institute**  
Completed fourth year honours thesis (PSY400Y1Y) investigating behavioural pitch-encoding differences between tone and non-tone language musicians with and without absolute pitch. Supervisor: Dr. Claude Alain.
- 2009/1 – 2009/4 **Research Project Student, Dr. John Yeomans's Laboratory, Ramsay Wright Zoological Laboratories**  
Component of PSY309H1; investigated the role of motivation and reward in adult male mice, as related to sexual behaviour and production of ultrasonic vocalizations. Coded ultrasonic vocalizations using SasLab Pro software.
- 2008/9 – 2008/12 **Perception Laboratory**; Instructor: Dr. Hana Burianova  
Critically reviewed wide range of perception literature
- 2008/9 – 2008/12 **Psychobiology Laboratory**; Instructor: Dr. John Yeomans  
Investigated the effects of amphetamine on locomotion (mice) and bar-pressing behaviour eliciting brain stimulation reward (rats); conducted basic startle reflex experiments.