

# Stephen C. Van Hedger

Huron University College  
Department of Psychology  
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## PROFESSIONAL EXPERIENCE

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<b>Assistant Professor, Huron University College</b> Department of Psychology	2020 - present
<b>Core Member, Brain and Mind Institute</b> University of Western Ontario	2020 - present
<b>Postdoctoral Fellow, University of Western Ontario</b> Brain and Mind Institute Department of Psychology <i>Advisors: Ingrid Johnsrude, Laura Batterink</i>	2018 - 2020
<b>Postdoctoral Scholar, University of Chicago</b> Chicago Center for Practical Wisdom Department of Psychology <i>Advisors: Howard Nusbaum, Marc Berman</i>	2015 - 2018

## EDUCATION

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<b>Ph.D., Psychology, University of Chicago</b> <i>Advisor: Howard Nusbaum</i>	2015
<b>A.M., Psychology, University of Chicago</b> <i>Advisor: Howard Nusbaum</i>	2012
<b>A.B., Music, University of Chicago</b> General and Departmental Honors Phi Beta Kappa Honor Society	2009

## FELLOWSHIPS, GRANTS, AND AWARDS

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<b>SSHRC Explore Grant</b> University of Western Ontario Project Title: Auditory category learning, memory, and generalization (co-PI: Ingrid Johnsrude)	2020 - 2021
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7k CAD

<b>Targeted Research Fund</b> Huron University College Project Title: "Engagement with Nature and Well-Being in the Age of COVID-19" 4.1k CAD	2020 - 2021
<b>BrainsCAN Tier I Postdoctoral Fellowship Award</b> University of Western Ontario	2018 - 2020
<b>Western Cognitive Neuroscience Postdoctoral Fund</b> Brain and Mind Institute University of Western Ontario	2018 - 2020
<b>John Dewey Prize Lectureship</b> University of Chicago Department of Psychology	2015
<b>Division of Social Sciences Research Grant</b> University of Chicago Project Title: Neural correlates of absolute pitch categorization 11.8k USD	2014 - 2015
<b>Starkey Duncan Award for Excellence in Undergraduate Teaching</b> University of Chicago Department of Psychology	2014
<b>Norman H. Anderson Research Fellow</b> University of Chicago Department of Psychology	2011 - 2015
<b>Arts-Science Graduate Collaboration Grant</b> University of Chicago Project Title: The role of vibrotactile feedback in music performance 1.5k USD	2010 - 2011
<b>Fulbright Program Finalist</b> United States Department of State	2009 - 2010

## PUBLICATIONS

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### Peer-Reviewed Articles

- [1] **Van Hedger, S.C.**, Veillette, J., Heald, S.L.M., & Nusbaum, H.C. (2020). Revisiting continuous versus discrete models of human behavior: The case of absolute pitch. *PLOS One*, 10.1371/journal.pone.0244308
- [2] Uddin, S., Reis, K., **Van Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2020). Cortical mechanisms of talker normalization in fluent sentences. *Brain & Language*, 201, 104722.

- [3] **Van Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2019). Absolute pitch can be learned by some adults. *PLOS One*, 10.1371/journal.pone.0223047
- [4] Zhen, A., **Van Hedger, S.C.**, Heald, S.L.M., Goldin-Meadow, S., & Tian, X. (2019). Manual directional gestures facilitate cross-modal perceptual learning. *Cognition*, 187, 178-187.
- [5] **Van Hedger, S.C.**, Nusbaum, H.C., Clohisy, L., Jaeggi, S.M., Buschkuhl, M., & Berman, M.G. (2019). Of cricket chirps and car horns: The effect of nature sounds on cognitive performance. *Psychonomic Bulletin & Review*, 26, 522-530.
- [6] **Van Hedger, S.C.**, Nusbaum, H.C., Heald, S.L.M., Huang, A., Kotabe, H., & Berman, M.G. (2019). The aesthetic preference for nature sounds depends on sound object recognition. *Cognitive Science*, 43, e12734.
- [7] Stenfors, C., **Van Hedger, S.C.** ... Berman, M.G. (2019). Positive effects of nature on cognitive performance across multiple experiments: Test order but not affect modulates the cognitive effects. *Frontiers in Psychology*, 10:1413.
- [8] **Van Hedger, S.C.**, & Nusbaum, H.C. (2018). Individual differences in absolute pitch performance: Contributions of working memory, musical expertise, and tonal language background. *Acta Psychologica*, 191, 251-260.
- [9] **Van Hedger, S.C.**, Heald, S.L.M., Uddin, S., & Nusbaum, H.C. (2018). A note by any other name: Intonation context rapidly influences absolute note judgments. *Journal of Experimental Psychology: Human Perception & Performance*, 44, 1268-1282.
- [10] Uddin, S., Heald, S.L.M., **Van Hedger, S.C.**, & Nusbaum, H.C. (2018). Hearing sounds as words: Neural responses to environmental sounds in the context of fluent speech. *Brain & Language*, 179, 51-61.
- [11] Nusbaum, H.C., Uddin, S., **Van Hedger, S.C.**, & Heald, S.L.M. (2018). Consolidating skill learning through sleep. *Current Opinion in Behavioral Sciences*, 20, 174-182.
- [12] Uddin, S., Heald, S.L.M., **Van Hedger, S.C.**, Klos, S., & Nusbaum, H.C. (2018). Understanding environmental sounds in sentence context. *Cognition*, 172, 134-143.
- [13] **Van Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2018). Long-term pitch memory for music recordings is related to auditory working memory precision. *The Quarterly Journal of Experimental Psychology*, 71, 879-891.
- [14] **Van Hedger, S.C.**, Heald, S.L.M., Huang, A., Rutstein, B., & Nusbaum, H.C. (2017). Telling in-tune from out-of-tune: Widespread evidence for implicit absolute intonation. *Psychonomic Bulletin & Review*, 24, 481-488.
- [15] Heald, S.L.M.\*, **Van Hedger, S.C.\***, & Nusbaum, H.C. (2017). Perceptual plasticity for auditory object recognition. *Frontiers in Psychology*, 10.3389/fpsyg.2017.00781

- [16] **Van Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2016). What the [bleep]? Enhanced absolute pitch memory for a 1000 Hz sine tone. *Cognition*, *154*, 139-150.
- [17] **Van Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2015). The effects of acoustic variability on absolute pitch categorization: Evidence of contextual tuning. *Journal of the Acoustical Society of America*, *138*, 436-446.
- [18] **Van Hedger, S.C.**, Heald, S.L.M., Koch, R., & Nusbaum, H.C. (2015). Auditory working memory predicts individual differences in absolute pitch learning. *Cognition*, *140*, 95-110.
- [19] **Van Hedger, S.C.**, Palmer, C., Hogstrom, A., & Nusbaum, H.C. (2015). Sleep consolidation of musical competence. *Music Perception: An Interdisciplinary Journal*, *33*, 163-178.
- [20] Heald, S.L.M., **Van Hedger, S.C.**, & Nusbaum, H.C. (2014). Auditory category knowledge in experts and novices. *Frontiers in Neuroscience*, *8*:260. 10.3389/fnins.2014.00260
- [21] **Hedger, S.C.**, Nusbaum, H.C., Lescop, O., Wallisch, P., & Hoeckner, B. (2013). Music can elicit a visual motion aftereffect. *Attention, Perception, & Psychophysics*, *75*, 1039-1047.
- [22] **Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2013). Absolute pitch may not be so absolute. *Psychological Science*, *24*, 1496-1502.
- [23] **Hedger, S. C.**, Nusbaum, H.C., & Hoeckner, B. (2013). Conveying movement in music and prosody. *PLOS One*, 10.1371/journal.pone.0076744

### **Preprints**

- [1] Heald, S.L.M., **Van Hedger, S.C.**, Veillette, J., Reis, K., Snyder, J.S., & Nusbaum, H.C. (2020). Going beyond rote auditory learning: Neural patterns of generalized auditory learning. *bioRxiv*, 10.1101/2020.12.30.424903
- [2] **Van Hedger, S.C.**, Johnsrude, I.S., & Batterink, L.J. (2020). Prior real-world experience influences non-linguistic statistical learning. *PsyArXiv*, 10.31234/osf.io/yscn8

### **Book Chapters and Encyclopedia Entries**

- [1] **Van Hedger, S.C.**, & Johnsrude, I.S. (in press). Speech perception under adverse listening conditions. In A. Popper, A. Coffin (Eds.), *Springer Handbook of Auditory Research*. Springer, Cham.
- [2] **Van Hedger, S.C.**, & Nusbaum, H.C. (2018). Absolute pitch. In: J. Vonk, T. K. Shackelford (Eds.), *Encyclopedia of Animal Cognition and Behavior*. Springer, Cham.
- [3] Heald, S.L.M., **Van Hedger, S.C.**, & Nusbaum, H.C. (2017). Understanding sound: Auditory skill acquisition. *Psychology of Learning and Motivation*, *67*, 53-93.

## CLASSROOM TEACHING EXPERIENCE

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### Instructor of Record

#### University of Chicago

SOSC 14100 - Mind I (2013) | SOSC 14200 - Mind II (2014) | PSYC 24860 - The Musical Mind (2015)

#### Huron University College

PSYCHOL 2115A - Introduction to Sensation and Perception (2020) | PSYCHOL 1100E - Method in General Psychology (2020) | PSYCHOL 4880E - Honors Thesis (2020) | PSYCHOL 3760G - Music Cognition (2021)

### Teaching Assistant

#### University of Chicago

SOSC 14100 - Mind I (2012) | SOSC 14200 - Mind II (2013) | SOSC 14300 - Mind III (2013) | PSYC 20700 - Sensation and Perception (2014) | PSYC 20200 - Psychological Research Methods (2014)

### Guest Lecturer

#### **PSYCHOL 2115A - Introduction to Sensation & Perception** (*University of Western Ontario*)

Lecture Title: "How does sleep influence perceptual processes?" (2019)

#### **COMMSCI 4417A - Introduction to Hearing Science** (*University of Western Ontario*)

Lecture Title: "Perceptual Organization of Music" (2018)

#### **PSY 210 - Introduction to Psychological Science** (*Elmhurst College*)

Lecture Title: "Does this Taylor Swift sound sharp? Exploring pitch memory in the general population" (2014)

## MENTORSHIP EXPERIENCE

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### Psychology Honors Thesis Advising

2013 - present

[1] Hannah Cormier (2020-2021)

*Huron University College*

Title: The Role of Attention in Inducing Cross-Modal Aftereffects

[2] Giuliana Brancato (2020-2021)

*Huron University College*

Title: Virtual Walks through Nature and Increased Well-Being

[3] Amish Gaur (2020-2021)

*University of Western Ontario*

Title: The Effects of Degraded Speech on Long-Term Memory in Individuals with Mild-Moderate Sensorineural Hearing Loss

- [4] Mykayla Winspear (2019-2020)  
*University of Western Ontario*  
 Title: The Influence of Talker Variability on Statistical Learning
- [5] Mackenzie Bacon (2018-2019)  
*University of Western Ontario*  
 Title: Memory for Words and Sentences: The Effect of Acoustical Degradation
- [6] Luke Clohisy (2017-2018)  
*University of Chicago*  
 Title: Memory for popular music: Evidence for widespread tempo abilities and implicit pitch categories
- [7] Max Bluestone (2015- 2016)  
*University of Chicago*  
 Title: The effects of semantic and temporal congruency on memory for audiovisual clips
- [8] Anders Hogstrom (2012-2013)  
*University of Chicago*  
 Title: The sound of silence: Attention entrainment to isochronous and syncopated beats

**Practicum Advisor, Master's Program in Computer Science (MPCS)** 2015 - 2016  
*University of Chicago*

Advised two masters students in the design and execution of psychophysical projects  
 Evaluated students' progress several times throughout the span of the projects

**PRISM Graduate Student Preceptor** 2012 - 2014  
*Department of Psychology, University of Chicago*

Organized biannual "lab night" to help students find research opportunities on campus  
 Planned approximately 6 additional events each year to help students explore employment options

**Research Consultant, Advanced Graduate Course** 2009 - 2010  
*University of Chicago*

Served as primary research consultant for graduate course in multimedia perception  
 Assisted graduate students in the design, execution, and data analysis of independent research

## **PEER-REVIEW ACTIVITIES**

*64 verified reviews (97<sup>th</sup> percentile on Publons)*

### **Ad-Hoc reviewer for:**

Proceedings of the National Academy of Sciences | Proceedings of the Royal Society B |  
 Journal of Experimental Psychology: General | Neuropsychologia | OpenMind | Cognitive  
 Science | eLife | Psychonomic Bulletin and Review | Brain and Language | Social Cognitive  
 and Affective Neuroscience | Journal of Neurolinguistics | PLOS One | Royal Society Open  
 Science | Attention, Perception, & Psychophysics | Memory | Scientific Reports | Frontiers in  
 Neuroscience | Music Perception | Trends in Hearing | Acta Psychologica | Journal of  
 Experimental Psychology: Learning, Memory, and Cognition | The Journal of the Acoustical  
 Society of America | Current Psychology | Collabra: Psychology | Brain Sciences | Biological  
 Rhythm Research | STEM Fellowship Journal

## PROFESSIONAL ORGANIZATIONS

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The Society for Music Perception and Cognition | The Psychonomic Society | Society for the Neurobiology of Language | Association for Research in Otolaryngology | The Association for Psychological Science | The Acoustical Society of America | The American Psychological Association

## ACADEMIC SERVICE

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- Member-At-Large** 2021  
The Society for Music Perception and Cognition
- Fulbright Scholarship Interviewer** 2012 – 2018  
*The College, University of Chicago*  
Annually review between 4-7 applications for Fulbright Scholarships  
Interview applicants and submit recommendations to the university
- Workshop Coordinator (Topic: Perception and Understanding of Music)** 2011 - 2012  
*Council on Advanced Studies, University of Chicago*  
Organized biweekly presentations of research given by graduate students and faculty  
Managed a budget of \$1500 for organizing outside speaker visits
- Travel and Research Committee Member** 2010 - 2014  
*Psychology Graduate Student Organization, University of Chicago*  
Reviewed applications for travel and research related expenses among graduate students  
Allocated funds based on merit and availability

## SELECTED CONFERENCE TALKS

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- [1] Gaur, A., Johnsrude, I.S., & Van Hedger, S.C. (2021). Understanding the effects of speech degradation on long-term memory. *44th Annual Midwinter Meeting of the Association for Research in Otolaryngology* (virtual)
- [2] Van Hedger, S.C., & Johnsrude, I.S. (2020). Understanding different forms of degraded speech as an auditory skill. *43rd Annual Midwinter Meeting of the Association for Research in Otolaryngology*, San Jose, CA
- [3] Van Hedger, S.C., Heald, S.L.M., & Nusbaum, H.C. (2019). Robust absolute pitch memory in the general population: Evidence from popular melodies. *Society for Music Perception and Cognition Conference*. New York University, New York, NY
- [4] Heald, S.L.M., Van Hedger, S.C., & Nusbaum, H.C. (2016). Working memory predicts

individual differences in learning synthetic speech produced by rule. *Annual Meeting of the Psychonomic Society*, Boston, MA

- [5] **Van Hedger, S.C.**, Heald, S.L., Koch, R., Nusbaum, H.C. (2015). Auditory working memory predicts individual differences in absolute pitch learning: Evidence from short- and long-term training. *Society for Music Perception and Cognition Conference*. Vanderbilt University, Nashville, TN
- [6] **Van Hedger, S.C.**, Heald, S.L., Nusbaum, H.C. (2015). Incidental absolute pitch learning in an interactive multi-modal environment. *Acoustical Society of America 170<sup>th</sup> Meeting*. Jacksonville, FL
- [7] **Van Hedger, S.C.**, Heald, S.L., Koch, R., Nusbaum, H.C. (2014). Absolute memory for popular songs is predicted by auditory working memory ability. *Acoustical Society of America 168<sup>th</sup> Meeting*. Indianapolis, IN
- [8] **Hedger, S.C.**, Heald, S.L., Nusbaum, H.C. (2013). Absolute pitch may not be so absolute. *Society for Music Perception and Cognition Conference*. Ryerson University, Toronto, ON
- [9] **Hedger, S.C.**, Klos, S., Nusbaum, H.C. (2013). Individual differences in the short- and long-term training of musical pitch. *Midwest Music Cognition Symposium*. The Ohio State University, Columbus, OH
- [10] **Hedger, S.C.**, Hoekner, B., Nusbaum, H.C. (2011). Music Can Convey Movement like Prosody in Speech. *Society for Music Perception and Cognition Conference*. Eastman School of Music, Rochester, NY
- [11] **Hedger, S.C.**, Heald, S.L., DeSouza, J., Hoekner, B., Nusbaum, H.C. (2011). The Role of Vibrotactile Input in Musical Performance. *Franke Institute for the Humanities*. The University of Chicago, Chicago, IL
- [12] **Hedger, S.C.**, Hoekner, B., Nusbaum, H.C. (2011). The Sound of Motion in Music. *Midwest Cognitive Science Meeting*. Michigan State University, East Lansing, MI
- [13] Heald, S.L., **Hedger, S.C.**, Lescop, O., Hoekner, B., Nusbaum, H.C. (2010). Localized Context Influences the Perceptual Judgment of Musical Tones. *Annual Meeting of the Psychonomic Society*, St. Louis, MO

## SELECTED POSTER PRESENTATIONS

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- [1] **Van Hedger, S.C.**, Johnsrude, I.S., & Batterink, L.J. (2020). Prior real-world experience influences non-linguistic statistical learning. *Annual Meeting of the Psychonomic Society*, Austin, TX (virtual)
- [2] **Van Hedger, S.C.**, Heald, S.L.M., Nusbaum, H.C., Batterink, L.J., Davis, M.H., & Johnsrude, I.S. (2019). Learning different forms of degraded speech as a cognitive skill. *Annual Meeting*

*of the Psychonomic Society, Montreal, QC*

- [3] Heald, S.L.M., **Van Hedger, S.C.**, & Nusbaum, H.C. (2019). Interpretation of pitch patterns in spoken and sung speech. *Auditory Perception, Cognition, and Action Meeting*, Montreal, QC
- [4] Zhen, A., **Van Hedger, S.C.**, Heald, S.L.M., Goldin-Meadow, S., & Tian, X. (2019). Manual directional gestures facilitate speech learning. *Auditory Perception, Cognition, and Action Meeting*, Montreal, QC
- [5] **Van Hedger, S.C.**, Heald, S.L.M., & Nusbaum, H.C. (2019). Neural bases of note normalization in absolute pitch. *13<sup>th</sup> Annual Canadian Neuroscience Meeting*, Toronto, ON
- [6] **Van Hedger, S.C.**, & Nusbaum, H.C. (2019). Individual differences in absolute pitch performance: Contributions of working memory, musical expertise, and tonal language background. *42<sup>nd</sup> Annual Midwinter Meeting of the Association for Research in Otolaryngology*, Baltimore, MD
- [7] **Van Hedger, S.C.**, & Nusbaum, H.C. (2018). Individual differences in absolute pitch performance: Contributions of working memory, musical expertise, and tonal language background. *Annual Meeting of the Psychonomic Society*, New Orleans, LA
- [8] Heald, S.L.M., **Van Hedger, S.C.**, & Nusbaum, H.C. (2018). Individual differences in auditory working memory is predictive of compensation response to spectral perturbation from EH to AE. *Annual Meeting of the Psychonomic Society*, New Orleans, LA
- [9] Zhen, A., **Van Hedger, S.C.**, Heald, S.L.M., Goldin-Meadow, S., & Tian, X. (2017). Manual directional gestures facilitate learning of Mandarin tones. *Society for the Neurobiology of Language Conference*, Baltimore, MD
- [10] Heald, S.L.M., Uddin, S., **Van Hedger, S.C.**, Snyder, J., & Nusbaum, H.C. (2017). Early sensory changes in neural processing gate generalized perceptual learning. *Society for the Neurobiology of Language Conference*, Baltimore, MD
- [11] **Van Hedger, S.C.**, Heald, S.L.M., Huang, A., Rutstein, B., & Nusbaum, H.C. (2016). Telling in-tune from out-of-tune: Widespread evidence for implicit absolute intonation. *Annual Meeting of the Psychonomic Society*, Boston, MA
- [12] Uddin, S., Heald, S.L.M., **Van Hedger, S.C.**, & Nusbaum, H.C. (2016). Recognizing sounds in sentence context. *Annual Meeting of the Psychonomic Society*, Boston, MA
- [13] **Van Hedger, S.C.**, Heald, S.L., Wu, S., & Nusbaum, H.C. (2015). Judging the absolute pitch of novel recordings of familiar songs. *Annual Meeting of the Psychonomic Society*, Chicago, IL
- [14] **Van Hedger, S.C.**, Heald, S.L., Nusbaum, H.C. (2015). The effects of acoustic variability on absolute pitch categorization: Evidence for contextual tuning. *Acoustical Society of America 170<sup>th</sup> Meeting*. Jacksonville, FL

- [15] Hogstrom, A., **Hedger, S.C.**, Nusbaum, H.C. (2013). The sound of silence: Attention entrainment to isochronous and syncopated beats. *Society for Music Perception and Cognition Conference*. Ryerson University, Toronto, ON
- [16] **Hedger, S.C.**, Nusbaum, H.C., Lescop, O., Wallisch, P., Hoeckner, B. (2013). Music can elicit a visual motion aftereffect: Evidence from behavior and fMRI. *Auditory Cognitive Neuroscience Society Meeting*, Tucson, AZ
- [17] Heald, S.L., **Hedger, S.C.**, Klos, S., Colson, B., Nusbaum, H.C. (2013) Spoken gesture is integrated with sentence meaning during speech comprehension. *Auditory Cognitive Neuroscience Society Meeting*, Tucson, AZ
- [18] **Hedger, S.C.**, Heald, S.L., Nusbaum, H.C. (2012). Absolute pitch may not be so absolute. *Annual Meeting of the Psychonomic Society*, Minneapolis, MN
- [19] **Hedger, S.C.**, Nusbaum, H.C., Lescop, O., Wallisch, P., Hoeckner, B. (2012). Music can elicit a visual motion aftereffect. *Association for Psychological Science Convention*, Chicago, IL
- [20] **Hedger, S.C.**, Palmer, C., Hogstrom, A., Nusbaum, H.C. (2012). The effects of sleep-dependent consolidation on motoric and abstract learning in music. *Midwest Cognitive Science Meeting*. Indiana University, Bloomington, IN

## WORKSHOPS

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- [1] **BrainsCAN Computational Core Methods Lunch** (*University of Western Ontario*)  
 Title: "An introduction to running web-based experiments using PsychoPy, jsPsych, and Pavlovia"  
 Co-Presenter: J. Paul Minda
- [2] **Nissl Lab Group** (*University of Western Ontario*)  
 Title: "Best practices in conducting auditory experiments over the web"

## INVITED TALKS

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- [1] **Van Hedger, S.C.** (2020, March). Perceptual understanding in a variable world: Insights from music and speech. Huron University College. London, ON
- [2] **Van Hedger, S.C.** (2020, January). What can pop songs tell us about representations of musical pitch? *Graduate Student Colloquium*. University of Western Ontario. London, ON
- [3] **Van Hedger, S.C.** (2019, April). Absolute pitch can be trained in some high-auditory working memory adults. *The 5<sup>th</sup> Learning and Plasticity (LaP) Meeting*. Äkäslompola, Finland
- [4] **Van Hedger, S.C.** (2016, June). Pitch memory in adulthood: Individual differences,

generalizations, and abstractions. *Musical Learning across the Lifespan Workshop*. University of Western Ontario. London, ON

- [5] **Van Hedger, S.C.** (2015, December). Telling sharp from flat: Pitch memory in the general population. DePauw University. Greencastle, IN
- [6] **Van Hedger, S.C.** (2015, July). Developing a framework for musical understanding. The University of Chicago. Chicago, IL