

Stephen C. Van Hedger

Huron University College
Department of Psychology
London, ON Canada

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PROFESSIONAL EXPERIENCE

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

EDUCATION

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

FELLOWSHIPS, GRANTS, AND AWARDS

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

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

PUBLICATIONS

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

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 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

Research Mentor

2010 - present

University of Chicago, University of Western Ontario, Huron University College

Guided 30+ undergraduate students through conducting psychological research

Co-authored papers with 7 undergraduate students

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 an advanced graduate course in multimedia perception
 Assisted graduate students in the design, execution, and data analysis of independent research

PEER-REVIEW ACTIVITIES

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 | 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

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

Member-At-Large	2021
The Society for Music Perception and Cognition	
Fulbright Scholarship Interviewer	2012 – 2018
<i>The College, University of Chicago</i>	
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
<i>Council on Advanced Studies, University of Chicago</i>	
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
<i>Psychology Graduate Student Organization, University of Chicago</i>	
Reviewed applications for travel and research related expenses among graduate students	
Allocated funds based on merit and availability	

SELECTED CONFERENCE TALKS

- [1] **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
- [2] **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

- [3] 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
- [4] **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
- [5] **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 170th Meeting*. Jacksonville, FL
- [6] **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 168th Meeting*. Indianapolis, IN
- [7] **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
- [8] **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
- [9] **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
- [10] **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
- [11] **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
- [12] 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

- [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. *13th 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. *42nd 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 170th 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

- [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

- [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 5th Learning and Plasticity (LaP) Meeting*. Äkäslompolo, 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