

# Lori L. Holt

## Professor and Chair

### CONTACT

The University of Texas at Austin  
 Department of Psychology  
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### EDUCATION

<p>Ph.D., Department of Psychology          Cognitive Psychology, Neurophysiology Minor          University of Wisconsin-Madison          Thesis: <i>Auditory Constraints on Speech Perception:          An Examination of Spectral Contrast</i></p>	<p>1995-1999</p>
<p>B.S. Department of Psychology          University of Wisconsin-Madison</p>	<p>1991-1995</p>

### EMPLOYMENT

<p>Chair          Department of Psychology          The University of Texas at Austin</p>	<p>2025-present</p>
<p>Professor          Department of Psychology          The University of Texas at Austin</p>	<p>2023-present</p>
<p>Dean's Chair of          Dietrich College of Humanities and Social Sciences</p>	<p>2022-2023</p>
<p>Professor          Department of Psychology          Carnegie Mellon University, Pittsburgh, PA</p>	<p>2010-2023</p>
<p>Professor          Neuroscience Institute (50% appointment)          Carnegie Mellon University, Pittsburgh, PA</p>	<p>2022-2023</p>
<p>Co-Director          Center for the Neural Basis of Cognition          Carnegie Mellon University &amp; University of Pittsburgh</p>	<p>2022-2023</p>
<p>Co-Director          Behavioral-Brain (B2) Research Training Program          NIH T32 to support PhD training          Carnegie Mellon University &amp; University of Pittsburgh</p>	<p>2007-2023</p>
<p>Affiliated Faculty, Member Executive Committee          Center for the Neural Basis of Cognition          Carnegie Mellon University &amp; University of Pittsburgh</p>	<p>1999-2022</p>
<p>Professor, Courtesy Appointment          Department of Neuroscience</p>	<p>2011-2023</p>

University of Pittsburgh, Pittsburgh, PA	
Professor, Courtesy Appointment Department of Modern Languages Carnegie Mellon University, Pittsburgh, PA	2015-2023
Training Faculty Member Center for Neuroscience, University of Pittsburgh University of Pittsburgh, Pittsburgh, PA	2012-2023
Member, Pittsburgh Hearing Research Center	2017-2023
Member, Children's Neuroscience Institute	2020-2023
Associate Professor, Tenured Department of Psychology Carnegie Mellon University, Pittsburgh, PA	2006-2010
Associate Professor, Untenured Department of Psychology Carnegie Mellon University, Pittsburgh, PA	2004-2006
Assistant Professor Department of Psychology Carnegie Mellon University, Pittsburgh, PA	1999-2004
National Science Foundation Predoctoral Fellow University of Wisconsin-Madison	1995-1999
Graduate Research Assistant Department of Psychology, Prof Keith Kluender University of Wisconsin-Madison	1995-1999
Graduate Research Assistant Department of Neurophysiology, Prof William Rhode University of Wisconsin-Madison	1998-1999

**AWARDS &  
HONORS**

President's Award for Global Learning University of Texas	2025
2025 Textbook & Academic Authors Association (TAA) McGuffey Longevity Award	2025
Workshop on Holistic and Responsible Affective Intelligence <i>Best Paper Award</i>	2025
Acoustical Society of America Fellow	2022
Dean's Chair of Dietrich College of Humanities and Social Sciences	2022
James McKeen Cattell Sabbatical Award Association for Psychological Science	2015
	2013

Troland Research Award, National Academy of Sciences	2011
Association for Psychological Science Fellow	2008
Virginia W. Toomey Award in Auditory Science	2007
Association for Psychological Science “Rising Star” in Psychology	2007
Evie and Ron Krancer Award in Auditory Science	2007
Dennis Klatt Research in Speech Science Award American Speech Language and Hearing Association	2002
14 <sup>th</sup> Annual Beckman Frontiers of Science Symposium Invitee, National Academy of Sciences	2002
21 <sup>st</sup> Century Scientist Award – Bridging Mind, Brain & Behavior, James S. McDonnell Foundation	2002-2006
Acoustical Society Young Investigator Award Acoustical Society of America	1999
Henry Vilas Professional Development Fellowship University of Wisconsin	1999
National Science Foundation Predoctoral Research Fellowship	1995-1998
Ruth G. & Joseph D. Matarazzo Research Award American Psychological Foundation	1998
Sigma Xi Grants-In-Aid of Research Award National Sigma Xi Chapter	1998
Royalty Research Award, University of Wisconsin	1997
M. Schwartz Experimental Psychology Fellow University of Wisconsin	1997
Roderick Menzies Graduate Fellowship University of Wisconsin	1996
Henry Vilas Fellowship, University of Wisconsin	1995
Phi Beta Kappa	1995
Herfurth Award to Outstanding Senior Woman University of Wisconsin	1994
Gilchrist Undergraduate Research Award University of Wisconsin	1994
Hilldale Undergraduate Research Award, University of Wisconsin	1994

Psi Chi Undergraduate Research Award, University of Wisconsin	1994
Ferdinand Plaenert Scholarship, University of Wisconsin	1991
Academic Excellence Scholarship, State of Wisconsin	1991

**MEMBER**

Acoustical Society of America, Cognitive Neuroscience Society, Psychonomic Society, Cognitive Science Society, American Psychological Society

**EDITORIAL ACTIVITIES**

**Section Editor (2021-present):**  
*Cognition*

**Associate Editor (present):**  
*Auditory Perception & Cognition*

**Editorial Boards (past and present):**

*Psychological Review*  
*Psychonomic Bulletin & Review*  
*Journal of Experimental Psychology: General*  
*Review Editorial Board of Frontiers in Auditory*  
*Open Mind*  
*Cognitive Neuroscience*  
*Attention, Perception & Psychophysics*

*Journal of Memory and Language*  
*Frontiers in Perceptual Sciences*  
*Attention, Perception & Psychophysics*  
*IEEE Transactions in Haptics*  
*Journal of Phonetics*  
*Language and Cognitive Processes*  
*Language and Speech*  
*Memory and Cognition*  
*Nature Communications*  
*Nature Reviews Neuroscience*  
*Open Mind*  
*Perception & Psychophysics*  
*Phonetica*  
*PLoS One*  
*Psychonomic Bulletin and Review*  
*Psychological Review*  
*Speech Communication*  
*Frontiers in Auditory Cognitive Neuroscience*

**Ad Hoc Reviewer:**

*Acoustic Research Letters Online*  
*Animal Cognition*  
*Brain and Language*  
*Cerebral Cortex*  
*Cognition*  
*Cognitive, Affective, and Behavioral Neuroscience*  
*Cognitive Brain Research*  
*Cognitive Psychology*  
*Cortex*  
*Cognitive Science*  
*Current Directions in Psychological Science*  
*Developmental Psychobiology*  
*eLife*  
*Journal of the Acoustical Society of America*  
*Journal of Experimental Psychology: Human Perception & Performance*

**Reviewer of Grant Proposals:**

*National Science Foundation*  
*National Institutes of Health*  
*Autism Now Foundation*  
*Wellcome Trust*  
*Executive Board of the Austrian Science Fund*

**OTHER PROFESSIONAL & LEADERSHIP ACTIVITIES**

**NSF Cognitive Neuroscience Review Panel**  
2024

Sponsorship Committee  
**Cognitive Science Society**  
2024, 2025

Organizing Committee  
**International Conference on Auditory Cortex 2025**

Advisory Board  
**Windward Institute**

The Windward School is a co-ed, independent day school located in New York City and White Plains, New York, for children in grades 1-9 with language-based learning disabilities.

2023-present

Co-Director

**Center for the Neural Basis of Cognition, Carnegie Mellon University**

2022-2023

Editor with Prof Jonathan Peelle,

**Springer Handbook of Auditory Science, Speech Perception, Vol. 74**

to be published 2022.

Co-director with Dr. Julie Fiez, **NIH (NIGMS) T32 Training Grant, T32GM081760, Predocutorial Training at the Interface of the Behavioral and Biomedical Sciences**. Funded continuously since 2007, supporting 50+ PhD trainees for two years each.

**Organizing Committee and Principal Investigator**, Symposium for Cognitive Auditory Neuroscience (Principal Investigator, NIH R13 Conference Grant 2019-2022)

**Section Editor**, *Cognition*

**Organizing Committee**, 143<sup>rd</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA, June, 2002

**Speech Communication Technical Committee Member**, Acoustical Society of America

**Organizing Committee**, International Conference on Spoken Language Processing (ICSLP/INTERSPEECH 2006, Pittsburgh, PA)

**Conference Organizing Committee**, Advances and Perspectives in Auditory Neuroscience (APAN), 2016-2018

**Chair, Young Investigator Award Committee**, Advances and Perspectives in Auditory Neuroscience (APAN), 2017; 2018

## PENDING GRANT SUPPORT

PI (with PI Charlie Nagle, University of Texas at Austin). **The plasticity paradox in adult speech learning**. National Science Foundation.

Co-I (with PI Dr. Taylor Abel, University of Pittsburgh). **Sound Categorization by Human Auditory Cortex: From Static Hierarchies to Dynamic Networks**. *National Science Foundation*.

Multiple Principal Investigator (with Drs. Avniel Ghuman, Taylor Abel, LP Morency), **Neurocomputational Mechanisms of Multimodal Integration in Real-World Social Perception during Natural Communication**, *National Institutes of Health*.

Co-I (with PI Dr. Taylor Abel, University of Pittsburgh). **Cortical Mechanisms of Natural Sound Perception**. *National Institutes of Health*.

Co-I (with PI Dr. Tobias Teichert, University of Pittsburgh). **Neural correlates of auditory category learning**. *National Institutes of Health*.

## ONGOING GRANT SUPPORT

**Dimension-based auditory selective attention**  
NIH R01DC017734

Principal Investigator, with Drs. Frederic Dick (University College London), Adam Tierney (Birkbeck College) and Barbara Shinn-Cunningham (CMU). National Institutes of Health, National Institute of Deafness and Communication Disorders.

This project seeks to understand mechanisms of auditory selective attention to features of sound, like frequency. \$2,835,471 total award; 01/20-12/26.

**Incidental learning across statistically-structured input in active tasks**

**NSF BCS1950054**

Principal Investigator, with Dr. Frederic Dick (University College London) and Dr. Edmund Lalor (University of Rochester). National Science Foundation, Science of Learning.

This project examines how incidental alignment of statistically structured input facilitates learning above and beyond what can be learned from passive exposure. \$824,987 total award; 10/20-09/26.

**SBE-UKRI: Contextually and probabilistically weighted auditory selective attention: from neurons to networks**

**NSF BCS 2219521**

Principal Investigator (lead institution), with with Dr. Frederic Dick (University College London) and Dr. Kerry Walker (Oxford University) on the BBSRC side and Dr. Taylor Abel (University of Pittsburgh) and Dr. Edmund Lalor (University of Rochester) on the NSF side.

This project forms a new bi-national collaboration across five laboratories to investigate the neurobiological basis of attention-learning interactions in human and ferret models. \$1,027,044 total award US; £1,000,000 total award UK; through 08/26

**Transfer of statistical learning from perception to production: a new lens on the perception-production link**

**NSF BCS 2217415**

Consultant, with Dr. Nazbanou Nozari (Indiana University), National Science Foundation.

This project investigates links between speech production and speech perception through the lens of statistical learning. 09/26

**PAST GRANT SUPPORT**

Cortical-basal ganglia speech networks

NIH U01NS117836

Co-Investigator (PI: Mark Richardson). U01 National Institutes of Health, National Institute of Neurological Disorders and Stroke.

This project seeks to understand the basal ganglia-thalamocortical speech networks involved in the interaction between speech perception and speech production using neurosurgical populations undergoing deep brain stimulation implant surgery. \$36,592 subcontract to CMU, 09/21-08/25.

Tracking engagement in human communication from wearable sensors in real-world environments

James F. McDonnell Foundation Understanding Human Cognition, 103771720223937

Principal Investigator, with Dr. Fernando de La Torre (Carnegie Mellon University).

This work is designed to break speech communication research out of the laboratory and bring it into the real world. We will use augmented reality approaches to draw social interactions into speech communication research. \$250,000 total award; 09/22-08/25

Mechanisms of auditory selective attention for speech and non-speech stimuli

NIH F32DC020625

Sponsor (for Dr. Sahil Luthra, Carnegie Mellon University). National Institutes of Health, Ruth L. Kirschstein National Research Service Award (NRSA), Individual Postdoctoral Fellowship (F32), awarded 2022.

Principal Investigator (with Drs. Barbara Shinn-Cunningham, Carnegie Mellon University and Bharath Chandrasekaran, University of Pittsburgh). National Institutes of Health, National Institute Deafness and Communication Disorders. Symposium on Cognitive Auditory Neuroscience (SCAN) Workshop (NIH R13DC018243). This award supports the origin of a new conference, the Symposium on Cognitive Auditory Neuroscience (SCAN) – launched online during COVID-19 in 2020. \$74,132 total award; 01/20-12/23.

Principal Investigator (with MPI Julie Fiez, University of Pittsburgh) National Institutes of Health, National Institute of General Medical Sciences, The behavioral brain research training program NIH T32GM142630. Ongoing; stepped down as Co-Director in move to UT-Austin. As co-director since 2007-2023, the Behavior-Brain (B2) training grant advanced the next generation of intellectual leaders at the intersection of brain and behavior, supporting 50+ PhD students across two years of study.

Principal Investigator with MPI Taylor Abel (University of Pittsburgh). National Institutes of Health, National Institute of Deafness and Communication Disorders. Flexible representation of speech in the supratemporal plane, NIH R21DC019217

Principal Investigator with Drs. Yafit Gabay and Avi Karni (Haifa University). National Science Foundation, Perception Action and Cognition. NSF/SBE-BSF: Trajectories of acquisition, consolidation and retention in incidental auditory category learning, NSF BCS1655126

Co-Investigator (PI: Dr. Adam Tierney, Birkbeck College, University of London) Training temporally-driven sustained selective attention to sound in children with ADHD. Waterloo Foundation

Co-Investigator (PI: Dr. Adam Tierney, Birkbeck College, University of London). Individual differences in dimensional weighting in speech perception  
Leverhulme Trust

Sponsor (for Dr. Vibha Viswanathan, University of Pittsburgh). National Institutes of Health, Ruth L. Kirschstein National Research Service Award (NRSA), Individual Postdoctoral Fellowship (F32), Flexible representation of speech in human auditory cortex, NIH F32DC020649.

Principal Investigator (with trainee Charles Wu). Doctoral Dissertation Research: Mechanisms of adaptive plasticity in speech perception. National Science Foundation, Linguistics. 02/15/2020-01/31/2022.

Co-Investigator (with Principal Investigators Dr. Helen Tager-Flusberg and Dr. Barbara Shinn-Cunningham), A Novel Intervention for Training Auditory Attention in Adolescents with Autism Spectrum Disorder, Department of Defense.

Co-Investigator with Principal Investigator Dr. Seth Weiner, Carnegie Mellon University, Examining the impact of non-linguistic incidental auditory category training on adult language acquisition. R03, National Institutes of Health, National Institute of Child Health and Development. 08/17/2019-08/16-2021.

Principal Investigator (with Drs. Seth Wiener, Mike Christel), Wedding basic science and pedagogy: Is classroom foreign language learning supported by incidental auditory training? ProSEED / Simon Initiative Grant, Carnegie Mellon University.

Principal Investigator, The Silent Service: An Online Game for Delivery of Auditory Tasks at Scale, Games for Engaging Learning Seed Grant, National Institutes of Health, \$10,000, 2017.

Principal Investigator, Formation and tuning of complex auditory categories, National Institutes of Health, 3R01DC004674-09, funded continuously 09/01/01 through 01/31/2016; current project period \$1,250,000 over 5 years.

Principal Investigator with Doctoral Student Ran Liu, Doctoral Dissertation Research: Investigating generalization, transfer, and representation resulting from non-native speech category training. December 2015.

Principal Investigator, Uncovering the Neural Basis of Auditory Expertise, Berkman Faculty Development Fund, \$6250, January 2007.

Principal Investigator, Electrophysiological Investigations of Auditory Cognition, Pilot Imaging Program, Department of Radiology Magnetic Resonance Research Center, University of Pittsburgh, \$7650, January 2008.

Principal Investigator, Examining context-dependent speech categorization in human listeners using magnetoencephalography (MEG), National Organization for Hearing Research, submitted January 2008, \$20,000 over 1 year. Winner of the 2008 Virginia W. Toomey Award in Auditory Science.

Principal Investigator with co-Investigator Dr. Kaori Idemaru, Development of Eyetracking Methodology to Investigate Cue Weighting in Auditory Categorization, National Organization for Hearing Research, \$20,000, 2/2007-2/2008. Winner of the 2007 Evie and Ron Krancer Award in Auditory Science.

Co-Investigator with Dr. Sheila Pratt, University of Pittsburgh, Dr. Diane Sabo, Children's Hospital, and Dr. Suzanne Curtin, University of Calgary, Behavioral Investigations of Vowel Perception in Infants With and Without Hearing Impairment, \$20,000, National Organization of Hearing Research.

Co-Investigator with Dr. Suzanne Curtin, University of Calgary and Dr. Scott Kiesling, University of Pittsburgh, Cognitive and Social Development in Linguistic Change: A Pilot Study, National Science Foundation, awarded, \$124,853, 08/31/05-08/31/2007 (no-cost extension to 08/2008).

Principal Investigator, Learning Complex Auditory Categories, National Science Foundation, renewal, \$629,666, BCS-0345773, 04/01/2001-03/31/2011.

Principal Investigator, Learning Complex Auditory Categories, National Institutes of Health (R01), \$237,000 over 4 years, 09/01/01-08/31/05.

Principal Investigator, Converging Models of the Influence of Experience upon Perception, Bridging Mind, Brain, & Behavior, 21<sup>st</sup> Century Scientist Award from the James S. McDonnell Foundation. \$449,515 over 3 years, 03/01/01-02/28/04.

Principal Investigator, An Investigation of the Perceptual and Learning Influences of Phonetic Category Formation, American Speech-Language-Hearing Association (Dennis Klatt Memorial Award), \$5,000, 10/24/02.

Principal Investigator, Learning Complex Auditory Categories, National Science Foundation, \$295,656 over 2 years, 09/01/01-8/31/04.

Principal Investigator, Spectral-temporal Boundaries of Perceptual Contrast: Developing the Gerbil as a Behavioral Model of Speech Perception, National Organization of Hearing Research, \$10,000, 1/15/01-1/14/02.

Principal Investigator, Developing the gerbil (*Meriones unguiculatus*) as an integrated model of speech perception, Deafness Research Foundation. \$20,000, 1/1/00-12/31/01.

Principal Investigator, Investigating the Role of Learning in Language Acquisition, Faculty Development Grant, Carnegie Mellon University \$6450, 12/01/99.

Co-Investigator, Models of Multimodal Interactive Language Learning, Riksbankens Jubilumsfond, The Bank of Sweden Tercentenary Foundation, in collaboration with Dr. Francisco Lacerda and Dr. Ulla Sundberg of University of Stockholm and Dr. Rolf Carlson of KTH, Swedish Royal Institute of Technology, \$745,000 over 5 years for CMU segment of the project, 01/01/04-12/31/09.

Principal Investigator, Learning to accommodate variation in speech input, National Science Foundation, \$500,000 over 3 years, 10/01/09-09/30/12 (no cost extension to 09/30/13).

## BOOKS

Holt, L. L. & Peelle, J. (2022). **The auditory cognitive neuroscience of speech perception in context.** *Springer Handbook of Auditory Science, Vol. 74*, L. L. Holt & J. Peelle, Editors. ISBN: 978-3030815417.

Wolfe, J.M., Levi, D.M., Holt, L.L., Bartoshuk, L.M., Herz, R.S., Klatzky, R.L. & Merfeld, D.M. **Sensation and Perception, Seventh Edition.** Oxford University Press. ISBN: 9780197663813.

*\*\*2025 Textbook & Academic Authors Association (TAA) McGuffey Longevity Award*

## PEER-REVIEWED PUBLICATIONS,

under review

Luthra, A., Razin, R.N., Tierney, A.T., Holt, L.L., & Dick, F. (*under review*). **Systematic changes in neural selectivity reflect the acquired salience of category-diagnostic dimensions**, 10.1101/2024.09.21.614258

Hect, J.L., Rupp, K.M., Ghuman, A.S., Holt, L.L., Abel, T.J. (*under review*). **Acoustic regularities define perceptual and cortical representations of voice-likeness.**

Luor, A., Dick, F., & Holt, L.L. (*in revision*). **Global probabilities take precedence over transitional probabilities in predicting learning outcomes.** <https://osf.io/mw5z3/>, [https://osf.io/preprints/psyarxiv/6hg9z\\_v1](https://osf.io/preprints/psyarxiv/6hg9z_v1)

Bröker, F., Plaut, D., & Holt, L.L. (*in revision*). **Supervised learning outperforms unsupervised learning only for categories of intermediate difficulty.** <https://osf.io/preprints/psyarxiv/3rfjk>

Bullock, L., Vissani, M., Bush, A., Kim, J.S., Holt, L.L., Fiez, J., Turner, R.S., Herrington, T.M., Schweitzer, J., Guenther, F.H., Richardson, R.M. (*under review*). **Independent Basal Ganglia Neural Populations Encode Speech Production and Ambient-Noise Levels**  
bioRxiv 2025.11.18.689157; doi: <https://doi.org/10.1101/2025.11.18.689157>

## PREPRINTS/ MANUSCRIPTS

Viswanathan, V., Rupp, K.M., Hect, J.L., Harford, E.E., Holt, L.L., Abel, T.J. **Intracranial mapping of response latencies and task effects for spoken syllable processing in the human brain.**  
<http://biorxiv.org/content/early/2024/04/05/2024.04.05.588349>

Harford, E.E., Rupp, K.M., Welch, W.P., Al-Ramadhani, R., Ghuman, A., Holt, L.L., Abel, T.J. (*under review*). **Functional heterogeneity of voice-encoding cortex revealed by clinical language mapping.**  
<https://www.biorxiv.org/content/10.1101/2024.05.24.595794v1>

Lehet, M. & Holt, L. L. **Graded effects of short-term distributional regularities on speech perception.**

Wu, Y. C., Liu, R., Lim, S. -J., & Holt, L. L. **Incidental versus passive statistical learning across continuous natural speech.**

Liu, R. & Holt, L. L.

**Investigating the role of variability in incidental learning of Mandarin lexical tone categories.**

Liu, R. & Holt, L. L.

**Incidental training in a videogame improves non-native speech perception and transfers to word learning.**

PEER-REVIEWED  
PUBLICATIONS

1997-2026

Huffaker, K.D., Holt, L.L., Nozari, N. (2026). **Transfer of statistical learning from speech perception to production generalizes to reading.** *Psychonomic Bulletin & Review*, 33, 104. <https://doi.org/10.3758/s13423-026-02874-y>. <https://osf.io/kusr4/>, [https://osf.io/ng6cu\\_v2](https://osf.io/ng6cu_v2)

Thorburn, C., Zhou, L., Dick, F., Nozari, N., & Holt, L.L. (2026). **Speech motor control is not sequestered from general auditory processes.** *Journal of Experimental Psychology: General*. <https://osf.io/mnj85/>, [https://osf.io/preprints/psyarxiv/6xyr2\\_v1](https://osf.io/preprints/psyarxiv/6xyr2_v1)

Murphy, T., Holt, L.L., & Nozari, N. (2026). **Exposure to an accent transfers to speech production in a single shot.** *Cognition*, 106412. <https://osf.io/cgp7u>, <https://osf.io/preprints/psyarxiv/qwy9v>, <https://doi.org/10.1016/j.cognition.2025.106412>

Ma, C., Joo, K.H., Vail, A.K., Bhattacharya, S., García, Á.F., Baker-Matsuoka, K., Mathew, S., Holt, L.L., & De La Torre, F. (2025). **Multimodal Fusion with LLMs for Engagement Prediction in Natural Conversation.** *Proceedings of the 27th International Conference on Multimodal Interaction*, <https://dl.acm.org/doi/10.1145/3747327.3764904>

Llanos, F., Wu, Y.C., Abel, T.J., & Holt, L.L. (2025). **Accented speech modulates multiple event-related potential components across multiple levels of language processing.** *Communications Psychology*. <https://osf.io/n7pky/>, <https://doi.org/10.1038/s44271-025-00345-z>

Luthra, S., Luor, A., Tierney, A.T., Dick, F., & Holt, L.L. (2025). **Statistical learning dynamically shapes auditory perception.** *npj Science of Learning*, 10, 41. <https://doi.org/10.1038/s41539-025-00328-z>

Henry, M. J., Obleser, J., Crusey, M., ... (+64 authors), Holt, L.L., ... & Peelle, J. E. (2025). **How strong is the rhythm of perception? A registered replication of Hickok, Farahbod, & Saberi (2015).** *Royal Society Open Science*, <https://osf.io/aytez/>

Vissani, M. Bush, A., Lipski, W.J., Bullock, L., Fischer, P., Neudorfer, C., Holt, L.L., Fiez, J.A., Turner, R.S., Richardson, R.M. (2025). **Spike-phase coupling of subthalamic neurons to posterior opercular cortex predicts speech sound accuracy.** *Nature Communications*, 16, 3357.

Rupp, K.M., Hect, J.L., Harford, E.E., Holt, L.L., Ghuman, A.S., & Abel, T.J. (2025). **A hierarchy of processing complexity and timescales for natural sounds in human auditory cortex.** *Proceedings of the National Academy of Sciences*, 122 (18) e2412243122, <https://doi.org/10.1073/pnas.2412243122>

Murphy, T., Nozari, N., & Holt, L. L. (2025). **Bears don't always mess with beers: Limits on generalization of statistical learning in speech.** *Psychonomic Bulletin and Review*. <https://osf.io/5uqx8/files/osfstorage>, <https://doi.org/10.3758/s13423-025-02690-w>

Holt, L.L. (2025). **Speech perception is speech learning.** *Current Directions in Psychological Science*, <https://doi.org/10.1177/09637214251318726>

Frost, R., Boegarts, L., Samuel, A. G., Magnuson, J. S., Holt, L. L., & Christiansen, M. H. (2025). **Statistical learning subserves a higher purpose: Information foraging.** *Psychological Review*. doi:

10.1037/rev0000547.

Wiener, S., Murphy, T.K. & Holt, L.L. (2025). **Incidental nonspeech auditory learning scaffolds phonetic, category, and word learning in a foreign language classroom.** *Language Learning*, 75(4), 1091-1121. <https://doi.org/10.1111/lang.12700>, <https://osf.io/xjcvvg/>

Harford, E., Holt, L.L., & Abel, T.J. (2024). **Listening with one hemisphere: A review of auditory processing among individuals after hemispheric surgery.** *Neuropsychologia*, 205, 109019. doi: 10.1016/j.neuropsychologia.2024.109019

Bröker, F., Holt, L.L., Roads, B.D., Dayan, P., & Love, B.C. (2024). **Demystifying unsupervised learning: how it helps and hurts.** *Trends in Cognitive Sciences*. <https://doi.org/10.1016/j.tics.2024.09.005>

Ma, C.C., Joo, K.H., Vail, A.K., Bhattacharya, S., Fernández García, Á., Baker-Matsuoka, K., Mathew, S., Holt, L.L. & De la Torre, F. (2024). **Multimodal fusion with LLMs for engagement prediction in natural conversation.** <https://arxiv.org/abs/2409.09135>.

Smith, E., Holt, L. L., & Dick, F. (2024). **A one-man bilingual cocktail party: Linguistic and non-linguistic effects on bilinguals' speech comprehension in Mandarin and English.** *Cognitive Research: Principles and Implications*, 9, 35. <https://doi.org/10.1186/s41235-024-00562-w> <https://osf.io/spnfh/>

Harford, E., Holt, L. L. & Abel, T. (2024). **Unveiling the development of human voice perception: Neurobiological mechanisms and pathophysiology.** *Current Research in Neurobiology*, 6, 100127. <https://osf.io/a82hv>

Symons, A.E., Holt, L.L., & Tierney, A.T. (2024) **Informational masking influences segmental and suprasegmental speech categorization.** *Psychonomic Bulletin & Review*, 31, 686-696. [doi.org/10.3758/s13423-023-02364-5](https://doi.org/10.3758/s13423-023-02364-5)

Murphy, T., Nozari, N., & Holt, L. L. (2024). **Transfer of statistical learning from passive speech perception to speech production.** *Psychonomic Bulletin and Review*, 31:1193–1205 <https://doi.org/10.3758/s13423-023-02399-8>

Hodson, A.J., Shinn-Cunningham, B.G., & Holt, L. L. (2023). **Statistical learning across passive listening adjusts perceptual weights of speech input dimensions.** *Cognition*, 238, 105473. <https://psyarxiv.com/4kxz3/>, <https://osf.io/87skr/>

Obasih, C. O., Luthra, S., Dick, F. & Holt, L. L. (2023). **Auditory category learning is robust across training regimes.** *Cognition*, 237, 105467, <https://psyarxiv.com/ygwhd/>, <https://osf.io/bnk9e/>

Gabay, Y., Karni, A. & Holt, L. L. (2023). **Memory for incidentally learned categories evolves in the post-learning interval.** *eLife*. <https://psyarxiv.com/a8ksm/>, <https://osf.io/7y2nx/>

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**INVITED  
COLLOQUIA,  
PODIUM TALKS,  
& KEYNOTES**

Holt, L. L., Lotto, A. J., & Kluender, K. R. (1998). **Incorporating principles of general learning in theories of language acquisition.** In M. Gruber, C. Derrick Higgins, K. S. Olson & T. Wysocki (Eds.), *Chicago Linguistic Society, Volume 34: The Panels*. Chicago: Chicago Linguistic Society, 253-268.

Lotto, A. J., Kluender, K. R., & Holt, L. L. (1997). **Animal models of speech perception phenomena.** In K. Singer, R. Eggert, & G. Anderson (Eds.), *Chicago Linguistic Society, Volume 33*, 357-367, Chicago Linguistic Society: Chicago, IL.

Kluender, K. R., Lotto, A. J., & Holt, L. L. (1995). **Effect of voice quality on the tense/lax distinction for English vowels.** *Proceedings of the International Congress of Phonetic Sciences*, 4, 164-167.

Holt, L.L., Murphy, T.K., Huffaker, K., Black, J., Thorburn, C., Nozari, N. Two distinct mechanisms contribute to statistical learning in speech perception but only one drives transfer into production. 66<sup>th</sup> Annual Meeting of the Psychonomic Society. November 2025.

Nozari, N., Murphy, T.K., Huffaker, K., Zhou, L., Thorburn, C., Dick, F., & Holt, L.L. Phonetic convergence as model-based reinforcement learning. 66<sup>th</sup> Annual Meeting of the Psychonomic Society. November 2025.

Holt, L.L. Listening in on auditory learning and attention. University of Chicago. May 2025.

Holt, L.L. Foraging for regularities that shape how we listen. Association for Research in Otolaryngology Seminar Series on Auditory Cortex and Thalamus. April 2025.

Holt, L. L. Foraging for regularities that shape how we listen. Behavioral Neuroscience seminar series. University of Texas at Austin. November 2024.

Holt, L.L. Foraging for regularities that shape speech perception and production. Advances in Statistical Learning Conference. San Sebastian, Spain. June 2024. (with Drs. Timothy Murphy & Nazbanou Nozari)

Holt, L.L. Statistical learning across task-irrelevant dimensions. Advances in Statistical Learning Conference. San Sebastian, Spain. June 2024. (with Frederic Dick, Sahil Luthra and Austin Luor)

Holt, L.L. Listening in on auditory learning. University of Texas San Antonio. San Antonio, TX. January 2024.

Holt, L.L. Listening in on auditory learning. Advances and Perspectives in Auditory Neuroscience, Washington, D.C., November 2023. [Keynote]

Holt, L.L., Luor, A., Luthra, S., & Dick, F. Listening to the present in relation to the past to predict the future. Psychonomics Society Meeting, San Francisco, CA. November 2023.

Holt, L. L. Listening in on auditory learning. University of Rochester. March 2023.

Holt, L. L. Breaking auditory psychophysics out of the laboratory. 46th Annual MidWinter Meeting of the Association for Research in Otolaryngology. February 2023. Invited Symposium.

Holt, L. L. Category learning and dimension-selective attention in auditory cortex. 46th Annual MidWinter Meeting of the Association for Research in Otolaryngology. February 2023. Invited Symposium.

Holt, L. L. Listening in on auditory learning. Duolingo Headquarters. Pittsburgh, PA. November 2022.

Holt, L. L. Listening in on auditory learning. University of Texas. September 2022.

Holt, L. L. Statistical learning is supported by multiple mechanisms. TEX 2022: Bringing together predictive processes and statistical learning, Trieste, Italy. Invited Speaker. July 2022.

Holt, L. L. Listening in on auditory learning. Cornell University. September 2021.

Holt, L. L. Speech perception in context. University of Maryland. September 2021.

Holt, L. L. Incidental auditory category learning and its implications for language acquisition. Cross-Cutting Challenge (CCC) panel on the theme of Tactile Speech Communication at the Haptics Symposium 2021. July 2021.

Holt, L.L. Online regularities and prior knowledge conspire to shape speech perception. Trieste Encounter on Cognitive Science (TEX) 2021: Predictive Processes and Statistical Learning. Trieste, Italy. July 2021.

Holt, L. L. Supervised error-driven learning in speech perception. Association for Research in Otolaryngology, Invited Talk, Special Session. Online. February 2021.

Wiener, S., Murphy, T. K., Obasih, C. O. and Holt, L. L. Incidental category learning of L2 speech sounds: Evidence from Chinese tones and Japanese pitch accent. International Symposium on Bilingual and L2 Processing in Adults and Children. June 2021.

Holt, L. L. Unsolved, but solvable challenges in auditory neuroscience. Advances and Perspectives in Auditory Neuroscience. Online. October 2020.

Holt, L. L. Educational neuroscience: what every teacher should know. The Windward Institutes 2020 Summer Webinar Series. Online. July 2020.

Holt, L. L. Bottom-up versus top-down information flow while listening to speech. CogHear. Online. July 2020.

Holt, L. L. The future of neuroscience: Cognitive neuroscience. CMU Alumni Association. Online. June 2020.

Holt, L. L. The future of neuroscience: Cognitive neuroscience. Carnegie Mellon University Board of Trustees Meeting. San Francisco, CA. February 2020.

Holt, L. L. An auditory cognitive neuroscience perspective on speech perception. University of South Florida, Communication Sciences and Disorders. February 2020.

Holt, L.L. Explicit versus incidental auditory learning. Invited colloquium. University of Pittsburgh, Department of Communication Science and Disorders. October 2019.

Holt, L. L. Using speech to listen in on auditory processing. Invited colloquium. University of South Florida, Communication Sciences and Disorders. October 2019.

Holt, L. L. Listening in on auditory learning. Invited colloquium. University of Pittsburgh, Department of Psychiatry. October 2019.

Holt, L. L. Listening in on auditory learning. Invited colloquium. Baylor University. September 2019.

Holt, L. L. Incidental learning: An active assist for statistical learning. Interdisciplinary Advances in Statistical Learning, San Sebastian, Spain. June 2019. Keynote.

Holt, L. L. Incidental learning: An active assist for statistical learning. University of Texas-Austin. April 2019.

Holt, L. L. Incidental learning: An active assist for statistical learning. Mini-Workshop on Animal Cognition, Communication and Human Language. University of Maryland College Park, April, 2019.

Holt, L. L. Understanding how humans interpret the complexity of spoken language. Winter School on Speech and Audio Processing (WiSSAP). College of Engineering, Trivandrum, Kerala, India. January 2019.

Holt, L. L. Understanding how humans interpret the complexity of spoken language. Indian Institute of Science. Bangalore, India. January 2019.

Holt, L. L. Statistical learning workshop. Yale University and Haskins Laboratories. December 2018.

Holt, L. L. Using speech to listen in on auditory learning. Invited talk at the University of Southern California, October 2018.

Holt, L. L. Incidental learning. Invited talk at the PDP Symposium. Princeton, September 2018.

Holt, L. L. Stability and plasticity in speech perception. University of Oregon, Department of Linguistics Colloquium, May 2017.

Holt, L. L. Using speech to listen in on auditory learning. University of Oregon, Neuroscience Institute Colloquium, May 2017.

Holt, L. L. Listening in on auditory learning. Johns Hopkins University, Baltimore, April 2017.

Holt, L. L. Incidental auditory category learning. International Conference on Auditory Cortex, Banff, Canada. September, 2017.

Holt, L. L. Using speech to listen in on auditory learning. Washington University, St. Louis, Missouri, April 2017.

Holt, L. L. Using speech to listen in on auditory processing. Distinguished Lecture Series, Harvard-MIT, Boston, MA, March 2017.

Holt, L. L. Using speech to listen in on auditory processing. University of Pittsburgh Communications Disorders Reading Group, March 2017.

Holt, L. L. Auditory learning in an 'alien world.' University of Wisconsin, Madison, WI. November 2016.

Holt, L. L. Auditory learning in an 'alien world.' University of Pittsburgh, Pittsburgh, PA. October 2016.

Holt, L. L. Using speech to listen in on auditory learning. Center for Perceptual Sciences Colloquium, University of Texas-Austin. Austin, TX, November 2015.

Holt, L. L. Speech Perception. Center for Hearing Research 11<sup>th</sup> Annual Research Symposium, *From Sound to Comprehension: How We Make Use of Acoustic Information to Understand Speech and other Natural Sounds*. University of California-Irvine. May 2016. (Keynote)

Holt, L. L. Incidental auditory category learning. Invited podium contribution in Minisymposium. Society for Neuroscience, Chicago, IL, October 2015.

Holt, L.L. Learning foreign sounds in an alien world. Neural processing in humans, animals and machines (NeuroHAM). Boston University, Center of Excellence for Learning in Education, Science and Technology. June 2015.

Holt, L.L. Auditory cognitive neuroscience as a tool for understanding phonetic perception. Chicago Linguistic Society. Invited speaker. April 2015.

Holt, L.L. Using speech perception to listen in on auditory learning. University of Pittsburgh Medical Center, Grand Rounds. April 2015.

Holt, L. L. What speech reveals about how the auditory processing. University of Pittsburgh, Department of Neurobiology. March 2015.

Holt, L. L. Learning in an alien world. Multisensory Summit, Boston University, December 2014.

Holt, L. L. Speech, melodies and invaders from space: What speech reveals about how the auditory system uses the past to interpret the present. Sensory processing: how the past affects the present. In the series *New Ideas in Hearing* of the Institut d'Etude de la Cognition, Paris, November 2013.

Holt, L. L. Using speech perception to listen in on auditory learning. Invited colloquium at the University of Rochester, October 2013.

Holt, L. L. Learning foreign sounds in an alien world. Invited colloquium at the University of Chicago, May, 2012.

Holt, L. L. Using speech to listen in on auditory processing. Invited speaker at the Sixteenth International Conference on Cognitive and Neural Systems, Boston University, May, 2012.

Holt, L. L. Using speech to listen in on auditory processing. Invited colloquium at the University of Maryland. March, 2012.

Holt, L. L. Dimension-based statistical learning and generalization. Auditory Cognitive Neuroscience Society, Tucson, AZ, January 2012.

Holt, L. L. How the challenges of speech perception can inspire investigations of general auditory learning. European Society for Cognitive Psychology, San Sebastian, Spain, October, 2011.

Holt, L. L. Speech processing in a general framework. Biological Rhythms of Cortical Computation, New York University, May 2011.

Holt, L. L. The formation and tuning of auditory categories. McGill University, May 2011.

Holt, L. L. The formation and tuning of auditory categories. Boston University, April 2011.

Holt, L. L. Understanding the role of experience in speech perception. First International Conference on Cognitive Hearing Science for Communication. Linköping, Sweden, June 2011.

Holt, L. L. Twitters, gerbils and invaders from space: Speech categorization within an auditory cognitive science framework. Winter Conference on Issues in Developmental Psychobiology. St. Croix, U.S.V.I, January 2009.

Holt, L. L. Speech, melodies and invaders from space: Speech perception within a general auditory cognitive science framework. Invited colloquium. Rutgers University Department of Psychology, March, 2008.

Holt, L. L. Speech, melodies and invaders from space: Speech perception within a general auditory cognitive science framework. Invited colloquium. Brown University Department of Cognitive and Linguistic Sciences, February, 2008.

Holt, L. L. Statistical perception: effects of acoustic regularity in online perception. Workshop on Current Issues in Language Acquisition: Artificial and Statistical Language Learning. Calgary, Alberta, June, 2007.

Holt, L. L. The formation and tuning of auditory categories. Invited colloquium, University of Texas – Dallas, April, 2006.

Holt, L. L. Auditory categorization: What general learning can teach us about language development, invited address to the New York Academy of Sciences, Learning to Hear: Animal, Computational, and Neuroimaging Studies of Language Development, October, 2006.

Holt, L. L. Decisions and interactivity in perceiving speech. Invited talk, Department of Social and Decision Sciences, Carnegie Mellon University, September 2006.

Holt, L. L. Cracking the speech code. Invited talk, James S. McDonnell Foundation 21<sup>st</sup> Century Science Initiative Program Meeting, Palisades, New York, June 2006.

Holt, L. L. Auditory categorization and tuning in speech perception. Center for Visual Sciences Symposium on Statistical Learning and Brain Plasticity, University of Rochester, Invited Speaker, June, 2006.

Holt, L. L. Speech, melodies and invaders from space: The formation and tuning of auditory categories. Interdisciplinary approaches to psycholinguistics and neurolinguistic research: Investigating speech perception and production, University of Southern California, February 2006.

Holt, L. L. Speech, melodies and invaders from space: The formation and tuning of auditory categories. Distinguished Speakers Series, Cornell University, November 2005.

Holt, L. L. & Wade, T. Non-linguistic sentence-length precursors affect speech perception: Implications for speaker and rate normalization. From Sound to Sense: Fifty+ Years of Discoveries in Speech Communication, Massachusetts Institute of Technology, June 2004.

Holt, L. L. Context effects in speech perception. Invited colloquium, Massachusetts Institute of Technology, April 2004.

Holt, L. L. Context effects in speech perception. Invited colloquium, Lehigh University, April 2004.

Holt, L. L. Name that tune: What speech categorization in context can tell us about auditory processing. Invited colloquium, Department of Physiology, University of Wisconsin-Madison, September 2004.

Holt, L. L. Auditory categorization: What general learning principles can tell us about speech categories. Invited colloquium, Kungliga Tekniska Högskolan (KTH, Swedish Royal Institute of Technology), Stockholm, Sweden, August, 2004.

Holt, L. L. Context effects in speech perception: The long and the short of it. Colloquium addressed to the Department of Psychology at the University of Texas-Austin, September 2003.

Holt, L. L. The role of experience in speech perception. James S. McDonnell Foundation Meeting of the 21<sup>st</sup> Century Scientists, June 2003.

Holt, L. L. Perceptual context effects in speech perception. 14<sup>th</sup> Annual National Academy of Sciences Beckman Frontiers of Science Symposium, Los Angeles, CA, November, 2002.

Holt, L. L. Maintaining perceptual constancy in speech. Invited colloquium to the Department of Communication Sciences and Disorders, University of Pittsburgh, March 2001.

Kluender, K. R., Lotto, A. J., & Holt, L. L. (2000). Contributions of general auditory processes to perceptual accommodation of coarticulation. Invited address, The Nature of Speech Perception, Universiteit Utrecht, July 2000.

Kluender, K. R. & Holt, L. L. General auditory processes contribute to perceptual accommodation of coarticulation. Invited address to the Speech Communication and Language Development Symposium, Stockholm, Sweden, June 17, 1999.

Holt, L. L. The ABCs of effects of experience on infant speech perception. Address to Department of Physiology, University of Wisconsin, October, 1998.

Holt, L. L. Statistical learning of phonetic patterns. Address to Chaos and Complex Systems Seminar, University of Wisconsin, September, 1998.

Holt, L. L. Of context and cochlear nuclei: Encoding spectral contrast. Address to the Department of Neurophysiology, University of Wisconsin, March, 1998.

## **CONFERENCE ABSTRACTS & POSTERS**

Zhou, L., Nozari, N. & Holt, L.L. Generalization of Statistical Learning of Vowels in Speech Perception and Production. Auditory Perception, Cognition, and Action Meeting. Denver, CO. November 2025.

Huffaker, K., Holt, L.L., & Nozari, N. Transfer of statistical learning from speech perception to production generalizes to reading. 66<sup>th</sup> Annual Meeting of the Psychonomic Society. Denver, CO. November 2025.

Huffaker, K., Holt, L.L., & Nozari, N. Transfer of statistical learning from speech perception to production generalizes to reading. Auditory Perception, Cognition, and Action Meeting. Denver, CO. November 2025.

Zhou, L., Hodson, A., Nozari, N., & Holt, L.L. The role of selective attention in statistical learning and transfer to speech production. 66<sup>th</sup> Annual Meeting of the Psychonomic Society. Denver, CO. November 2025.

Holt, L.L., Llanos, F., Murphy, T.K., Wu, Y.C., Thorburn, C. Zhou, L.N., Dick, F.K. & Nozari, N. Rapid neurodynamic adjustments to cortical speech encoding influence speech production. 8th International Conference on Auditory Cortex. Maastricht, Netherlands. September 2025.

Balmas, O., Holt, L.L., Roark, C.L. & Gabay, Y. Auditory Procedural Category Learning Dysfunction in Developmental Dyslexia. Research Report at the 1<sup>st</sup> Israeli Conference for Research in Education. Akko, Israel, September 2025.

Thorburn, C., Nozari, B., Dick, F., & Holt, L.L. When non-speech tone contexts shift speech perception, do they also impact speech production? 65<sup>th</sup> Annual Meeting of the Psychonomic Society. New York City, November 2024.

Bialas, O., Nidiffer, A., Holt, L.L., Dick, F., Luthra, S., Smith, E. & Lalor, E. Neural correlates of statistically-driven auditory selective attention. Advances and Perspectives in Auditory Neuroscience, Chicago, IL, October 2024.

Schneider, L. Zulfiqar, I., Balbastre, Y., Holt, L.L., Callaghan, M. & Dick, F. Revisiting the auditory hemodynamic response function in the era of fast fMRI. Advances and Perspectives in Auditory Neuroscience, Chicago, IL, October 2024.

Luthra, S., Razin, R., Obasih, C., Tierney, A., Dick, F., & Holt, L.L. Systematic changes in neural selectivity reflect the acquired salience of category-diagnostic dimensions. Advances and Perspectives in Auditory Neuroscience, Chicago, IL, October 2024.

Bhattacharya, S., Holt, L., de La Torre, F., Joo, K., Ferdandez, A., Ma, C., & Fang, Y. Tracking engagement in real-world human communication using wearable sensors. Advances and Perspectives in Auditory Neuroscience, Washington DC, November 2023.

Hect, J., Rupp, K., Dick, F., Holt, L. L., & Abel, T. Investigation of intracerebral auditory cortex electrophysiology and spectrotemporal feature processing in human auditory cortex using voice-like acoustic stimuli. Advances and Perspectives in Auditory Neuroscience, Washington DC, November 2023.

Bochtler, K., Dick, F., Holt, L.L., King, A., & Walker, K. M. The influence of sound statistics on auditory decisions in ferrets. Advances and Perspectives in Auditory Neuroscience, Washington DC, November 2023.

Dick, F., Luor, A., Luthra, S., & Holt, L. Statistical learning of task-irrelevant acoustic dimensions. Advances and Perspectives in Auditory Neuroscience, Washington DC, November 2023.

Bialas, O., Luthra, S., Smith, E., Holt, L. L., Dick, F., & Lalor, E. Neural correlates of statistically-driven auditory selective attention. Poster presentation at Advances and Perspectives in Auditory Neuroscience, Washington, D.C., November 2023.

Luthra, S., Razin, R., Obasih, C. O., Tierney, A. T., Dick, F., & Holt, L. L. Using frequency selectivity to examine category-informative dimension-selective attention. Poster presentation at Advances and Perspectives in Auditory Neuroscience, Washington, D.C., November 2023.

Hect, J., Rupp, K., Dick, F., Holt, L. L., & Abel, T. Investigation of intracerebral auditory cortex electrophysiology and spectrotemporal feature processing in human auditory cortex using voice-like acoustic stimuli. Society for Neuroscience, Washington, DC, November 2023.

Murphy, T., Holt, L. L., & Nozari, N. Perceptual Statistical Learning Transfers to Speech Perception Even with Sparse Production Opportunities. Psychonomics Society Meeting, San Francisco, CA. November 2023.

Luthra, S. & Holt, L.L. Separable effects of speech input statistics on phonetic and talker processing. Psychonomics Society Meeting, San Francisco, CA. November 2023.

Hodson, A.J., Shinn-Cunningham, B.G., & Holt, L.L. Auditory attention guides statistical learning across competing speech regularities. Psychonomics Society Meeting, San Francisco, CA. November 2023.

Black, J., Nozari, N., & Holt, L.L. Passive statistical learning of speech distributions is not constrained to specific phonemes. Psychonomics Society Meeting, San Francisco, CA. November 2023.

Luthra, S., Razin, R., Obasih, C. O., Tierney, A. T., Dick, F., & Holt, L. L. Using frequency selectivity to examine category-informative dimension-selective attention. Poster presentation at Society for Neurobiology of Language, Marseille, France, October 2023.

Derawi, H., Holt, L.L., Karni, A. & Gabay, Y. Children and adults with developmental dyslexia are impaired in Incidental learning of complex sound categories. International Workshop on Reading and Developmental Dyslexia. San Sebastian, Spain. June 2023.

Murphy, T. K., Nozari, N. & Holt, L. L. Statistical regularities of accented speech influence listeners' own speech productions. Acoustical Society of America, Chicago, IL. May 2023.

Luor, A., Luthra, S., Shinn-Cunningham, B., Tierney, A., Dick, F., & Holt, L. L. Statistical regularities across task-irrelevant dimensions impact auditory decisions. Association for Research in Otolaryngology, Orlando, FL. February 2023.

Luthra, S., Obasih, C. Tierney, A., Dick, F. & Holt, L. L. Using frequency selectivity to examine category-informative dimension-selective attention. Association for Research in Otolaryngology, Orlando, FL. February 2023.

Viswanathan, V., Rupp, K., Hect, J., Harford, E., Holt, L. L. & Abel, T. Human intracranial responses to speech: Latency and attention effects, Association for Research in Otolaryngology, Orlando, FL. February 2023.

Viswanathan, V., Rupp, K., Harford, E., Hect, J., Abel, T., Holt, L. L. Neural signatures of adaptive plasticity in speech perception as measured with human intracranial stereo-electroencephalography, Association for Research in Otolaryngology, Orlando, FL. February 2023.

Derawi, H., Holt, L., Karni, A. & Gabay, Y. Impaired incidental learning of complex sound categories in children and adults with dyslexia. Poster presented at the 10th Israeli Conference on Cognition Research (ISCoP), Akko, Israel. February 2023.

Statistical regularities of task-irrelevant dimensions impact auditory decisions. Luor, A., Luthra, S., Shinn-Cunningham, B. G., Tierney, A., Dick, F. K., & Holt, L. L. Acoustical Society of America. Nashville, TN. December 2022.

Luthra, S., Obasih, C. O., Tierney, A. T., Dick, F. K., & Holt, L. L. Using frequency selectivity to examine category-informative dimension-selective attention. Acoustical Society of America. Nashville, TN. December 2022.

Black, J., Nozari, N., Murphy, T., & Holt, L. L. Distributional speech regularities maintained across long delays influence perceptual weighting of speech input. 63<sup>rd</sup> Annual Meeting of the Psychonomic Society. November 2022.

Bochtler, K., Dick, F., Holt, L. L., King, A. J., Walker, K. M. The influence of sound statistics on auditory decisions in ferrets. Society for Neuroscience. November 2022.

Bochtler, K., Dick, F., Holt, L. L., King, A. J., Walker, K. M. The influence of sound statistics on auditory decisions in ferrets. Advances and Perspectives in Auditory Neuroscience. November 2022.

Luthra, S., Tierney, A., Holt, L. L. & Dick, F. Neural systems underlying source- and dimension-based auditory selective attention to naturalistic speech. Society for the Neurobiology of Language, Philadelphia, PA. October 2022.

Luthra, S., Obasih, C. O., Tierney, A., Dick, F. & Holt, L. L. Using frequency selectivity to examine category-informative dimension-selective attention. Society for the Neurobiology of Language, Philadelphia, PA. October 2022.

Dastolfo-Hromack, C. Lipski, W., Bush, A., Bohland, J., Turner, R., Chandrasekaran, B., Fraundorf, S., Holt, L.L., Fiez, J., Shaiman, S., & Richardson, R.M. Activity in the subthalamic nucleus indexes the coupling of articulation and vocal intensity. Society for the Neurobiology of Language, Philadelphia, PA. October 2022.

Hect, J., Rupp, K., Harford, E., Gupta, K., Reeher, H., Dick, F., Holt, L. L., Abel, T. Intracerebral investigation of the neural representation of voice in human auditory cortex using voice-like acoustic stimuli. 1st Interdisciplinary Conference on Voice Identity (VoiceID): Perception, Production, and Computational Approaches. Zurich, Switzerland. July 2022.

Hodson, A. J., DiNino, M., Shinn-Cunningham, S. G., & Holt, L. L. Dimension-based statistical learning in older adults. Cognitive Science Society. Toronto, CA, July 2022.

Luor, A., Dick, F., Shinn-Cunningham, B. & Holt, L.L. Statistical learning guides auditory attention. Cognitive Science Society. Toronto, CA, July 2022.

Hodson, A. J., Wu, C. Y., Shinn-Cunningham, S. G., & Holt, L. L. Perceptual adaptation to speech input statistics is driven by predictions from category representations. TEX 2022: Bringing Together Predictive Processes and Statistical Learning, Trieste, Italy. July 2022.

Luor, A., Luthra, S., Shinn-Cunningham, B., Tierney, A. T., Dick, F. & Holt, L. L. Global and transitional probability of task-irrelevant dimensions impact behavior. TEX 2022: Bringing Together Predictive Processes and Statistical Learning, Trieste, Italy. July 2022.

Murphy, T., Nozari, N. & Holt, L. L. Statistical learning transfers from speech perception to production. The 12<sup>th</sup> International Workshop on Language Production (IWOLP). Pittsburgh, PA. June 2022.

Dastolfo-Hromack C., Lipski W., Bush A., Fraundorf S., Bohland J., Turner R., Chandrasekaran B., Holt L., Fiez J., Shaiman S., Richardson R.M. Phonetic-Intensity Encoding in the Precentral Gyrus and Subthalamic Nucleus. Motor Speech Conference. Charleston, South Carolina. February 2022.

Zhang, H., Wiener, S. & Holt, L. L. Evidence for dynamic adjustment of cue weighting in speech. 61<sup>st</sup> Annual Meeting of the Psychonomic Society, Austin TX, November 2020.

Wu, Y. C. & Holt, L. L. Rapid adaptation to short-term regularities affects auditory cortical evoked responses to speech. Advances and Perspectives in Auditory Neuroscience. October 2020.

Jasmin, K., Dick, F., Sun, H., Stewart, L., Holt, L., Tierney, A. Weighting of auditory dimensions in speech and music perception: individual differences and neural bases. Society for the Neurobiology of Language, October 2020.

Chrabaszcz, A., Wang, D., Lipski, W.J., Bush, A., Crammond, D.J., Shaiman, S., Dickey, M.W., Holt, L.L., Turner, R.S., Fiez, J.A., Richardson, R.M. Simultaneously recorded subthalamic and cortical LFPs reveal different lexicality effects during reading aloud. Society for the Neurobiology of Language, October 2020.

- Zhang, H., Wiener, S. & Holt, L. L. Evidence for dynamic adjustment of cue weighting in speech. 61<sup>st</sup> Annual Meeting of the Psychonomic Society, Austin TX, November 2020.
- Burkinshaw, K., Milhalicz, P., Holt, L. L., Curtin, S. I can't believe it's not chiz! Lexical effects on toddler's phonetic perception. (Virtual) International Conference on Infant Studies. July 2020.
- Idemaru, K., Vaughn, C., Sharma, N. & Holt, L. L. Specificity vs. generalizability of dimension-based statistical learning. Cue weighting: Thinking outside the box, Satellite Workshop of Laboratory Phonology, Vancouver, CA, July 2020.
- Gabay, Y., Nissan, N., Holt, L., & Karni, A. The Development of Incidental Auditory Category Learning. Early Childhood Education: Growing up in dynamic and changing times. Bar-Ilan University, Israel, July 2020.
- Burkinshaw, K., Holt, L. L., & Curtin, S. *I can't believe it's not chiz! Lexical effects on toddler's phonetic perception* has been accepted as a poster presentation for the upcoming ICIS Biennial Congress, Glasgow, Scotland, July 2020.
- Roark, C. L., Holt, L. L. & Plaut, D. A neural network model of the effect of prior experience with regularities on subsequent category learning. Cognitive Science Society. July 2020.
- Weiner, S., Murphy, T. K., Obasih, C. O., & Holt, L. L. Incidental category learning of L2 speech sounds: Evidence from Chinese tones and Japanese pitch accent. 3rd International Symposium on Bilingual and L2 Processing in Adults and Children. June 2020.
- Vaughn, C., Sharma, N., Holt, L. L. & Idemaru, K. Dimension-based statistical learning: Specificity or generalization across words and talkers? Meeting of the Acoustical Society of America, Chicago, IL. May 2020.
- Nissan, N., Holt, L., Karni, A. & Gabay, Y. Consolidation and retention of sound place associations and incidental auditory category learning among typical and dyslexic readers. The 7th Conference on Cognition Research of the Israeli Society for Cognitive Psychology, Akko, Israel. February 2020.
- DiNino, M., Behm, L., Wu, Y.C., Shinn-Cunningham, B.G., Holt, L. L. Age-Related Changes in Phonetic Cue Usage: Contributions to Speech Understanding in Noise. Association for Research in Otolaryngology. San Jose, CA. January 2020.
- DiNino, M., Wu, Y. C., Behm, L., Nolan, T., Shinn-Cunningham, B.G., Holt, L. L. Perceptual Weighting of Voice Onset Time and Fundamental Frequency Cues in Noise. January 2020.
- Roark, C. L. & Holt, L. L. Exposure to short-term acoustic regularities has limited impact on representations and behavior. 60<sup>th</sup> Annual Meeting of the Psychonomic Society. Montreal, CA. November 2019.
- Jasmin, K., Dick, F., Holt, L., Stewart, L., Tierney, A. T. Reduced reliance on pitch cues for speech perception in amusia: a neural basis. Annual Meeting of the Society for Neuroscience, Chicago. October 2019. (Nanosymposium on *'Personalized Brain Signatures'*)
- Gabay, Y. Karni, A., Banai, K. & Holt, L. L. Speech Perceptual Learning Across Distorted Input in Developmental Dyslexia. European Society for Cognitive Psychology. Tenerife. September 2019.
- Tierney, A., Dick, F., Holt, L. L. & Aeron, L. Effects of short-term training on attentional modulation of neural phase. 23<sup>rd</sup> International Congress on Acoustics, Aachen, Germany. September 2019.

Gabay, Y., Karni, A., & Holt, L. L. Overnight consolidation and retention of implicit and explicit knowledge of incidentally learned auditory categories. *Interdisciplinary Advances in Statistical Learning*, San Sebastian, Spain. June 2019.

Holt, L. L. Your brain at a cocktail party. Pint of Science Festival. Pittsburgh, PA, <https://pintofscience.us/>. May 2019.

Holt, L. L. Randy Diehl. University of Texas-Austin. April 2019.

Sharma, N., Ganesh, S., Ganapathy, S. & Holt, L. L. Analyzing human reaction time for talker change detection. International Conference on Acoustics and Signal Processing, IEEE Signal Processing Society. Brighton, UK. May 2019.

Burkinshaw, K., Curtin, S., & Holt, L. L. Vowel space and variability in infant- and adult-directed speech. 177<sup>th</sup> Meeting of the Acoustical Society of America, Louisville, KY. May, 2019.

Nissan, N., Holt, L. L., Karni, A. & Gabay, Y. The development of incidental auditory category learning. International Convention of Psychological Science (ICPS), Paris, March 2019.

Nissan, N., Holt, L. L., Karni, A. & Gabay, Y. The development of incidental auditory category learning. The 6<sup>th</sup> conference on Cognition Research of the Israeli Society of Cognitive Psychology, Akko, Israel, February 2019.

Sharma, N., Ganapathy, S., Ganesh, S. & Holt, L. L. Talker Change Detection: A comparison of human and machine performance. Association for Research in Otolaryngology. February, 2019.

Wu, Y. & Holt, L. L. Behavioral and electrophysiological evidence of incidental learning across continuous speech. Association for Research in Otolaryngology. February, 2019. (selected for podium presentation)

Wu, Y., Liu, R., Lim, S-J., & Holt, L.L. Behavioral and electrophysiological evidence of incidental learning across continuous speech. *Advances and Perspectives in Auditory Neuroscience*, November 2018. (Recognized with a Poster Teaser Award).

Chrabaszcz A., Neumann J., Stretcu O., Lipski W., Bush A., Dastolfo-Hromack C., Wang D., Crammond D.J., Shaiman S., Dickey M.W., Holt L.L., Turner R.S., Fiez J.A., Richardson R.M. Cortical and subcortical representations of consonant articulatory features. Society for Neuroscience, November 2018.

Dastolfo-Hromack C (co-first author), Alhourani A (co-first author), Lipski W, Crammond DJ, Shaiman S, Dickey MW, Holt LL, Turner RS, Fiez JA, Richardson RM Neural oscillations in the human subthalamic nucleus predict scaling of speech production. Society for Neuroscience, November 2018.

Wu, Y., Liu, R., Lim, S-J., & Holt, L.L. Behavioral and electrophysiological evidence of incidental learning across continuous speech. Society for Neuroscience, November 2018. (Recognized with a digital poster presentation).

Roark, C. L., Lehet, M. I., Dick, F., & Holt, L. L. Factors influencing incidental category learning. 2018 Annual Meeting of the Psychonomics Society, New Orleans, LA, November 2018.

Roark, C. & Holt, L. L. Development of information-integration auditory category learning. 40<sup>th</sup> Annual Meeting of the Cognitive Science Society, Madison, WI. July 2018.

Wu, Y., & Holt, L. L. Phonetic category activation drives dimension-based adaptive tuning in speech perception. 40<sup>th</sup> Annual Meeting of the Cognitive Science Society, Madison, WI. July 2018.

- Holt, L. L., Roark, C. L., Lehet, M. I., & Dick, F. Drivers of incidental category learning. 40<sup>th</sup> Annual Meeting of the Cognitive Science Society, Madison, WI. July 2018.
- Gabay, Y., Karni, A., & Holt, L. L. Consolidation and retention of auditory categories acquired incidentally in performing a visuomotor task. 40<sup>th</sup> Annual Meeting of the Cognitive Science Society, Madison, WI. July 2018.
- Wu, Y., & Holt, L. L. Behavioral and electrophysiological evidence of incidental learning, generalization and retention of speech categories from continuous speech. 175<sup>th</sup> Meeting of the Acoustical Society of America, Minneapolis, MN, May 2018.
- Holt, L. L. The life and times of Randy Diehl. Diehl-a-palooza. Austin, TX, April 2018.
- Roark, C. & Holt, L. L. Reward history associated with acoustic dimensions impacts auditory category learning. 58<sup>th</sup> Annual Meeting of the Psychonomic Society, Vancouver, CA. November 2017.
- Lipski WJ, Alhourani A, Pirnia T, Jones PW, Dastolfo-Hromack C, Helou LB, Crammond DJ, Shaiman S, Dickey MW, Holt LL, Litman D, Turner RS, Fiez JA, Richardson RM. Speech encoding in the human subthalamic nucleus. Society for Neuroscience, Washington, DC. November 2017.
- Dick, F. K., Lehet, M. I., Callaghan, M. F., Keller, T. A., Sereno, M. I. & Holt, L. L. Spectrally-directed attention in human auditory cortex is topographically organized and related to myeloarchitecture. International Conference on Auditory Cortex, Banff, Canada. September, 2017.
- Holt, L. L., Mukundan, R., Kim, Na-Yeon, Christel, M., Dick, F., Shinn-Cunningham, B., Tager-Flusberg, H. Training Auditory Attention with Engaging Online Games. The 2017 Games for Change Festival, New York, July 2017.
- Holt, L. L. Using speech to listen in on auditory learning. Carnegie Mellon University, Pittsburgh, PA, April 2017.
- Burkinshaw, K., Curtin, S., & Holt, L. L. Speech sound variability and infant speech perception. 35<sup>th</sup> West Coast Conference on Formal Linguistics (WCCFL), University of Calgary, April 2017.
- Gabay, Y., & Holt, LL. (March, 2017). Online Perceptual Learning across Distorted Speech Input is Disrupted in Developmental Dyslexia. Research Workshop of the Israeli Science Foundation on Procedural and Declarative Memory, Language Acquisition, and Cognitive Processes: Developmental Trajectories and Impairments in Monolingual and Bilingual Children, Bar-Ilan, Ramat-Gan, Israel. March, 2017.
- Wu, Y. & Holt L. L. Error-driven learning in online speech perception. Association for Research in Otolaryngology, Baltimore, MD, February 2017.
- Holt, L. L. Rapid learning updates the mapping of input to auditory objects according to short-term input statistics. Association for Research in Otolaryngology, Baltimore, MD, February 2017.
- Holt, L. L. It's Always Sunny In Gainesville: Dyslexia and Probabilistic Category Learning. Auditory Cognitive Neuroscience Society, Gainesville, FL., January 2017.
- Holt, L. L. Sticking it to Vision. Auditory Cognitive Neuroscience Society, Tucson, AZ, January 2016.
- Roark, C.L. & Holt, L. L. The role of perceptual dimensions in auditory category learning. 56<sup>th</sup> Annual Meeting of the Psychonomics Society, Chicago, IL. November 2015.

Dick, F.K., Lehet, M., & Holt, L. L. Topographic representation of frequency-selective attention in human auditory cortex. Podium Presentation. Society for Neuroscience, Chicago, IL, October 2015.

Dick, F.K., Lehet, M., & Holt, L. L. Topographic representation of frequency-selective attention in human auditory cortex. Advances and Perspectives in Auditory Neuroscience, Chicago, IL, October 2015.

Roark, C.L. & Holt, L. L. Effects of extended training on an incidental auditory category learning task. Society for the Neurobiology of Language, Chicago, IL, October 2015.

Dick, F. K., Lehet, M., & Holt, L.L. Topographic representation of frequency-selective attention in human auditory cortex. Society for the Neurobiology of Language, Chicago, IL, October 2015.

Holt, L. L. & Idemaru, K. (2015). Generalization of dimension-based statistical learning: context matters. International Congress of Phonetic Sciences, Glasgow, 2015.

Liu, R. & Holt, L. L. Perceptual scaffolding of non-native speech categories through videogame-based training. 169th Meeting of the Acoustical Society of America, Pittsburgh, PA. May 2015.

Roark, C. & Holt, L. L. Rule-based and information-integration categorization during an incidental learning task. 169th Meeting of the Acoustical Society of America, Pittsburgh, PA. May 2015.

Holt, L. L., Gabay, Y., Zevin, J. D., & Dick, F. Incidental auditory category learning. 169th Meeting of the Acoustical Society of America, Pittsburgh, PA. May 2015.

Lehet, M. & Holt, L. L. Adaptation to accent affects categorization, but not basic perceptual representation. 169th Meeting of the Acoustical Society of America, Pittsburgh, PA. May 2015.

Holt, L. L. Our Tootsie Pop Problem. Auditory Cognitive Neuroscience Society, Tucson, AZ, January 2015.

Lim, S, -J., Lotto, A. J., Obleser, J., & Holt, L. L. The development of internal representations of sound categories. Society for the Neurobiology of Language, Amsterdam, August 2014.

Gabay, Y., Schiff, R., Vakil, E., & Holt, L. L. Impaired probabilistic learning mechanisms in developmental dyslexia. International Neuropsychological Society, Jerusalem, Israel 2014.

Lim, S-J., Fiez, J.A., & Holt, L. L. Investigating the role of speech-selective regions during videogame-based non-speech sound category acquisition, Society for the Neurobiology of Language, San Diego, CA, November 2013.

Lim, S-J., Holt, L. L., & Fiez, J.A. Context-dependent modulation of striatal systems during incidental auditory category learning. Society for Neuroscience, San Diego, CA, November 2013.

Lehet, M.I., Ly, M. & Holt, L. L. Short-term input regularities impact cue weighting in speech perception and production. Annual Meeting of the Psychonomic Society, Toronto, Ontario, November 2013.

Gabay, Y., Dick, F., K., Zevin, J. D., & Holt, L. L. Procedural learning of auditory categories: New evidence from an implicit measure, 20<sup>th</sup> Anniversary Meeting of the Cognitive Neuroscience Society, San Francisco, CA, April 2013.

- Lim, S.-J., Fiez, J. A., Wheeler, M. E., & Holt, L. L. Investigating the neural basis of video-game-based category learning. 20<sup>th</sup> Anniversary Meeting of the Cognitive Neuroscience Society, San Francisco, CA, April 2013.
- Holt, L. L. Learning foreign sounds in an alien world. Auditory Cognitive Neuroscience Society, Tucson, AZ, January 2013.
- Idemaru, K. & Holt, L. L. Examining Talker and Phoneme Generalization of Dimension-based Statistical Learning in Speech Perception. SST 2012, 14th Australasian International Conference on Speech Science and Technology. Sydney, Australia, December 2012.
- Reinisch, E. & Holt, L. L. Lexically guided category retuning affects low-level acoustic processing. 164th Meeting of the Acoustical Society of America, Kansas City, Missouri, October 2012.
- Reinisch, E. & Holt, L. L. Influence of lexical and acoustic context on phonetic categorization depends on listening situation. 164th Meeting of the Acoustical Society of America, Kansas City, Missouri, October 2012.
- Reinisch, E. & Holt, L. L. Listening situation modulates lexical and acoustic context effects in phonetic categorization, 2012 Psychonomic Society Annual Meeting, Minneapolis, MN, November 2012.
- Holt, L. L., Lim, S.-J., & Liu, R. Learning foreign sounds in an alien world. Invited presentation in the L2 Speech Perception in Richly Informative Environments symposium, Second Language Research Forum: Building Bridges Between Disciplines, SLA in Many Contexts, October 2012.
- Idemaru, K., Holt, L. L. & Kapatsinski, V. The time-course of dimension-based statistical learning. Architectures and Mechanisms for Language Processing. Riva del Garda, Italy, September 2012.
- Curtin, S., Holt, L., Murphy, A., Hufnagle, D.G. Comparing distributional regularities in speech directed to infants and adults. Talk delivered in the symposium on Mapping the acoustic landscape of IDS: What are its implications for learning? At the International Conference for Infant Research (ICIS), Minneapolis, Minnesota, June 2012.
- Huang, J. & Holt, L. L. Acoustic similarity influences the “phonological similarity” effect. Annual Meeting of the Psychonomic Society, Seattle, Washington, November 2011.
- Holt, L. L. Using speech to listen in on auditory processing. Annual Retreat, Center for the Neural Basis of Cognition, October 2011.
- Liu, R., Soh, H. & Holt, L. L. Cue weighting for speech categorization changes based on regularities in short-term speech input. 161st Meeting of the Acoustical Society of America, Seattle, Washington, May 2011.
- Huang, J. Holt, L. L., & Lotto, A. J. Long term average spectrum predicts accent normalization. 161st Meeting of the Acoustical Society of America, Seattle, Washington, May 2011.
- Lim, S., Holt, L. L., & Lacerda, F. Learning acoustically complex wordlike units within a videogame training paradigm. 161st Meeting of the Acoustical Society of America, Seattle, Washington, May 2011.
- Hufnagle, D. & Holt, L. L. Development of adult-like speech categorization in 3- to 5-year olds. Boston University Conference on Language Development. Boston, MA, November 2010.
- Holt, L. L. Auditory Categorization. Annual Meeting of the Auditory Cognitive Neuroscience Society, Tucson, AZ, January 2010.

Wood, T., Leech, R., Apel, T., Holt, L. L. & Dick, F. Changes in fMRI activation after naturalistic training on ringtone stimuli. Society for Neuroscience 2009 Annual Meeting, Chicago, IL, October 2009.

Guediche, S. A., Holt, L. L. & Fiez, J. A. Examining the neural basis of adaptation in speech perception without feedback. Society for Neuroscience 2009 Annual Meeting, Chicago, IL, October 2009.

Idemaru, K. & Holt, L. L. Production and Perception of English /l/ and /r/ by Native-Speaking Children. 158<sup>th</sup> Meeting of the Acoustical Society of America, San Antonio, TX, October 2009.

Huang, J., Lotto, A. J., & Holt, L. L. Effect of a Spoken Passage's Long-term Average Spectrum on Subsequent Speech Categorization. 158<sup>th</sup> Meeting of the Acoustical Society of America, San Antonio, TX, October 2009.

Lim, S. & Holt, L. L. Sensitivity to the distributional structure of auditory categories. 158<sup>th</sup> Meeting of the Acoustical Society of America, San Antonio, TX, October 2009.

Laing, E., Holt, L. L., & Bagic, A. Investigation of the Neural Bases of Context-Dependent Speech Categorization. 158<sup>th</sup> Meeting of the Acoustical Society of America, San Antonio, TX, October 2009.

Guediche, S. A., Fiez, J. A., & Holt, L. L. Perceptual learning of distorted speech with and without feedback, The Annual Meeting of the Cognitive Science Society, Amsterdam, July 2009.

Lim, S. & Holt, L. L. Investigating non-native category learning using a video-game-based training paradigm. 157<sup>th</sup> Meeting of the Acoustical Society of America, Portland, May 2009.

Idemaru, K. & Holt, L. L. Measuring sensitivity to short-term deviations in acoustic cue correlation. 157<sup>th</sup> Meeting of the Acoustical Society of America, Portland, May 2009.

Holt, L. L. The adaptive plasticity of speech perception. Annual Meeting of the Auditory Cognitive Neuroscience Society, Tucson, AZ, January 2009.

Liu, R. & Holt, L. L. Effects of short-term experience on auditory categorization: An event-related potential study. 38<sup>th</sup> Annual Meeting of the Society for Neuroscience. Washington, DC, November, 2008.

Lim, S. J. & Holt, L. L. Learning Non-Native Speech Categories with a Video Game. 49<sup>th</sup> Annual Meeting of the Psychonomic Society. Chicago, IL, November 2008.

Idemaru, K. & Holt, L. L. Re-tuning Speech Sound Categories: An Eyetracking Study. 156<sup>th</sup> Meeting of the Acoustical Society of America, Miami, FL, November, 2008.

Huang, J. & Holt, L. L. Investigating the Influence of Context Frequency on Lexical Tone Perception. 156<sup>th</sup> Meeting of the Acoustical Society of America, Miami, FL, November, 2008.

Taylor, E. Holt, L.L. and Bagic, A. A MEG study of the neural basis of context-dependent speech categorization. International Conference on Biomagnetism, BIOMAG 2008, Sapporo, Japan, August, 2008. [Young Investigator Award awarded to Ms. Taylor].

Hufnagle, D., Curtin, S., Holt, L. L. & Keisling, S. L. 6-Month Olds are More Sensitive to Variations in F1 than F2 in Vowels. Workshop on Linguistic Variation Across the Lifespan. Columbus, OH. May, 2008.

- Leech, R., Holt, L., Devlin, J. & Dick, F. Changes in functional organization following naturalistic training on complex auditory categories, 15th Annual Cognitive Neuroscience Meeting, San Francisco, CA, April, 2008.
- Hufnagle, D., Curtin, S., Holt, L. L. & Keisling, S. L. 6-Month Olds are More Sensitive to Variations in F1 than F2 in Vowels. The XVIth Conference on Infant Studies. Vancouver, Canada. March, 2008.
- Holt, L. L. Cue weighting in speech categorization. 2<sup>nd</sup> Annual Meeting of the Auditory Cognitive Science Society, Tucson, AZ, January, 2008.
- Holt, L. L. Mirror neurons, myths and the motor theory of speech perception. 2<sup>nd</sup> Annual Meeting of the Auditory Cognitive Science Society, Tucson, AZ, January, 2008.
- Holt, L. L. Determinants of auditory cue weighting and selective attention. 154<sup>th</sup> Meeting of the Acoustical Society of America, New Orleans, LA, November, 2007.
- Ingvalson, E. M., McClelland, J. M., & Holt, L. L. Years of exposure to English predicts perception and production of /r/ and /l/ by native speakers of Japanese. 48<sup>th</sup> Annual Meeting of the Psychonomics Society, Long Beach, CA, November, 2007.
- Idemaru, K. & Holt, L. L. Relational timing or absolute duration? Cue weighting in the perception of Japanese singleton-geminate stops. International Congress of Phonetic Sciences 2007, Saarbrücken, Germany, August, 2007.
- Holt, L. L. Speech perception cognition. Inaugural Meeting of the Auditory Cognitive Neuroscience Society, January, 2007.
- Smith, E. and Holt, L. A theoretical model of cochlear processing improves simulated cochlear implant hearing. Computational and Systems Neuroscience, Salt Lake City, UT, 2006
- Holt, L. L. Speech as a window to the auditory system. Center for the Neural Basis of Cognition Retreat, October, 2006.
- Stephens, J. D. W., & Holt, L. L. Experience-driven effects of visual cues in speech perception. 151<sup>st</sup> Meeting of the Acoustical Society of America, Providence, Rhode Island, June 2006.
- Smith, E. C. & Holt, L. L. A theoretical model of cochlear processing improves spectrally degraded speech perception. 151<sup>st</sup> Meeting of the Acoustical Society of America, Providence, Rhode Island, June 2006.
- Stephens, J.D.W., & Holt, L.L. Learned cross-modal integration of novel visual cues with auditory speech (poster). 46th Meeting of the Psychonomic Society, Toronto, ON, November 2005.
- Ingvalson, E., Holt, L. L., & McClelland, J. L. Can F3 be used to teach Japanese adults /r/ and /l/? Cognitive Science Society, Stressa, Italy, August, 2005.
- Holt, L. L. Formation and tuning of auditory and speech categories. Invited address McGill University, Montreal, Quebec, June 2005.
- Hay, J., Holt, L. L., Lotto, A. J., & Diehl, R. L. How auditory discontinuities and linguistic experience affect the perception of speech and non-speech in English- and Spanish-speaking listeners. 149<sup>th</sup> Meeting of the Acoustical Society of America, Vancouver, BC, May 2005.

- Holt, L. L. & Wade, T. Categorization of spectrally complex non-invariant auditory stimuli in a computer game task. 149<sup>th</sup> Meeting of the Acoustical Society of America, Vancouver, BC, May 2005.
- Wade, T. & Holt, L. L. Perception of coarticulated speech with contrastively enhanced spectrotemporal patterns. 149<sup>th</sup> Meeting of the Acoustical Society of America, Vancouver, BC, May 2005.
- Holt, L. L. & Wade, T. Incidental categorization of spectrally complex non-invariant auditory stimuli in a computer game task. Annual Meeting of the Cognitive Neuroscience Society, New York, NY, April 2005.
- Stephens, J. D. W. & Holt, L. L. Experience-driven audio-visual integration in speech perception. Annual Meeting of the Cognitive Neuroscience Society, New York, NY, April 2005.
- Wade, T. & Holt, L. L. Incidental complex auditory category learning in a computer game task. 28<sup>th</sup> Annual Midwinter Meeting of the Association for Research in Otolaryngology, New Orleans, LA, February, 2005.
- Holt, L. L. & Lotto, A. J. Factors affecting perceptual weighting of acoustic cues in a categorization task. 28<sup>th</sup> Annual Midwinter Meeting of the Association for Research in Otolaryngology, New Orleans, LA, February, 2005.
- Stephens, J. D. W., & Holt, L. L. Learning to integrate auditory and visual information in speech perception. 45<sup>th</sup> Annual Meeting of the Psychonomic Society, Minneapolis, MN, November, 2004.
- Holt, L. L. & Lotto, A. J. Auditory categorization: cue weighting and dimension bias. 148<sup>th</sup> Meeting of the Acoustical Society of America, San Diego, CA, November, 2004.
- Wade, T. & Holt, L. L. Contrastive backward effects of non-speech tones on speech perception. 148<sup>th</sup> Meeting of the Acoustical Society of America, San Diego, CA, November, 2004.
- Mirman, D., McClelland, J. M., & Holt, L. L. Attentional modulation of lexical effects in an interactive model of speech perception. 26<sup>th</sup> Annual Meeting of the Cognitive Science Society, Chicago, IL, August, 2004.
- Wade, T. & Holt, L. L. Perceptual effects of preceding non-speech rate information on temporal properties of speech categories. 147<sup>th</sup> Meeting of the Acoustical Society of America, New York, NY, May 2004.
- Holt, L. L. & Wade, T. Perception of correlations between acoustic cues in category tuning and speaker adaptation. 147<sup>th</sup> Meeting of the Acoustical Society of America, New York, NY, May 2004.
- Holt, L. L. and Lotto, A. J. Temporally non-adjacent acoustic histories shift identification of speech. Mid-Winter Meeting of the Association for Research in Otolaryngology, Daytona Beach, Florida, February 2004.
- Holt, L. L. Context effects in speech perception: The long and the short of it. Invited colloquium, University of Stockholm, Department of Linguistics, February 2004.
- Holt, L. L. What are the 'statistics' in statistical learning? 146<sup>th</sup> Meeting of the Acoustical Society of America, Austin, TX, November 2003.
- Ingvalson, E. M., Holt, L. L. & McClelland, J. M. Generalization in Japanese /r/ - /l/ perception: Shining a light on the right cue. 44<sup>th</sup> Annual Meeting of the Psychonomic Society, Vancouver, BC, November 2003.

Holt, L. L., Lotto, A. J., & Diehl, R. L. Perceptual discontinuities and categorization: Implications for speech perception. 145<sup>th</sup> Meeting of the Acoustical Society of America, Nashville, TN, April, 2003.

McClelland, J. L., Mirman, D. & Holt, Lori L. Is there still a trace of TRACE? 145<sup>th</sup> Meeting of the Acoustical Society of America, Nashville, TN, April, 2003. (invited contribution)

Holt, L. L., Lotto, A. J., Diehl, R. L. Perceptual discontinuities and categorization: Implications for speech perception. 10<sup>th</sup> Annual Meeting of the Cognitive Neuroscience Society. NY, NY, March, 2003.

Stephens, J. D. & Holt, L. L. Are context effects in speech perception modulated by visual information? 43<sup>rd</sup> Annual Meeting of the Psychonomic Society, Kansas City, MO, November, 2002.

Lotto, A. J. & Holt, L. L. Speech perception as a paradigmatic case of auditory cognition. 1<sup>st</sup> Annual Auditory Perception, Cognition, and Action Meeting, Kansas City, MO, November, 2002.

Holt, L. L. Speech perception as complex auditory categorization. 143<sup>rd</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA, June, 2002.

Mirman, D., Holt, L. L., McClelland, J. L. Formation of categories for complex novel auditory stimuli. 143<sup>rd</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA, June, 2002.

Stephens, J. D., & Holt, L. L. Effect of preceding speech on nonspeech sound perception. 143<sup>rd</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA, June, 2002.

Lotto, A. J., & Holt, L. L. Respective roles of spectral and phonemic representations in phonetic context effects. 13<sup>th</sup> Annual Meeting of the American Psychological Society, Toronto, CA, June 2001.

Holt, L. L., & Lotto, A. J. Auditory context effects for nonequivalent sources. 141<sup>st</sup> Meeting of the Acoustical Society of America, Chicago, IL, June, 2001.

Lotto, A. J. & Holt, L. L. Experimental paradigm for examining the formation of complex auditory categories. 141<sup>st</sup> Meeting of the Acoustical Society of America, Chicago, IL, June, 2001.

Holt, L. L. Listening to the animals: What nonhumans can tell us about speech perception. Language Technologies Institute, Department of Computer Science, Carnegie Mellon University, April 2001.

Holt, L. L. & Lotto, A. J. Perceptual context effects in speech perception. Cognitive Neuroscience Society, New York, NY, March 2001.

Holt, L. L., Ventura, V., Rhode, W. R., Behesta, S., & Rinaldo, A. Context-dependent neural coding in the chinchilla cochlear nucleus. 140<sup>th</sup> Meeting of the Acoustical Society of America, Newport Beach, CA, December, 2000.

Holt, L. L. & Rhode, W. S. Examining context-dependent speech perception in the chinchilla cochlear nucleus. 23<sup>rd</sup> Midwinter Meeting of the Association for Research in Otolaryngology, February 22, 2000.

Holt, L. L., Lotto, A. J., & Kluender, K. R. Influence of fundamental frequency on stop-consonant voicing perception: A case of learned covariation or auditory enhancement? 138<sup>th</sup> Meeting of the Acoustical Society of America, Columbus, OH, November 4, 1999.

- Lotto, A. J., Holt, L. L., & Kluender, K. R. Structure of phonetic categories produced by general learning mechanisms, 138<sup>th</sup> Meeting of the Acoustical Society of America, Columbus, OH, November 4, 1999.
- Holt, L.L. & Lotto, A. J. Simultaneous detection and identification of vowels: A case of unconscious perception? 71st Meeting of the Midwestern Psychological Association, Chicago, IL, April 29, 1999.
- Lotto, A. J. & Holt, L. L. The illusion of the phoneme. Special Phonetics Panel (ChiPhon) of 35th Conference of the Chicago Linguistic Society, University of Chicago, April 23, 1999.
- Holt, L. L., Lotto, A. J., & Kluender, K. R. Spectral contrast in the perception of VCV syllables. 136<sup>th</sup> Meeting of the Acoustical Society of America, Norfolk, Virginia, October 13, 1998.
- Kluender, K. R., Lotto, A. J., & Holt, L. L. Contributions of general auditory processes to perceptual accommodation of coarticulation. Institute of Linguistics, Stockholm University, Stockholm, Sweden, March, 1998, Invited colloquium.
- Holt, L. L. Animal models of speech-sound acquisition. Address to the Department of Psychology, University of Wisconsin, February, 1998.
- Holt, L. L., Kluender, K. R., & Lotto, A. J. Discrimination of single-formant stimuli by chinchillas (*Chinchilla villidera*). 134<sup>th</sup> Meeting of the Acoustical Society of America, San Diego, California, December, 1997.
- Lotto, A. J., Holt, L. L., & Kluender, K. R. Perceptual magnet effect as categorical perception. 134<sup>th</sup> Meeting of the Acoustical Society of America, San Diego, California, December, 1997.
- Holt, L. L. Context dependencies in perception. Invited address to the Department of Mechanical Engineering, University of Wisconsin, Robotics Research Seminar, June, 1997.
- Lotto, A. J., Kluender, K. R., & Holt, L. L. Animal models of speech perception phenomena. Chicago Linguistics Society, Chicago, Illinois, April, 1997.
- Holt, L. L. Does perceptual contrast neutralize coarticulatory assimilation? Address to the Department of Neurophysiology, University of Wisconsin, April, 1997.
- Lotto, A. J., Kluender, K. R., & Holt, L. L. Context effects in speech perception by Japanese quail (*Coturnix japonica*). 20<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology (ARO), St. Petersburg Beach, Florida, February, 1997.
- Lotto, A. J., Holt, L. L., & Kluender, K. R. General auditory processes may accommodate kinematic consequences of speech coarticulation. European Speech Communication Association Research Workshop on "The Auditory Basis of Speech Perception", Keele University, United Kingdom, July, 1996.
- Kluender, K. R., Lotto, A. J., & Holt, L. L. Effects of language experience in perceptual organization for vowel sounds as inferred from human, nonhuman, and computational models. European Speech Communication Association Research Workshop on "The Auditory Basis of Speech Perception", Keele University, United Kingdom, July, 1996.
- Lotto, A. J., Kluender, K. R., & Holt, L. L. Effects of language experience on perceptual organization of vowel sounds. Fifth Conference on Laboratory Phonology, Evanston, Illinois, July, 1996.

Lotto, A. J., & Holt, L. L. Auditory illusions and parlor tricks. Address to Department of Neurophysiology, University of Wisconsin, June, 1996.

Holt, L. L., Lotto, A. J., & Kluender, K. R. Perceptual compensation for vowel undershoot may be explained by general perceptual principles. 131<sup>st</sup> Meeting of the Acoustical Society of America, Indianapolis, Indiana, May, 1996.

Holt, L. L. Breathy female voice quality: Desirability or intelligibility? Address to Department of Psychology, University of Wisconsin, March, 1996.

Lotto, A. J., Kluender, K. R., & Holt, L. L. Animal and computational models of development of graded vowel categories. 130<sup>th</sup> Meeting of the Acoustical Society of America, St. Louis, Missouri, November, 1995.

Kluender, K. R., Lotto, A. J., & Holt, L. L. Effect of voice quality on the tense/lax distinction for English vowels. XIII<sup>th</sup> International Congress of Phonetic Sciences, Stockholm, Sweden, August, 1995, invited address.

Lotto, A. J., Kluender, K. R., & Holt, L. L. Spectral discontinuities and the vowel length effect. 128<sup>th</sup> Meeting of the Acoustical Society of America, Austin, Texas, November, 1994.

Holt, L. L., Lotto, A. J., & Kluender, K. R. Effect of voice quality on the tense/lax distinction for English vowels. 128<sup>th</sup> Meeting of the Acoustical Society of America, Austin, Texas, November, 1994.

## TRAINING

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## TEACHING

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### Carnegie Mellon University

Expertise: The cognitive (neuro)science of learning almost any skill

Spring '22

Music & Mind: The Cognitive Neuroscience of Sound

Spring '07; Fall '09; Spring '12, '15

The Discovery of Spoken Language

Spring '01-'03

Biological Foundations of Behavior

Fall '99-'06; '10-'11, '14, '16-'22; Spring '20-'21

The Psychology and Neuroscience of Everyday Life

Spring '17-'18

## MENTORING

**Reviewer Zero**, Volunteer Reviewer/Mentor

2021-present

Reimagining peer review to grow a diverse new generation of scholars in psychology and neuroscience, [reviewerzero.net](http://reviewerzero.net)

**Undergraduate Research Mentor**

80+ students supervised in independent research.

1999- present

**Co-Director, Behavioral-Brain (B2) PhD Training Program**

2007-2023

NIH-T32-supported, the goal of B2 is to cultivate the next generation of researchers who can skillfully integrate behavior and brain research.

**Doctoral Mentor**

Dan Mirman (co-advisor with Jay McClelland) Ph.D. 2005  
*Senior Lecturer, University of Edinburgh*

Joseph (Beau) D. W. Stephens Ph.D. 2006  
*Professor, Xavier University*

Erin Ingvalson (co-advisor with Jay McClelland) Ph.D. 2008  
*Associate Professor, University of Washington*

Erika Laing M.S. 2010  
*Project Scientist, CMU, Machine Learning Department*

Jingyuan Huang Ph.D. 2012  
*User Experience Researcher at Google*

Sung-joo Lim Ph.D. 2013  
*Assistant Professor, SUNY Binghamton*

Ran Liu Ph.D. 2014  
*VP & Chief AI Scientist at Amira Learning*

Matt Lehet Ph.D. 2017  
*Assistant Professor, Chatham University*

Casey Roark Ph.D. 2019  
*Assistant Professor, University of New Hampshire*

Charles Wu Ph.D. 2020  
*Data Scientist, Split*

Tim Murphy, Ph.D. Student Ph.D. 2024  
*Postdoctoral Researcher, University of Wisconsin-Madison*

Hui Zhang, Ph.D. Student Visitor Ph.D. 2022  
*Shanghai Jiao Tong University &  
City University of Hong Kong*

Austin Luor, Ph.D. Student Ph.D. 2024  
*Exponent, Human Factors Scientist*

Chisom Obasih, Ph.D. Student (rotation) Est. 2025

Alana Hodson, Ph.D. Student (rotation) Est. 2026

Jenah Black, Ph.D. Student (rotation) Est. 2027

Sunreeta Bhattacharya, Ph.D. Student (rotation) Est. 2027

Kyle Huffaker (University of Indiana) Est. 2030

**Dissertation Committee Member**

Evan Smith (Vivienne Ming), CMU Psychology Ph.D. 2006

Brent Vander Wyk, CMU Psychology Ph.D. 2007

Christine Watson, CMU Psychology Ph.D. 2009

Sara Guediche, CNUP	Ph.D. 2009
Alyx Kronstein, CMU Psychology	M.A. 2010
Chris Paynter, CMU Psychology	Ph.D. 2014
Caitlin Moyer, CNUP	Ph.D. 2013
Lindsay Victoria, CMU Psychology	Ph.D. 2012
Lucy Erickson, CMU Psychology	Ph.D. 2015
Xiaonan Liu, CMU Psychology	Ph.D. 2014
Sandrine Girard, CMU Psychology	Ph.D. 2019
Pithculee Uayporn, University of Pittsburgh	Ph.D. 2020
Jasmine Kwasa, CMU Electrical & Computer Engineering	Ph.D. 2021
Emily Bond, CMU Psychology	Ph.D. 2022
Matthew Boring, Center for Neuroscience, U Pittsburgh	Ph.D. 2021
Winko An, CMU Electrical & Computer Engineering	Ph.D. 2022
Raouf Belkhir, CMU Psychology	Est. 2024
Jack Burgess, Program in Neural Computation	Est. 2025
Emily Duricy, Center for Neuroscience, U Pittsburgh	Est. 2025
Jessica Alexander, Linguistics, UT	
Shelby Bruun, Spanish & Portuguese, UT	
Rajvi Agravat, Speech, Language and Hearing Science, UT	
Liron Shlesinger, Linguistics, UT	
Tegan Esme Esther, Linguistics, UT	

#### **Outside Examiner, Ph.D. Students**

Efe Soyman (Dr. David Vicario, Committee Chair)	2017, Rutgers University
David Kleinschmidt (Dr. Florian Jaeger, Committee Chair)	2016, University of Rochester
Maria Kondaurova (Dr. Alex Francis, Committee Chair)	2008, Purdue University
Michelle Farmerie (Dr. Bill Langbauer, Committee Chair)	2008, George Washington University
Audny Dypvik (Dr. Suzanne Curtin, Committee Chair)	2007, University of Calgary
Letty Ho (Dr. Howard Nusbaum, Committee Chair)	2025, University of Chicago

#### **Post-doctoral Mentor**

Dr. Travis Wade <i>Scientist, Posit Science</i>	2003-2005
Dr. Kaori Idemaru <i>Professor, University of Oregon</i>	2006-2008
Dr. Daniel Hufnagle <i>Hufnagle Solutions, Inc.</i>	2008-2012
Dr. David Wozny <i>Principal Enterprise Architect, Cook MyoSite</i>	2011-2012
Dr. Eva Reinisch <i>Research Group Leader, Austrian Academy of Sciences</i>	2011-2012
Dr. Yafit Gabay	2012-2014

<i>Associate Professor (tenured), University of Haifa</i>	2015-2016
Dr. Julia Zhang <i>UX Researcher, Google</i>	2017-2019
Dr. Neeraj Sharma <i>Assistant Professor, School of Data Science &amp; Artificial Intelligence, IIT, Guwahati (India)</i>	2018-2022
Dr. Mishaela DiNino <i>Assistant Professor, University of Buffalo Communication Sciences</i>	2021-2023
Dr. Vibha Viswanathan <i>Special Faculty in the Neuroscience Institute, Carnegie Mellon University</i>	2023-2025
Dr. Craig Thorburn <i>Assistant Professor of Instruction, University of Chicago, Department of Linguistics</i>	2021-2024
Dr. Sahil Luthra <i>Assistant Professor, Stony Brook University</i>	2023-2024
Dr. Franziska Bröcker <i>Max Planck Institute, Work and Leadership Culture Coordinator</i>	2024-2025
Dr. Alexandria Vail <i>Postdoctoral Researcher, Carnegie Mellon University</i>	2024-2025
Dr. Austin Luor <i>Human Factors Scientist, Exponent</i>	2026- 2025-
Dr. Kaho Magami	2018-2023
Dr. Diego Macauliffe-Cabello	2020-2023
<b>Early Career Faculty Mentoring</b>	2015-2023
Seth Wiener, Modern Languages, Carnegie Mellon	Active
Katherine Burns, Modern Languages, Carnegie Mellon	
Tim Verstynen, Psychology, Carnegie Mellon	
Taylor Abel, Neurosurgery, University of Pittsburgh	