

SAHIL LUTHRA, PH.D.
Department of Psychology, Carnegie Mellon University
5000 Forbes Avenue, Pittsburgh, PA 15213
sahilluthra@cmu.edu | sahilluthra.net | he/him

EDUCATION	Ph.D., Psychological Sciences (Language and Cognition) 2021 University of Connecticut; Advisors: Jim Magnuson, Emily Myers <i>Dissertation:</i> Neural mechanisms underlying talker-specific influences on speech perception
	M.S., Psychological Sciences (Language and Cognition) 2019 University of Connecticut; Advisors: Jim Magnuson, Emily Myers <i>Thesis:</i> The influence of sentence context on phonetic recalibration
	B.S. with Honors, Cognitive Neuroscience 2014 Brown University; Advisor: Sheila Blumstein <i>Thesis:</i> Speaker information in spoken word recognition: An investigation using false memories
ACADEMIC EMPLOYMENT	Postdoctoral Researcher, Carnegie Mellon University 2021-Present Supervisors: Lori Holt (U. of Texas at Austin), Fred Dick (University College London), Barbara Shinn-Cunningham (Carnegie Mellon University)
	Research Assistant, Brown University 2014-2016 Supervisors: Emily Myers (U. of Connecticut), Sheila Blumstein
	Research Assistant, Boston University 2013 Supervisor: Swathi Kiran
EXTERNAL FUNDING	NIH NRSA 1F32DC020625 2023-2025 <i>Mechanisms of auditory selective attention for speech and non-speech stimuli</i>
	NSF Graduate Research Fellowship 2018-2021
HONORS AND AWARDS	Abstract Merit Award Honorable Mention (Soc. for Neurobio. of Lang.) 2022
	Dissertation Prize (Society for Neurobiology of Language) 2021
	Diversity and Inclusion Award (Cognitive Science Society) 2021
	Isabelle Y. Liberman Award (University of Connecticut) 2020
	Graduate Certificate, Neurobiology of Language (U. of Connecticut) 2019
	NSF Research Traineeship: Science of Learning & Art of Communication 2018-2021
	Jorgensen Scholarship (University of Connecticut) 2018-2021
	NSF IGERT Fellowship: Language Plasticity 2016-2018
	Premium for Excellence in Cognitive Neuroscience (Brown University) 2014
	Royce Fellowship (Brown University) 2012
	August P. Reccord Scholarship (Brown University) 2010-2014
	Eagle Scout Scholarship (Frank Livermore Trust) 2010-2014
	National Merit Scholarship 2010

Luthra, S., Crinnion, A. M., Saltzman, D., & Magnuson, J. S. (in press). [Do they know it's Christmash? Lexical knowledge directly impacts speech perception](#). *Cognitive Science*. [OSF]

Crinnion, A. M., **Luthra, S.**, Gaston, P., & Magnuson, J. S. (2024). [Resolving competing predictions in speech: How qualitatively different cues and cue reliability contribute to phoneme identification](#). *Attention, Perception, & Psychophysics*. [OSF]

Magnuson, J. S., Grubb, S., Crinnion, A. M., **Luthra, S.**, & Gaston, P. (2024). [Contra assertions, feedback improves word recognition: How feedback and lateral inhibition sharpen signals over noise](#). *Cognition*, 242, 105661.

Luthra, S. (2024). [Why are listeners hindered by talker variability?](#) *Psychonomic Bulletin & Review*, 31(1), 104-121.

Obasih, C. O., **Luthra, S.**, Dick, F., & Holt, L. L. (2023). [Auditory category learning is robust across training regimes](#). *Cognition*, 237, 105467. [OSF] [Gorilla materials]

Luthra, S., Mechtenberg, H., Giorio, C., Theodore, R. M., Magnuson, J. S., & Myers, E. B. (2023). [Using TMS to evaluate a causal role for right posterior temporal cortex in talker-specific phonetic processing](#). *Brain & Language*, 240, 105264. [Supplementary materials] [Video summary] [OSF]

Luthra, S., Magnuson, J. S., & Myers, E. B. (2023). [Right posterior temporal cortex supports integration of phonetic and talker information](#). *Neurobiology of Language*, 4(1), 145-177. [Video summary] [OSF]

Heffner, C. C., Fuhrmeister, P., **Luthra, S.**, Mechtenberg, H., Saltzman, D., & Myers, E. B. (2022). [Reliability for perceptual flexibility in speech: Identification, learning, and adaptation](#). *Brain and Language*, 226, 1-11.

Saltzman, D., **Luthra, S.**, Myers, E. B., & Magnuson, J. S. (2021). [Attention, task demands, and multi-talker processing costs in speech perception](#). *Journal of Experimental Psychology: Human Perception and Performance*, 47(12), 1673-1680. [Video summary] [GitHub]

Luthra, S., Saltzman, D., Myers, E. B., & Magnuson, J. S. (2021). [Listener expectations and the perceptual accommodation of talker variability: A pre-registered replication](#). *Attention, Perception, & Psychophysics*, 83(6), 2367-2376. [GitHub]

Luthra, S., Li, M. Y. C., You, H., Brodbeck, C., & Magnuson, J. S. (2021). [Does signal reduction imply predictive coding in models of spoken word recognition?](#) *Psychonomic Bulletin & Review*, 28(4), 1381-1389. [Supplementary materials] [Poster presentation] [GitHub]

Luthra, S., Peraza-Santiago, G., Beeson, K., Saltzman, D., Crinnion, A. M., & Magnuson, J. S. (2021). [Robust lexically-mediated compensation for coarticulation: Christmash time is here again](#). *Cognitive Science*, 45(4), 1-20. [Video summary] [OSF preregistration] [GitHub]

Luthra, S., Mechtenberg, H., & Myers, E. B. (2021). [Perceptual learning of multiple talkers requires additional exposure](#). *Attention, Perception, & Psychophysics*, 83(5), 2217-2228. [Video summary] [OSF repository]

Luthra, S. (2021). [The role of the right hemisphere in processing phonetic variability between talkers](#). *Neurobiology of Language*, 2(1), 138-151.

Luthra, S., Magnuson, J. S. & Myers, E. B. (2021). [Boosting lexical support does not enhance lexically guided perceptual learning](#). *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 47(4), 685-704. [[Poster presentation](#)] [[OSF repository](#)]

Luthra, S., You, H., Rueckl, J. G., & Magnuson, J. S. (2020). [Friends in low-entropy places: Orthographic neighbor effects on visual word identification differ across letter positions](#). *Cognitive Science*, 44(12), 1-31. [[Poster presentation](#)] [[GitHub](#)]

Luthra, S., Correia, J. M., Kleinschmidt, D. F., Mesite, L. & Myers, E. B. (2020). [Lexical information guides retuning of neural patterns in perceptual learning for speech](#). *Journal of Cognitive Neuroscience*, 32(10), 2001-2012. [[Poster presentation](#)] [[OSF repository](#)]

Magnuson, J.S., You, H., **Luthra, S.**, Li, M. Y. C., Nam, H., Escabí, M., Brown, K., Allopenna, P.D., Theodore, R.M., Monto, N., & Rueckl, J.G. (2020). [EARSHOT: A minimal neural network model of incremental human speech recognition](#). *Cognitive Science*, 44(4), 1-17. [[Supplementary materials](#)] [[Poster presentation](#)] [[GitHub](#)]

Luthra, S., Fuhrmeister, P., Molfese, P. J., Guediche, S., Blumstein, S. E., & Myers, E. B. (2019). [Brain-behavior relationships in incidental learning of non-native phonetic categories](#). *Brain & Language*, 198. [[Poster presentation](#)]

Luthra, S., Guediche, S., Blumstein, S. E., & Myers, E. B. (2019). [Neural substrates of subphonemic variation and lexical competition in spoken word recognition](#). *Language, Cognition and Neuroscience*, 34(2), 151-169. [[Supplementary materials](#)] [[Poster presentation](#)]

Luthra, S., Fox, N. P., & Blumstein, S. E. (2018). [Speaker information affects false recognition of unstudied lexical-semantic associates](#). *Attention, Perception & Psychophysics*, 80(4), 894-912. [[Poster presentation](#)] [[OSF Repository](#)]

Magnuson, J. S., Mirman, D., **Luthra, S.**, Strauss, T., & Harris, H. D. (2018). [Interaction in spoken word recognition models: Feedback helps](#). *Frontiers in Psychology*, 9, 1-18.

Theodore, R. M., Blumstein, S. E., & **Luthra, S.** (2015). [Attention modulates specificity effects in spoken word recognition: Challenges to the time-course hypothesis](#). *Attention, Perception & Psychophysics*, 77(5), 1674-1684.

Magnuson, J. S., & Luthra, S. Simple Recurrent Networks are interactive. Under review.

Magnuson, J. S., Saltzman, D., Crinnion, A. M., **Luthra, S.**, Grubb, S., Peraza-Santiago, G., Dalal, P., & Xie, B. Effects of neighbors, onset cohorts, concreteness, and time on spoken word recognition. In revision.

MANUSCRIPTS
IN PROGRESS

**CONFERENCE
PRESENTATIONS**

** = equal
contributions*

Luthra, S. & Holt, L. L. Separable effects of speech input statistics on phonetic and talker processing. Poster presentation at Psychonomic Society, 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 Advances and Perspectives in Auditory Neuroscience, Washington, D.C., 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.

Dick, F., Luor, A.*, **Luthra, S.***, & Holt, L. L. Statistical learning across task-irrelevant acoustic dimensions. 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 Society for Neurobiology of Language, Marseille, France, October 2023.

Magnuson, J. S., Saltzman, D., Luthra, S., Crinnion, A. M., Grubb, S., Peraza-Santiago, G., Dalal, P., Daniel, J., & Xie, B. Neighbors (and other factors) — but not cohorts — predict spoken word recognition performance in decision tasks. Poster presentation at Conference of the European Society for Cognitive Psychology, Porto, Portugal, September 2023.

Luthra, S., Obasih, C. O., Tierney, A. T., Dick, F., & Holt, L. L. Using frequency selectivity to examine category-informative dimension-selective attention. Oral presentation at Association for Research in Otolaryngology, Orlando, FL, February 2022.

Luor, A.*, **Luthra, S.***, Shinn-Cunningham, B. G., Tierney, A. T., Dick, F., & Holt, L. L. Statistical regularities across task-irrelevant dimensions impact auditory decisions. Oral presentation at Association for Research in Otolaryngology, Orlando, FL, February 2022.

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

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

Luthra, S., 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, Philadelphia, PA, October 2022.

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

Luor, A.*, **Luthra, S.***, Shinn-Cunningham, B. G., Tierney, A. T., Dick, F., & Holt, L. L. The global and transitional probability of task-irrelevant dimensions impact behavior. Oral

presentation at TEX2022: Bringing together Predictive Processes and Statistical Learning, Trieste, Italy, July 2022.

Magnuson, J. S., Grubb, S., Crinnion, A. M., **Luthra, S.**, & Gaston, P. How feedback in interactive activation improves perception. Oral presentation at Cognitive Science Society, Toronto, Ontario, Canada, July 2022.

Crinnion, A. M., **Luthra, S.**, Gaston, P., & Magnuson, J. S. Resolving competing predictions in speech perception. Oral presentation at Psychonomic Society, Virtual Conference, November 2021.

Mechtenberg, H., **Luthra, S.**, & Myers, E. B. Cents and Shensibility: The role of reward in talker-specific phonetic recalibration. Poster presentation at Psychonomic Society, Virtual Conference, November 2021.

Luthra, S. A right hemisphere role in talker-specific phonetic processing. Dissertation award lecture presented at Society for Neurobiology of Language, Virtual Conference, October 2021.

Luthra, S., Magnuson, J. S., & Myers, E. B. Right posterior temporal cortex supports integration of phonetic and talker information. Poster presentation at Society for Neurobiology of Language, Virtual Conference, October 2021.

Luthra, S., Mechtenberg, H., Giorio, C., Theodore, R. M., Magnuson, J. S., & Myers, E. B. Using TMS to evaluate a causal role for right posterior temporal cortex in talker-specific phonetic processing. Poster presentation at Society for Neurobiology of Language, Virtual Conference, October 2021.

Luthra, S., Rueckl, J. S., & Magnuson, J. S. A computational investigation of the transformation from talker-specific detail to talker-invariant lexical representations. Poster presentation at Society for Neurobiology of Language, Virtual Conference, October 2021.

Brodbeck, C., **Luthra, S.**, Gaston, P., & Magnuson, J. S. Discovering computational principles in models and brains. Poster presentation at Cognitive Science Society, Vienna, Austria (In-Person/Virtual Hybrid), July 2021.

Luthra, S., Peraza-Santiago, G., Saltzman, D., Crinnion, A. M., & Magnuson, J. S. Lexically-mediated compensation for coarticulation in older adults. Oral presentation at Cognitive Science Society, Vienna, Austria (In-Person/Virtual Hybrid), July 2021.

Luthra, S., Mechtenberg, H., & Myers, E. B. Perceptual learning of multiple talkers requires additional exposure. Poster presentation at Psychonomic Society, Virtual Conference, November 2020.

Peraza-Santiago, G., Beeson, K., **Luthra, S.**, Saltzman, D., Crinnion, A. M., & Magnuson, J. S. Robust lexically-mediated compensation for coarticulation (LCfC) supports feedback in spoken word recognition. Poster presentation at Psychonomic Society, Virtual Conference, November 2020.

Grubb, S., Dalal, P., Daniel, J., Peraza-Santiago, G., **Luthra, S.**, Saltzman, D., Xie, B., Crinnion, A.M., & Magnuson, J. S. Talkers, time, tasks, and similarity in spoken word recognition. Poster presentation at Psychonomic Society, Virtual Conference, November 2020.

Saltzman, D., **Luthra, S.**, Myers, E. B., & Magnuson, J. S. Multi-talker processing costs in monitoring reflect task demands, not normalization. Poster presentation at Psychonomic Society, Virtual Conference, November 2020.

Luthra, S., Steiner, R. J., Magnuson, J. S., & Myers, E. B. The influence of sentence context on lexically guided perceptual learning. Poster presentation at Psychonomic Society, Montréal, QC, November 2019.

Luthra, S., Correia, J. M., Kleinschmidt, D. F., Mesite, L. & Myers, E. B. Lexical information guides retuning of neural patterns in perceptual learning of speech. Poster presentation at Society for Neurobiology of Language, Helsinki, Finland, August 2019.

Magnuson, J. S., You, H. Rueckl, J., Allopenna, P. D., Li, M. Y. C., **Luthra, S.**, Steiner, R. J., Escabí, M., Brown, K., Theodore, R. M., & Monto, N. Poster presentation at EARSHOT: Emulating Auditory Recognition of Speech by Humans Over Time. Society for Neurobiology of Language, Helsinki, Finland, August 2019.

Magnuson, J. S., You, H. Rueckl, J., Allopenna, P. D., Li, M. Y. C., **Luthra, S.**, Steiner, R. J., Escabí, M., Brown, K., Theodore, R. M., & Monto, N. EARSHOT: A minimal model of human speech recognition (HSR) that operates on real speech. Poster presentation at Cognitive Science Society, Montréal, QC, July 2019.

Magnuson, J. S., Li, M. Y. C., **Luthra, S.**, You, H., & Steiner, R. J. Does predictive processing imply predictive coding in models of spoken word recognition? Oral presentation at Cognitive Science Society, Montréal, QC, July 2019.

Luthra, S., You, H., & Magnuson, J. S. Orthographic neighbor effects on visual word identification differ across letter positions. Poster presentation at Psychonomic Society, New Orleans, LA, November 2018.

Li, M. Y. C., You, H., **Luthra, S.**, Steiner, R. J., & Magnuson, J. S. Predictive processing in computational models of spoken word recognition. Poster presentation at Psychonomic Society. New Orleans, LA, November 2018.

Luthra, S., & Magnuson, J. S. Friends in low-entropy places: Letter position influences orthographic neighbor effects in visual word identification. Poster presentation at Cognitive Science Society, Madison, WI, July 2018.

Magnuson, J. S., Li, M. Y. C., You, H., **Luthra, S.**, & Steiner, R. J. Predictive processing in computational models of spoken word recognition. Oral presentation at Workshop on Predictive Processing. Donostia-San Sebastián, Spain, June 2018.

Luthra, S., Fuhrmeister, P., Molfese, P. J., Guediche, S., Blumstein, S. E., & Myers, E. B. Brain-behavior relationships in implicit learning of non-native phonetic categories. Poster presentation at Society for Neurobiology of Language. Baltimore, MD, November 2017.

Luthra, S., & Magnuson, J. S. Cumulative response probabilities: Estimating time course of lexical activation from single-point response times. Poster presentation at Cognitive Science Society, London, UK, July 2017.

Luthra, S., Fuhrmeister, P., Guediche, S., Blumstein, S. E., & Myers, E. B. Neural correlates of task-irrelevant perceptual learning of non-native speech sounds. Poster presentation at Psychonomic Society. Boston, MA, November 2016.

TEACHING EXPERIENCE	Luthra, S., Guediche, S., Blumstein, S. E., & Myers, E. B. Effects of phonetic category structure on brain activity during word recognition. Poster presentation at Society for Neurobiology of Language. London, UK, August 2016.	
	Luthra, S., Fox, N. P., & Blumstein, S. E. Speaker information affects false recognition of unstudied lexical-semantic associates. Poster presentation at Society for Neurobiology of Language. Chicago, IL, October 2015.	
	Myers, E. B., Theodore, R. M., & Luthra, S. Neural encoding of talker-specific phonetic variation. Poster presentation at Society for Neurobiology of Language. Chicago, IL, October 2015.	
	Instructor of Record	
	PSYC 3500: Psychology of Language	Fall 2019
	Guest Lectures	
	PSYC 2501: Cognitive Psychology	October 2017
	SLHS 3247: Introduction to Phonetic Principles	December 2016
	Community Presentations	
	The Science of Language (Noyes Elementary School, MA)	November 2023
INVITED TALKS	Behind the Scenes: fMRI (Language Science Station, DC)	June 2023
	The Science of Language (Noyes Elementary School, MA)	November 2022
	The Science of Language (Haynes Elementary School, MA)	May 2020
	Cognitive Neuroscience (Central High School, RI)	February 2016
	Workshop Presentations	
	Intro to Bayesian Approaches (UConn “J-Term” Primers)	January 2023
	Using fMRI for Cognitive Research (UConn “J-Term” Primers)	January 2021
	Data Visualization (UConn “J-Term” Primers)	January 2020
	Advanced Neuroimaging Techniques (UConn “J-Term” Primers)	January 2019
	Open Lab Meeting on Talker Variability, University of Rochester	July 2021
OUTREACH	Spoken Language Interest Group, Basque Centre for Cognition, Brain, & Language	July 2018
	Editor-in-Chief, <i>Brain, Cognition, & Language Digest</i> , Connecticut Institute for the Brain and Cognitive Sciences	2018-2019
	Team Member, Language Science for Everyone, AAAS Family Science Days	February 2017
SERVICE	Reimagining the Center for Neural Basis on Cognition (CNBC): Subcommittee on Graduate and Postdoctoral Training	2022
	“J-Term” Committee for Neurobiology of Language (NBL) & Science of Learning & Art of Communication (SLAC) programs	2016-present
	Academic Committee for NBL/SLAC programs	2016-Present
	Events Committee for NBL/SLAC programs	2016-2018
	Student Organizer, Language & Cognition Brown Bag	2017-2019
	Student Organizer, NBL “Talk Shop”	2016-2017
AD-HOC REVIEWER	<i>Applied Psycholinguistics; Attention, Perception, & Psychophysics; Cognitive Science; Cortex; Ear and Hearing; JASA Express Letters; Journal of Cognitive Psychology;</i>	

PROFESSIONAL AFFILIATIONS	<p><i>Journal of Cognitive Neuroscience; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory and Cognition; Journal of Memory and Language; Journal of Neuroscience; Journal of Phonetics; NeuroImage; PLOS ONE; Psychonomic Bulletin & Review; Quarterly Journal of Experimental Psychology</i></p> <p>Society for Neurobiology of Language; Psychonomic Society; Cognitive Science Society; Out in Science, Technology, Engineering, and Mathematics; Boston University College of Communication SciComms</p>
PROFESSIONAL SKILLS	<p>MRI/DTI (AFNI/SUMA, csurf, FreeSurfer, Tracula, TORTOISE, SPM/Matlab)</p> <p>TMS (MagVenture)</p> <p>Eyetracking (EyeLink)</p> <p>Acoustic analysis (Praat, STRAIGHT, SoX)</p> <p>Experiment programming (Gorilla, E-Prime, Pavlovia, PsychoPy, OpenSesame)</p> <p>Statistics (R, SPSS, Python)</p>
LANGUAGES	English (native), Spanish (professional fluency), Hindi (intermediate skill)