

## Sahil Luthra

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

**Peer-  
Reviewed  
Publications  
(Published)**

Obasih, C. O., **Luthra, S.**, Dick, F., & Holt, L. L. (in press). Auditory category learning is robust across training regimes. *Cognition*.

**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.

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

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.

**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.

**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.

**Luthra, S.**, Peraza-Santiago, G., Beeson, K., Saltzman, D., Crinnion, A. M., & Magnuson, J. S. (2021). Robust lexically-mediated compensation for coarticulation: Christmas time is here again. *Cognitive Science*, *45*(4), 1-20.

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

**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.

**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.

**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. (2020). *Journal of Cognitive Neuroscience*, 32(10), 2001-2012.

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

**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, 1-12.

**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 & Neuroscience*, 34(2), 151-169.

**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.

Magnuson, J. S., Mirman, D., **Luthra, S.**, Strauss, T., & Harris, H. (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.

**Peer-  
Reviewed**

**Luthra, S.** Why are listeners hindered by talker variability? Under review.

**Publications  
(In Progress)**

Crinnion, A. M., **Luthra, S.**, Gaston, P., & Magnuson, J. S. Resolving competing predictions in speech: How qualitatively different cues and cue reliability contribute to phoneme identification. In revision.

Magnuson, J. S., Grubb, S., Crinnion, A. M., **Luthra, S.**, & Gaston, P. Contra assertions, feedback improves word recognition. In revision.

**Conference  
Presentations**

**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.

\* = equal  
contributions

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.

**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.

**Teaching  
Experience**

**Instructor of Record**  
PSYC 3500: Psychology of Language

Fall 2019

**Guest Lectures**

|  |               |
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| PSYC 2501: Cognitive Psychology                | October 2017  |
| SLHS 3247: Introduction to Phonetic Principles | December 2016 |

**Community Presentations**

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| 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**

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| 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 |

**Invited Talks**

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| Open Lab Meeting on Talker Variability, University of Rochester                | July 2021 |
| Spoken Language Interest Group, Basque Centre for Cognition, Brain, & Language | July 2018 |

**Outreach**

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| Editor-in-Chief, <i>Brain, Cognition, &amp; 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**

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| 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**

*Applied Psycholinguistics; Attention, Perception, & Psychophysics; Cognitive Science; Cortex; JASA Express Letters; Journal of Cognitive Psychology; 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*

**Professional Affiliations**

Cognitive Science Society, Psychonomic Society, Society for Neurobiology of Language, Boston University College of Communication SciCommers

**Professional Skills**

**MRI/DTI** (AFNI/SUMA, csurf, FreeSurfer, Tracula, TORTOISE, SPM/Matlab)  
**TMS** (MagVenture)  
**Eyetracking** (EyeLink)  
**Acoustic analysis** (Praat, STRAIGHT, SoX)  
**Experiment programming** (Gorilla, E-Prime, Pavlovia, PsychoPy, OpenSesame)

**Statistics** (R, SPSS, Python)

**Languages** English (native), Spanish (professional fluency), Hindi (intermediate skill)