

## Jacie R. McHaney

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[jrmchaney.github.io](https://jrmchaney.github.io)

### EDUCATION & TRAINING

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2015	<b>A.S.</b> , General Studies in Science Austin Community College, Austin, TX
2015	<b>B.S.</b> , Psychology, <i>Psychology Honors</i> , Biology Minor The University of Texas at Austin, Austin, TX
2023	<b>Ph.D.</b> , Communication Science and Disorders University of Pittsburgh, Pittsburgh, PA

### APPOINTMENTS & POSITIONS

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05/2023-06/2023	<b>Research Associate</b> , <i>University of Pittsburgh</i> Communication Science and Disorders
07/2023-Present	<b>Research Assistant Professor</b> , <i>Northwestern University</i> Roxelyn and Richard Pepper Department of Communication Sciences and Disorders

### ABSENCE FROM RESEARCH

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08/2021 – 02/2022	Parental Leave
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### GRANT SUPPORT

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Extramural		
07/2024 – 06/2027	<b>Early Career Researcher R21</b> R21DC022031 Role: Co-Investigator (PI: J. Lau) National Institute for Deafness and Communication Disorders <i>The Role of Context in the Neural Processing of Speech in Autism Spectrum Disorder</i>	\$375,000
Prior Support		
09/2019 – 08/2021	<b>Training Program in Auditory and Vestibular Neuroscience</b> T32DC011499 Role: Predoctoral Trainee (PIs: K. Kandler and B. Yates) National Institute for Deafness and Communication Disorders <i>Training in Auditory and Vestibular Neuroscience</i>	\$85,252
05/2022 – 04/2023	<b>NRSA Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research</b> F31DC020085 Role: Principal Investigator National Institute for Deafness and Communication Disorders <i>Neural Mechanisms of Speech Perception in Noise in Middle-Age</i>	\$145,608

Intramural

08/2015 – 12/2015	<b>Undergraduate Research Fellowship</b> The University of Texas at Austin These funds supported research for my undergraduate honors thesis.	\$1,000
02/2022 – 01/2023	<b>University of Pittsburgh Clinical and Translational Science Institute Quantitative Methodologies Pilot Program</b> UL1TR001857 Role: Co-Principal Investigator National Center for Advancing Translational Sciences <i>Decision Strategies in Speech Perception in Aging</i>	\$25,000
11/2023 – 05/2024	<b>Undergraduate Research Assistant Program</b> Role: Mentor Northwestern University Office of Undergraduate Research <i>Neurophysiological indices of mechanisms underlying auditory processing</i> These funds supported an undergraduate research assistant for 100 hours of laboratory work.	\$1,600
04/2024-09/2024	<b>Summer Undergraduate Research Program</b> Role: Mentor Northwestern University Office of Undergraduate Research <i>Effect of Vibrotactile Stimulation on F0 Encoding</i> These funds supported an undergraduate research assistant for 8 weeks of full-time work over the summer for this project. This was one of the top-rated proposals and received special funding from an endowment.	\$4,000

## **PUBLICATIONS**

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Peer-reviewed

1. Koski, J. E., **McHaney, J. R.**, Rigney, A. E., & Beer, J. S. (2020). Reconsidering Longstanding Assumptions About the Role of Medial Prefrontal Cortex (MPFC) in Social Evaluation. *NeuroImage*, 214, 116752.
2. Llanos, F., **McHaney, J. R.**, Schuerman, W. L., Yi, H. G., Leonard, M. K., & Chandrasekaran, B. (2020). Non-invasive peripheral nerve stimulation selectively enhances speech category learning in adults. *npj Science of Learning*, 5(1), 1-11.
3. **McHaney, J. R.**, Gnanateja, G. N., Smayda, K. E., Zinszer, B. D., & Chandrasekaran, B. (2021). Cortical Tracking of Speech in Delta Band Relates to Individual Differences in Speech in Noise Comprehension in Older Adults. *Ear and Hearing*, 42(2), 343-354.
4. **McHaney, J. R.**, Tessmer, R., Roark, C. L., & Chandrasekaran, B. (2021). Working memory relates to individual differences in speech category learning: Insights from computational modeling and pupillometry. *Brain and Language*, 222, 105010.
5. Lescht, E., Venker, C., **McHaney, J. R.**, Bohland, J., & Hampton Wray, A. (2022). Novel Word Recognition in Childhood Stuttering. *Topics in Language Disorders*, 42(1), 41-56.
6. Cancel, V. E.\*, **McHaney, J. R.\***, Milne, V. Palmer, C., & Parthasarathy, A. (2023). A data-driven approach to identify a rapid screener for auditory processing disorder testing referrals in adults. *Scientific Reports*, 13, 13636. (**\*co-first authors**).

7. **McHaney, J. R.**, Schuerman, W. L., Leonard, M. K., & Chandrasekaran, B. (2023). Transcutaneous vagus nerve stimulation modulates pupillary responses during non-native speech category learning. *Journal of Speech, Language, and Hearing Research*, 66(10), 3825-3843.
8. Mukhopadhyay, M., **McHaney, J. R.**, Chandrasekaran, B., & Sarkar, A. (2024). Bayesian semiparametric longitudinal inverse-probit mixed models for category learning. *Psychometrika*.
9. Roark, C. L., Paulon, G., Rebaudo, G., **McHaney, J. R.**, Sarkar, A., & Chandrasekaran, B. (2024). Individual differences in working memory impact the trajectory of non-native speech category learning. *PLOS ONE*, 19(6), e0297917.

#### Archived Pre-prints

1. **McHaney, J. R.**, Hancock, K. E., Polley, D. B., & Parthasarathy, A. (2023). Sensory representations and pupil-indexed listening effort provide complementary contributions to multi-talker speech intelligibility. *bioRxiv*. doi: 10.1101/2023.08.13.553131.
2. **McHaney, J. R.**, Roark, C. L., McGinley, M. J., & Chandrasekaran, B. (2024). Combining pupillometry and drift-diffusion models reveals auditory category learning dynamics. *bioRxiv*. doi: 10.1101/2024.04.16.589753.
3. Zink, M. E.\*, Zhen, L.\*, **McHaney, J. R.\***, Klara, J., Yurasits, K., Cancel, V., Flemm, O., Mitchell, C., Datta, J., Chandrasekaran, B., & Parthasarathy, A. (2024). Increased listening effort and cochlear neural degeneration underlie behavioral deficits in speech perception in noise in normal hearing middle-aged adults. *bioRxiv*. doi: 10.1101/2024.08.01.606213. (**\*co-first authors**).
4. Guo, Z.\*, **McHaney, J. R.\***, Parthasarathy, A., & Chandrasekaran, B. (2024). Reduced neural distinctiveness of speech representations in the middle-aged brain. *bioRxiv*. doi: 10.1101/2024.08.28.609778. (**\*co-first authors**).

#### **CONFERENCE POSTER PRESENTATIONS**

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1. Koski, J. E., **Richardson, J. B.<sup>†</sup>**, Rigney, A. E., & Beer, J. S. (April 2016). Too much information or warm fuzzy feelings? Understanding the role of MPFC in processing the self versus others. Poster presented at the Social and Affective Neuroscience (SANS) Annual Meeting, New York, NY.
2. Smayda, K. E., **McHaney, J. R.**, & Chandrasekaran, B. (May 2017). Music Training for the Enhancement of Speech-In-Noise Processing in Older Adults. Poster presented at the Texas Leadership Luncheon, Austin, TX.
3. **McHaney, J. R.**, Zinszer, B. D., Smayda, K. E., & Chandrasekaran, B. (March 2018). Effect of listening environment on cortical entrainment to continuous speech in older adults. Poster presented at the Cognitive Neuroscience Society 25<sup>th</sup> Annual Meeting, Boston, MA.
4. Llanos, F., **McHaney, J. R.**, Leonard, M. K., Schuerman, W. L., Yi, H. G., & Chandrasekaran, B. (August 2018). Transcutaneous vagus nerve stimulation enhances non-native speech categorization. Poster presented at the 10<sup>th</sup> Annual Meeting of the Society for the Neurobiology of Language, Québec City, Québec, Canada.
5. **McHaney, J. R.**, Zinszer, B. D., Smayda, K. E., Xie, Z., & Chandrasekaran, B. (December 2018). Cortical entrainment to the speech envelope relates to speech comprehension in older adults under adverse listening conditions. Poster presented at the 12<sup>th</sup> Annual Aging Institute Research Day, Pittsburgh, PA.

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<sup>†</sup> Last name changed to McHaney from Richardson in 2017

6. **McHaney, J. R.**, Schuerman, W. L., Leonard, M. K., & Chandrasekaran, B. (October 2020). Non-invasive peripheral nerve stimulation paired with speech sounds modulates pupillary responses and selectively enhances learning. Poster presented at the Twelfth Annual Meeting of the Society for Neurobiology of Language, Virtual.
7. Roark, C. L., Reetzke, R., Llanos, F., **McHaney, J. R.**, & Chandrasekaran, B. (December 2020). Learning Mandarin tone categories with natural speech and a non-speech homologue. Poster to be presented at the 179<sup>th</sup> Meeting of the Acoustical Society of America, Chicago, IL. (Conference canceled)
8. Lescht, E., Venker, C., **McHaney, J. R.**, & Hampton Wray, A. (January 2021). Novel word learning in children who stutter. Poster presented at the 12<sup>th</sup> Oxford Dysfluency Conference, Virtual.
9. **McHaney, J. R.**, Hancock, K. E., Polley, D. B., & Parthasarathy, A. (February 2022). Neurophysiological markers of central gain and their relationship to speech-in-noise intelligibility. Poster presented at the 45<sup>th</sup> Annual MidWinter Meeting of the Association for Research in Otolaryngology, Virtual.
10. Cancel, V. E., **McHaney, J. R.**, Milne, V., Palmer, C., & Parthasarathy, A. (February 2022). Hearing Difficulties with Normal Audiograms: Insights from the Auditory Processing Disorder Test Battery. Poster presented at the 45<sup>th</sup> Annual MidWinter Meeting of the Association for Research in Otolaryngology, Virtual.
11. Cancel, V. E., **McHaney, J. R.**, Milne, V., Palmer, C., & Parthasarathy, A. (April 2022). Hearing Difficulties with Normal Audiograms: Insights from the ADP Test Battery. Poster presented at the American Academy of Audiology 2022 + HearTECH Expo, St. Louis, MO. *Received the James and Susan Jerger Award for Excellence in Student Research, American Academy of Audiology Foundation.*
12. **McHaney, J. R.**, Yurasits, K., Hancock, K. E., Polley, D. B., & Parthasarathy, A. (July 2022). Neurophysiological markers of central gain and their relationship to speech-in-noise intelligibility in normal-hearing listeners. Poster presented at the Auditory System Gordon Research Conference: Preventing Loss and Recovering Function of the Auditory System, Smithfield, RI.
13. **McHaney, J. R.**, Zhen, L., Roark, C. L., Parthasarathy, A. & Chandrasekaran, B. (October 2022). Sensory Encoding and Decision-making in Speech Perception in Noise. Poster presented at the Fourteenth Annual Meeting of the Society for Neurobiology of Language, Philadelphia, PA.
14. Zhen, L. Q., **McHaney, J. R.**, Zink, M. E., Mitchell, C., Parida, S., Anthony, S., Hallihan, M., Brown, C. A., Chandrasekaran, B., & Parthasarathy, A. (February 2023). Age-related Differences in Neural and Perceptual Signatures of Temporal Fine Structure Processing Underlying Multi-talker Speech Intelligibility. Poster to be presented at the Association for Research in Otolaryngology 46th Annual MidWinter Meeting, Orlando, FL.
15. Zink, M. E., **McHaney, J. R.**, Mitchell, C., Hallihan, M., Anthony, S., Chandrasekaran, B., & Parthasarathy, A. (February 2023). Neurophysiological Markers of Sensory Gain and Their Relationship to Speech Perception in Noise in Young and Middle-Aged Adults. Poster to be presented at the Association for Research in Otolaryngology 46th Annual MidWinter Meeting, Orlando, FL.
16. Parker, A., **McHaney, J. R.**, Xie, Z., Chandrasekaran, B., & Hampton Wray, A. (February 2023). Cortical Tracking of Continuous Speech-in-Noise: Children's Use of Linguistic and Acoustic Information. Poster to be presented at the Association for Research in Otolaryngology 46th Annual MidWinter Meeting, Orlando, FL.
17. **McHaney, J. R.** & Chandrasekaran, B. (March 2023). Lexical knowledge facilitates phoneme categorization at intermediate noise levels. Poster presented at the American Auditory Society's 50<sup>th</sup> Annual Scientific & Technology Conference, Scottsdale, AZ.

18. Mitchell, C., Zink, M. E., **McHaney, J. R.**, Anthony, S., Hallihan, M., Chandrasekaran, B., & Parthasarathy, A. (April 2023). Relationship between altered auditory temporal processing and speech perception in noise in young and middle-aged adults. Poster to be presented at the American Academy of Audiology 2023 + HearTECH Expo, Seattle, WA.
19. Yurasits, K., Zhen, L. Q., Parida, S., Klara, J., **McHaney, J. R.**, Cancel, V., Zink, M. E., Mitchell, C., Chandrasekaran, B., & Parthasarathy, A. (April 2023). Age-related changes in the representation of stimulus temporal fine structure cues and their relationship to multi-talker speech intelligibility. Poster to be presented at the American Academy of Audiology 2023 + HearTECH Expo, Seattle, WA. *Received the James and Susan Jerger Award for Excellence in Student Research, American Academy of Audiology Foundation.*
20. Parker, A., **McHaney, J. R.**, Coleman, B., Chandrasekaran, B., & Hampton Wray, A. (November 2023). Phonological Awareness and the Impact of Noise Level on Speech Perception. Poster presented at the 2023 American Speech-Language-Hearing Association Convention, Boston, MA.
21. Guo, Z., **McHaney, J. R.**, Xiong, S., Chandrasekaran, B., & Parthasarathy, A. (June 2024). Decoding single-trial frequency-following responses to speech using an animal model. Poster presented at the 2024 Frequency Following Response Workshop, Chicago, IL.
22. Parker, A., **McHaney, J. R.**, Coleman, B., Block, A., Chandrasekaran, B., & Hampton Wray, A. (October 2024). Receptive Language Proficiency Impacts Cortical Tracking of Continuous Speech in Noise in Children. Poster to be presented at the Sixteenth Annual Meeting of the Society for Neurobiology of Language, Brisbane, Australia.
23. **McHaney, J. R.**, Guo, Z., Gnanateja, G. N., Parthasarathy, A., & Chandrasekaran, B. (October 2024). Reduced temporal processing of fundamental frequency in middle-age impacts higher-level linguistic features for speech perception. Poster to be presented at the Advances and Perspectives in Auditory Neuroscience Annual Meeting, Chicago, IL.
24. Guo, Z., **McHaney, J. R.**, Xie, Z., & Chandrasekaran, B. (October 2024). Reduced neural encoding of phonemes in middle-aged adults. Poster to be presented at the Advances and Perspectives in Auditory Neuroscience Annual Meeting, Chicago, IL.
25. Choi, J. Y., Xiong, S., **McHaney, J. R.**, & Chandrasekaran, B. (October 2024). Pupillary measures of identifying talkers in native language and unfamiliar language. Poster to be presented at the Advances and Perspectives in Auditory Neuroscience Annual Meeting, Chicago, IL.
26. Parker, A., **McHaney, J. R.**, Xie, Z., Chandrasekaran, B., & Hampton Wray, A. (December 2024). Developmental and Individual Differences in Red Tracking of Speech-on-Speech. Poster to be presented at the 2024 American Speech-Language-Hearing Association Convention, Seattle, WA.

## CONFERENCE PODIUM PRESENTATIONS

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1. **McHaney, J. R.**, Zhen, L., Anthony, S., Xie, Z., Parthasarathy, A., & Chandrasekaran, B. (February 2023). Deficits in Sensory Decision-Making Underlie Self-Perceived Hearing Difficulties. Talk presented at the Association for Research in Otolaryngology 46th Annual MidWinter Meeting, Orlando, FL.

## INVITED PRESENTATIONS

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Mar 2024      *Neural Mechanisms of Speech Perception in Noise in Middle-age*, Ear Day, RUSH University, Chicago, IL

## PRESENTATIONS

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Aug 2017	<i>Effect of listening environment on continuous speech processing in older adults</i> , Sixth Annual Communication Sciences and Disorders Research Blitz, The University of Texas at Austin, Austin, TX.
Dec 2019	<i>Aging, cognition, and speech processing</i> , Auditory and Vestibular Neuroscience T32 Seminar, University of Pittsburgh, Pittsburgh, PA.
Mar 2020	<i>Cortical Tracking of Speech in Older Adults</i> , Auditory and Vestibular Neuroscience T32 Retreat, University of Pittsburgh, Pittsburgh, PA.
Apr 2020	<i>Cortical Tracking of Speech in Older Adults</i> , Department of Communication Science and Disorders Research Round Table Seminar, University of Pittsburgh, Pittsburgh, PA.
Jan 2021	<i>Working Memory During Non-Native Speech Category Learning</i> , Auditory and Vestibular Neuroscience T32 Seminar, University of Pittsburgh, Pittsburgh, PA.
Feb 2021	<i>Influence of Working Memory on Non-Native Speech Category Learning</i> , Department of Communication Science and Disorders Research Round Table Seminar, University of Pittsburgh, Pittsburgh.
Apr 2021	<i>Working Memory Influences Speech Category Learning: A Pupillometry Study</i> , Auditory and Vestibular Neuroscience T32 Annual Retreat, University of Pittsburgh, Pittsburgh, PA.
Nov 2022	<i>Sensory and Cognitive Factors Underlying Individual Variability in Speech in Noise Perception</i> , Hearing and Cookies Seminar Series, University of Pittsburgh, Pittsburgh, PA.
Aug 2023	<i>Neural encoding of the fundamental frequency supports the decisional processes in speech in noise categorization</i> , Mini-symposium on Speech processing in challenging listening environments: Towards a multi-dimensional framework, Northwestern University, Evanston, IL.

## MEDIA COVERAGE

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- FACETS. (2019). Team-Based Science at its best. [press release]. Retrieved from [https://issuu.com/pittshrs/docs/facets\\_spring\\_19\\_pdf/28](https://issuu.com/pittshrs/docs/facets_spring_19_pdf/28)
- Inverse (2020). Scientists discover brain hack that improves language abilities by 13%. Retrieved from [Scientists discover brain hack for language learning \(inverse.com\)](https://www.inverse.com/science/brain-hack-for-language-learning)
- Psychology Today. (2020). Can Vagus Nerve Stimulation Improve How We Learn? [press release]. Retrieved from [Can Vagus Nerve Stimulation Improve How We Learn? | Psychology Today](https://www.psychologytoday.com/us/blog/can-vagus-nerve-stimulation-improve-how-we-learn)
- Science Daily. (2020). Non-invasive nerve stimulation boosts learning of foreign language sounds. [press release]. Retrieved from [Non-invasive nerve stimulation boosts learning of foreign language sounds -- ScienceDaily](https://www.sciencedaily.com/news/healthcare/non-invasive-nerve-stimulation-boosts-learning-of-foreign-language-sounds)

## HONORS & AWARDS

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2012	Phi Theta Kappa Honor Society
2015	University Honors, The University of Texas at Austin
2015	Psi Chi International Honor Society in Psychology
2022	Society for Neurobiology of Language Travel Award
2022	Gordon Research Conference – Auditory System Travel Funds
2023	Association for Research in Otolaryngology Childcare Grant
2024	Association for Research in Otolaryngology Childcare Grant

## PROFESSIONAL MEMBERSHIPS

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Society for Neurobiology of Language  
Association for Research in Otolaryngology  
American Auditory Society

## AD-HOC JOURNAL REVIEWER

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2023	<i>Journal of Speech, Language, and Hearing Research</i>
2023	<i>Brain and Language</i>
2023	<i>iScience</i>
2024	<i>American Journal of Speech-Language Pathology</i>
2024	<i>Journal of Speech, Language, and Hearing Research</i>
2024	<i>Journal of Neurolinguistics</i>
2024	<i>NeuroImage</i>

## SERVICE

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### *University of Pittsburgh*

2019-2021	<b>PhD Student Representative</b> , Communication Science and Disorders
2020-2021	<b>Organizer</b> , Communication Science and Disorders Research Round Table Seminar

### *Northwestern University*

2023	<b>Organizer</b> , Mini-symposium on Speech processing in challenging listening environments: Towards a multi-dimensional framework
2024 – Present	<b>Member</b> , Committee for Data Collection of Department Metrics
2024	<b>Judge</b> , Undergraduate Research and Creative Arts Exposition

### *Extramural*

2024	<b>Mentor</b> , Career Development Lunch for Trainees, Advances and Perspectives in Auditory Neuroscience Annual Meeting, Chicago, IL
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## TEACHING

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### *University of Pittsburgh*

2021	<b>Assistant Instructor</b> , Neuroscience of Communication (CSD 2110)
2021	<b>Guest Lecturer</b> , <i>A&amp;P of the Auditory System</i> , Introduction to Neuroscience of Communication (CSD 1237)
2023	<b>Guest Lecturer</b> , <i>Hearing Loss and Cognition</i> , Neuroscience of Communication (CSD 2110)
2023	<b>Guest Lecturer</b> , <i>Frequency-following Responses</i> , Advanced Physiological Assessment (CSD 2252)
2024	<b>Guest Lecturer</b> , <i>Frequency-following Responses</i> , Advanced Physiological Assessment (CSD 2252)

### *Northwestern University*

2024	<b>Guest Lecturer</b> , <i>Coding for Career Growth</i> , Professional Development for PhD Students (CSD 545)
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## MENTORING

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### PhD Students

*Northwestern University*

2023- Shengyue Xiong

### Doctorate of Audiology Students

*Northwestern University*

2024- Mollee Feeney

2024- Ishika Choksi

2024- Lauren Preston

### Undergraduate Honors Thesis

*University of Texas at Austin*

2016 Yuan Han

2017-2018 Elise LeBovidge

*University of Pittsburgh*

2018-2020 Megan McKenzie

### Undergraduate Research Assistants

*University of Texas at Austin*

2016 Karen Lin

2016 Kay Torriente

2016 Isabelle Arseneau Bruneau

2016-2017 Stephen Slaughter

2016-2017 Dominique Arzola

2016-2017 Danielle De La Rosa

2016-2017 Abigail Hall

2016-2017 Megan Burke

2017-2018 Sarina Lieberman

2017-2018 Sarah Campbell

2017-2018 Priyanka Deshmane

*University of Pittsburgh*

2019-2020 Danielle Wu

2019-2020 Laura Fahs

2019-2020 Olivia Gall

2019-2020 Inca Malik

2019-2020 Santosh Donepudi

2022 Rebecca Kime

2022 Angelina DiNardo

2022 Madison Andreano

2022 Olivia Flemm

2022-2023 Sarah Anthony

2022-2023 Shaina Wasileski

2022-2023 Katie Bergstrom

2022-2023 Megan Hallihan

2022-2023 Miaofang Hu

2022-2023 Jasmine Cardino

2022-2023 Claire Mitchell

*Northwestern University*

2023- Alexa Nuñez Magaña

2023- Avery Leblanc

2023- Beza Abate

### High School Student Researchers

2016 Emma Green

2021-2022 Karen Linares Mendoza

2022 Marysia Brown

2022 Cassidy Mineo

2022 Zoey Miller

2022 Savitha Thompson

## DIVERSITY AND INCLUSION

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2021 Hosted virtual lab tour at University of Pittsburgh for Innovative Mentoring and Professional Advancement through Cultural Training (IMPACT) program at Case Western Reserve University in collaboration with Hampton University, a historically black university.



- 2022 Co-mentor for Karen Linares Mendoza, recipient of a diversity supplement from NIDCD to conduct research through a summer internship.
- 2022 Mentor for two undergraduate CSD students from the Innovative Mentoring and Professional Advancement through Cultural Training (IMPACT) program through a summer research internship at the University of Pittsburgh.
- 2024 Mentor for a student in the Emerging Scholars Program at Northwestern University, a research grant for first year students who identify as first generation, lower income, people of color, and/or marginalized with a focus on providing opportunities for students to get started in research.