

Curriculum Vitae
Eric M. Johnson

Division of Communication Sciences and Disorders
West Virginia University
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RESEARCH AND TEACHING INTERESTS:

Applications of artificial intelligence in audiology; speech perception in normal and impaired systems; environmental sound recognition; hearing aids and cochlear implants.

EDUCATION:

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| 2022 | Ph.D. – Speech and Hearing Science
The Ohio State University, Columbus
Major Course of Study: Speech Perception |
| 2017 | Au.D. – Communication Sciences and Disorders
University of Utah, Salt Lake City |
| 2013 | B.A. – Linguistics
Brigham Young University, Provo
Second major: Portuguese
Minor Course of Study: Linguistic Computing |

PROFESSIONAL EXPERIENCE:

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| 2022–present | Assistant Professor
Division of Communication Sciences and Disorders
School of Medicine
West Virginia University |
| 2017–2022 | Graduate Research Associate
Eric W. Healy’s Speech Psychoacoustics Laboratory
Department of Speech and Hearing Science
Center for Cognitive and Brain Sciences
The Ohio State University |
| 2018–2021 | Graduate Teaching Associate
Department of Speech and Hearing Science
Center for Cognitive and Brain Sciences
The Ohio State University |
| 2016–2017 | Audiology Extern
VA Salt Lake City Health Care System |
| 2013–2016 | Graduate Research Assistant
Bruce L. Smith’s Speech Science Laboratory
Department of Communication Sciences and Disorders
University of Utah |

2013–2016 Graduate Teaching Assistant
Department of Communication Sciences and Disorders
University of Utah

GRANTS:

“Ecological Validation of Hearing Aid Outcomes” (**4.0 percentile score; award anticipated**)
(**E.M. Johnson, P.I.**), NIH \ NIDCD R21 DC023276 (Early Career Research Award)
Earliest start date: December 2026, Total costs: \$570,000.

“Characterizing the Optimal Signal-to-Noise Ratio for Hearing Aid Users” (**Awarded**)
(**E.M. Johnson, P.I.**), Oticon \ Sponsored Research Agreement
9/1/26 – 3/1/27, Total costs: \$37,980.

“Real-world hearing aid testing for commercial product launch” (**Awarded**)
(**E.M. Johnson, P.I.**) Anker Innovations \ Sponsored Research Agreement
9/1/26-12/1/26, Total costs: \$19,123

“Evaluating and Predicting Hearing Aid Benefits in Real-World Conversations” (**Not Awarded**)
(**E.M. Johnson, P.I.**), American Speech-Language-Hearing Foundation \ Clinical Research Grant
Submitted in 2025, Total funds requested: \$75,000.

“Towards a Well-Designed, Clinically Validated Measure of Communication Performance” (**Not Awarded**)
(**E.M. Johnson, P.I.**), Hearing Industry Research Consortium Grant
Submitted in 2024, Total funds requested: \$145,000.

“Optimizing Auditory Outcomes in Complex Listening Environments” (**Not Awarded**)
(**E.M. Johnson, P.I.**), NIH \ NIDCD R21 DC021807 (Early Career Research Award)
Submitted in 2024, Total funds requested: \$570,000.

“Optimizing Both Speech Intelligibility and Environmental Sound Recognition” (**Awarded**)
(**E.M. Johnson, P.I.**), WVU Research Office \ Faculty Travel/Development Grant Number: 3186
3/1/23 – 3/5/23, Total costs: \$700.

“Real-time Deep Learning to Improve Speech Intelligibility in Noise” (**Awarded**)
(**E.M. Johnson, P.I.**), NIH \ NIDCD F32 DC019314
9/30/20 – 7/31/22, Total costs: \$159,192.

“Improving Speech Intelligibly Without Sacrificing Environmental Sound Awareness”
(**Awarded**)
(**E.M. Johnson, P.I.**), OSU Alumni Grant for Graduate Research and Scholarship
5/1/21 – 8/7/22, Total costs: \$2,000.

“Improving Speech Intelligibility Using Machine Learning” (**Awarded**)
(**E.M. Johnson, P.I.**), OSU Center for Cognitive and Brain Sciences
Summer Graduate Research Award
6/1/20 – 8/31/20, Total costs: \$5,760.

“Improving the Intelligibility of Speech in Real Time Using an Artificial Neural Network”
(**Awarded**)

(**E.M. Johnson, P.I.**), OSU Center for Cognitive and Brain Sciences
Summer Graduate Research Award
6/1/19 – 8/31/19, Total costs: \$5,505.

PEER-REVIEWED PUBLICATIONS:

- Picou, E. M. & **Johnson, E. M.** (in preparation). Using machine learning to identify acoustic predictors of emotional responses to non-speech sounds. *Journal of the Acoustical Society of America*.
- Johnson, E. M.** & Milam, B. (in preparation). What is the upper limit on hearing aid benefit? *American Journal of Audiology*.
- Johnson, E. M.** & Shumate, H. (in preparation). Associations between musical training, frequency music listening, and auditory temporal processing. *Journal of the Acoustical Society of America*.
- Johnson, E. M.** (in preparation). The effects of audibility and environmental realism on conversational dynamics. *Ear and Hearing*.
- Johnson, E. M.** & Healy, E. W. (2026). Estimating band importance for environmental sound recognition using deep learning. *Journal of the Acoustical Society of America*, 159, 3804–3818.
- Johnson, E. M.** & Healy, E. W. (2024). An ideal compressed mask for increasing speech intelligibility without sacrificing environmental sound recognition. *Journal of the Acoustical Society of America*, 156, 3958–3969.
- Johnson, E. M.** & Healy, E. W. (2024). The optimal speech-to-background ratio for balancing speech recognition with environmental sound recognition. *Ear and Hearing*, 45, 1444–1460.
- Healy, E. W., **Johnson, E. M.**, Pandey, A., & Wang D. L. (2023). Progress made in the efficacy and viability of deep-learning-based noise reduction. *Journal of the Acoustical Society of America*, 153, 2751–2768.
- Healy, E. W., Taherian, H., **Johnson, E. M.**, & Wang D. L. (2021). A causal and talker-independent speaker separation/dereverberation deep learning algorithm: Cost associated with conversion to real-time capable operation. *Journal of the Acoustical Society of America*, 150, 3976–3986.
- Healy, E. W., **Johnson, E. M.**, Delfarah, M., Krishnagiri, D. S., Sevich, V. A., Taherian, H., & Wang D. L. (2021). Deep learning based speaker separation and dereverberation can generalize across different languages to improve intelligibility. *Journal of the Acoustical Society of America*, 150, 2526–2538.
- Healy, E. W., Tan, K., **Johnson, E. M.**, & Wang D. L. (2021). An effectively causal deep learning algorithm to increase intelligibility in untrained noises for hearing-impaired listeners. *Journal of the Acoustical Society of America*, 149, 3943–3953.
- Healy, E. W., **Johnson, E. M.**, Delfarah, M., & Wang D. L. (2020). A talker-independent deep learning algorithm to increase intelligibility for hearing-impaired listeners in reverberant competing talker conditions. *Journal of the Acoustical Society of America*, 147, 4106–4118.

- Johnson, E. M.**, Morgan, S. D., & Ferguson, S. H. (2020). Does time compression decrease intelligibility for female talkers more than for male talkers? *Journal of Speech, Language, and Hearing Research*, 63, 1083–1092.
- Healy, E. W., Delfarah, M., **Johnson, E. M.**, & Wang, D. L. (2019). A deep learning algorithm to increase intelligibility for hearing-impaired listeners in the presence of a competing talker and reverberation. *Journal of the Acoustical Society of America*, 145, 1378–1388.
- Smith, B. L., **Johnson, E. M.**, & Hayes-Harb, R. (2019). ESL learners' intra-speaker variability in producing American English tense and lax vowels. *Journal of Second Language Pronunciation*, 5, 139–164.
- Zhao, Y., Wang, D. L., **Johnson, E. M.**, & Healy, E. W. (2018). A deep learning based segregation algorithm to increase speech intelligibility for hearing-impaired listeners in reverberant-noisy conditions. *Journal of the Acoustical Society of America*, 144, 1627–1637.
- Hacking, J. F., Smith, B. L., & **Johnson, E. M.** (2017). Utilizing electropalatography to train palatalized versus unpalatalized consonant productions by native speakers of American English learning Russian. *Journal of Second Language Pronunciation*, 3, 9–33.
- Johnson, E. M.** (2013). Spoken like a true poet: The recreation of speech in Manuel Bandeira's *Libertinagem*. *La Marca Hispánica*, 24.

PUBLISHED ABSTRACTS AND INVITED/CONTRIBUTED PRESENTATIONS:

- Johnson, E.M.** (2026, August). *Balancing speech understanding and environmental sound awareness: Effects of hearing aids and spatial separation*. Poster presented at the International Hearing-Aid Research Conference, Banff, AB, Canada.
- Johnson, E.M.** (2026, July). *Balancing speech clarity and environmental sound recognition in hearing aids*. Oticon BrainHearing Network Live Webinar (**invited presentation with over 1,200 worldwide participants**).
- Johnson, E.M.** & Picou, E.M. (2026, May). *Acoustic and listener predictors of emotional responses to non-speech sounds*. **Invited** podium presentation at the 190th Meeting of the Acoustical Society of America, Philadelphia, PA.
- Shumate, H.B., **Johnson, E.M.**, & Holdren, H. (2026, April). *Differences in auditory temporal processing between heavy music listeners and light music listeners*. Poster presented at the West Virginia Speech-Language-Hearing Association Convention, Charleston, WV.
- Johnson, E.M.**, Milam, B.D., & Groves, C. (2026, April). *The effect of acoustic coupling on the upper limit of hearing aid benefit*. Poster presented at the American Academy of Audiology Annual Convention, San Antonio, TX.
- Johnson, E.M.** (2026, February). *Disentangling speech-noise separability from noise suppression aggressiveness using behavioral testing*. Podium presentation at the 53rd Annual Scientific and Technology Conference of the American Auditory Society, Scottsdale, AZ (**selected for New Investigator Podium Session through competitive review**).

- Johnson, E.M.** (2025, May). *Measuring conversational dynamics to evaluate the effects of speech-perception deficits*. Poster presented at the 188th Meeting of the Acoustical Society of America joint with 25th International Congress on Acoustics, New Orleans, LA. *Journal of the Acoustical Society of America*, 157, A172.
- Johnson, E.M.** (2024, May). *The theoretical maximum intelligibility improvement that can be provided by hearing aids*. Poster presented at the 186th Meeting of the Acoustical Society of America/Acoustics Week in Canada, Ottawa, ON, Canada. *Journal of the Acoustical Society of America*, 155, A39.
- Johnson, E.M.** & Volkwein, C.J. (2024, February). *Effects of artificial-intelligence-based noise suppression on intelligibility and subjective noise*. Poster presented at the 51st Annual Scientific and Technology Conference of the American Auditory Society, Scottsdale, AZ (**selected for New Investigator Podium Session through competitive review**).
- Johnson, E.M.** & Healy, E.W. (2023, May). *Maximizing environmental sound recognition and speech intelligibility using time frequency masking*. **Invited** podium presentation at 184th Meeting of the Acoustical Society of America, Chicago, IL. *Journal of the Acoustical Society of America*, 153, A364.
- Johnson, E.M.** & Healy, E.W. (2023, March). *Optimizing both speech intelligibility and environmental sound recognition*. Poster presented at the 50th Annual Scientific and Technology Conference of the American Auditory Society, Scottsdale, AZ.
- Healy, E.W., Tan, K., **Johnson, E.M.**, & Wang, D.L. (2020, May). *Real-time feasible deep learning noise reduction improves intelligibility for hearing-impaired listeners*. Poster accepted for presentation at the Spring Meeting of the Acoustical Society of America, Chicago, IL (conference cancelled due to pandemic).
- Healy, E.W., **Johnson, E.M.**, Delfarah, M., Krishnagiri, D.S., & Wang, D.L. (2020, May). *Deep learning noise reduction can generalize to a novel talker speaking an entirely different language*. Poster accepted for presentation at the Spring Meeting of the Acoustical Society of America, Chicago, IL (conference cancelled due to pandemic).
- Healy, E. W., Delfarah, M., **Johnson, E. M.**, & Wang, D.L. (2019, May). *A deep learning algorithm to increase intelligibility for hearing-impaired listeners in the presence of a competing talker and reverberation*. Poster presented at the 177th Meeting of the Acoustical Society of America, Louisville, KY. *Journal of the Acoustical Society of America*, 145, 1874.
- Zhao, Y., Wang, D. L., **Johnson, E. M.**, & Healy, E. W. (2019). *A deep learning based segregation algorithm to increase speech intelligibility for hearing-impaired listeners in reverberant-noisy conditions*. Poster presented at the 177th Meeting of the Acoustical Society of America, Louisville, KY. *Journal of the Acoustical Society of America*, 145, 1874.
- Zhao, Y., Wang, D. L., **Johnson, E. M.**, & Healy, E. W. (2018, August). *A deep learning based segregation algorithm to improve speech intelligibility of hearing-impaired listeners in reverberant-noisy conditions*. Podium presentation at the International Hearing-Aid Research Conference, Tahoe City, CA.
- Hacking, J. F., Smith, B. L., & **Johnson, E. M.** (2016, June). *Utilizing electropalatography to train palatalized versus unpalatalized consonant productions by native speakers of American English*

learning Russian. Podium presentation at the 8th International Symposium on the Acquisition of Second Language Speech, Aarhus, Denmark.

Johnson, E. M. & Ferguson, S. H. (2016). *Gender and rate effects on speech intelligibility*. Poster presented at the 177th Meeting of the Acoustical Society of America. *Journal of the Acoustical Society of America*, 139, 2124.

DISSERTATION:

Johnson, E. M. (2022). *Improving Speech Intelligibility Without Sacrificing Environmental Sound Recognition*. Doctoral dissertation, The Ohio State University.

TEACHING:

Course Instructor:

At West Virginia University

2026–present	<i>CSAD 320: Speech Science</i> (in person) Review of the fundamental concepts related to acoustics, perception, and production of speech, and associated theoretical models.
2025–present	<i>CSAD 710: Psychoacoustics, Anatomy, and Physiology of the Ear</i> (in person) Students will use project- and team-based activities and recent best evidence to examine the auditory processing of acoustic signals in typical and disordered human auditory systems, and will apply these principles to hearing screening and assessment measures as well as the advanced study of the anatomy and physiology of the peripheral and central auditory systems.
2025–present	<i>CSAD 743: Hearing Conservation</i> (in person) Students will use cases, project- and team-based learning and recent best evidence to examine the effect of noise on auditory and related systems; principles and practices of noise-induced hearing loss prevention in occupational, recreational, and other settings; regulations; hearing conservation programs; noise reduction technologies; outcome measures; cultural competence; communicating with workplace leadership employees, schools and individuals; referrals, and recommendations.
2024–present	<i>CSAD 720: Hearing Loss Prevention and Advocacy</i> (online) Students examine the role of audiologists in leading or participating in efforts to prevent hearing loss; create and pass legislation to improve educational, vocational, and other opportunities for people with hearing loss; and provide education about the needs of individuals with hearing loss to various groups.
2024–present	<i>CSAD 717: Ototoxicity, Genetics, and Pharmacology</i> (in person) Students use case studies, project- and team-based learning activities and recent best evidence to examine the role of genetics in auditory vestibular disorders, the diagnosis and management of genetic hearing losses; cultural competence; communicating with patients, families, and care providers; team

management of syndromic and non-syndromic hearing loss; and the effect of ototoxins on auditory and vestibular function.

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| 2023–2024 | <i>CSAD 725: Electrophysiological Assessments</i> (in person)
Students use case studies, team-based, or experiential learning and recent best evidence to examine electrophysiological properties and the anatomy and physiology of peripheral and central human auditory systems; stimuli and equipment used otoacoustic emission and auditory evoked response testing; test result interpretation; making referrals and recommendations cultural competence, and relaying results to patients, families, and other providers. |
| 2023–present | <i>CSAD 340: Hearing Science</i> (in person)
The purpose of this course is to provide the student with basic knowledge in two areas of hearing science: the physics of sound (acoustics) and the perception of sound (psychoacoustics). This knowledge will provide a foundation for further study in the field of communication sciences and disorders. |
| 2022–2025 | <i>CSAD 342: Introduction to Audiology</i> (in person)
Introduction to the profession of audiology; principles of hearing screening, audiological assessment and treatment; disorders of hearing; audiogram interpretation. |
| 2022–present | <i>CSAD 440: Audiological Assessment</i> (in person)
Application of basic audiological techniques, including pure-tone and speech audiometry, masking, and immittance testing. |

At The Ohio State University

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| 2019–2021 | <i>SHS 4440: Anatomy, Physiology, and Science of Hearing</i> (in-person/online)
A lecture course for advanced undergraduate students in Speech and Hearing Science covering auditory anatomy and physiology as well as hearing science and psychoacoustics. |
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Teaching Assistant:

At The Ohio State University:

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| 2018–2019 | <i>SHS 4440: Anatomy, Physiology, and Science of Hearing</i> (in person) |
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At the University of Utah:

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| 2013–2016 | <i>CSD 4300: Speech Science</i> (in person/online)
Introduction to the nature of sound, speech production, and characteristics of speech acoustics as they relate to normal and disordered speech production and speech perception. |
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ACADEMIC/PROFESSIONAL HONORS AND RECOGNITION:

2026	New Investigator Podium Session Travel Award American Auditory Society
2025	Faculty Teaching Award West Virginia University School of Medicine Division of Communication Sciences and Disorders
2025	Accessibility Advocate Award West Virginia University Office of Student Accommodations
2024	New Investigator Podium Session Travel Award American Auditory Society
2023	Lessons for Success Program Selectee American Speech-Language-Hearing Association Mentor: Bharath Chandrasekaran, Ph.D., Northwestern University
2019	Student Transportation Subsidy Acoustical Society of America
2017–2018	University Fellowship The Graduate School The Ohio State University
2016–2017	Outstanding Graduate Student The College of Health University of Utah
2016–2017	Dolowitz Family Memorial Scholarship Department of Communication Sciences and Disorders University of Utah
2015–2016	Frances Dolowitz Scholarship Department of Communication Sciences and Disorders University of Utah
2012–2013	Foreign Language and Area Studies Fellowship U.S. Department of Education

SERVICE:

2026	NIH CARE for Health™ Protocol Review Team Member
2026	Reviewer, Student Research Grant in Audiology, American Speech-Language-Hearing Foundation
2025-present	Publications Committee Member, American Auditory Society

2024–present	Reviewer, Audiology/Hearing Science Research Travel Award (ARTA), American Speech-Language-Hearing Association
2024-present	Reviewer, Students Preparing for Academic-Research Careers (SPARC) Award program, American Speech-Language-Hearing Association
2023–present	Editor in Chief of Audiology StatPearls Publishing
2023–present	Ad-hoc reviewer <i>The Journal of the Acoustical Society of America</i> <i>Journal of Speech, Language, and Hearing Research</i> <i>American Journal of Audiology</i> <i>Auditory Perception and Cognition</i> <i>Scientific Reports</i> <i>JASA Express Letters</i> <i>npj Acoustics</i> <i>Hearing Research</i>

MEDIA/POPULAR PRESS COVERAGE:

Television:

- WBOY-TV, Channel 12 News, “The ‘sounds of summer’ may pose a greater risk to your hearing loss,” June 18, 2025

Internet:

- WVU Today, Expert Pitch, “WVU expert on hearing loss urges yard warriors to shield ears from noisy outdoor equipment,” June 11, 2025.
- ASA Worldwide Press Room, “Does increasing the playback speed of men’s and women’s voices reduce their intelligibility by the same amount?” May 2016.
- UNEWS, “Brit Accents Vex U.S. Hearing-Impaired Elderly,” May 2016.

LICENSES AND CERTIFICATIONS:

ASHA Certificate of Clinical Competence in Audiology
West Virginia Board of Examiners for Speech-Language Pathology and Audiology

PROFESSIONAL MEMBERSHIPS:

American Auditory Society
Acoustical Society of America
American Speech-Language-Hearing Association