**Joshua M. Alexander, Ph.D., CCC-A**
Purdue University
Dept. of Speech, Language, & Hearing Sciences
Lyles-Porter Hall, 715 Clinic Drive
West Lafayette, Indiana 47907
alexan14@purdue.edu • (765) 494-4091
www.TinyURL.com/PurdueEar

**Research Interests**

Auditory processes contributing to speech perception deficits in hearing-impaired listeners and signal processing to overcome them.

**Academic Record**

| Degree | Institution | Years Attended |
|---|---|---|
| Post Doc | Boys Town National Research Hospital | 2007-2009 |
| Clinical Fellowship | Boys Town National Research Hospital | 2007-2009 |
| Post Doc | University of Wisconsin- Madison | 2004-2007 |
| Ph.D. | University of Wisconsin- Madison | 2001-2004 |
| M.S. | University of Wisconsin- Madison | 1999-2001 |
| B.S. | University of Wisconsin- Madison | 1995-1999 |

**Academic Appointments**

| Dates | Institution | Position |
|---|---|---|
| 2017 – Present | Purdue University | Associate Professor, Department of Speech, Language, and Hearing Sciences |
| 2009 – 2017 | Purdue University | Assistant Professor, Department of Speech, Language, and Hearing Sciences |

**Certifications**

| | |
|---|---|
| 2009 – Present | Certificate of Clinical Competence (CCC) in Audiology by the American Speech, Language, and Hearing Association |

**Awards and Honors**

| | |
|---|---|
| 2015-2016 | Ruth & M.D. Steer Outstanding Teacher Award: Audiology Graduate Instructor |
| 2013-2014 | Department Teaching Award for Outstanding Audiology Graduate Instructor |
| 2012-2013 | Department Teaching Award for Outstanding Audiology Graduate Instructor |
| 2011-2012 | Department Teaching Award for Outstanding Audiology Graduate Instructor |
| 2011-2012 | Fellow of the Entrepreneurial Leadership Academy |
| 2008 | International Hearing Aid Conference Travel Award |
| 1999 | Phi Beta Kappa National Honors Society |
| 1999 | American Speech, Language, & Hearing Foundation Graduate Student Scholarship |

**Membership in Professional Organizations**

| | |
|---|---|
| 2000 – Present | Acoustical Society of America |
| 2002 – Present | Association for Research in Otolaryngology |
| 2008 – Present | American Auditory Society |
| 2008 – Present | American Speech, Language, and Hearing Association |

**Publications**

[*indicates primary author(s); superscript numbers indicate co-author(s) mentored by the candidate: [1]undergraduate student, [2]graduate student, [3]postdoctoral scientist]

**A. Research Articles**

**Alexander*, J.M.**, Schmig[2], S., Wagner, R.P., and Armstrong, S. (2021). The peak height insertion gain (PHIG) method for quantifying acoustic feedback in hearing aids. Journal of the Acoustical Society of America, 150, 1635-1651. https://doi.org/10.1121/10.0005987

DeRoy Milvae[2*], K., **Alexander, J.M.**, and Strickland, E.A. (2021). The relationship between ipsilateral cochlear gain reduction and speech-in-noise recognition at positive and negative signal-to-noise ratios. Journal of the Acoustical Society of America, 149, 3449-3461.

Rallapalli[2*], V., and **Alexander, J.M.** (2019). Effects of noise and reverberation on speech recognition with variants of a multichannel adaptive dynamic range compression scheme. International Journal of Audiology, 58, 661-669.

**Alexander, J.M.** (2019). The s-sh confusion test and the effects of frequency lowering. Journal of Speech Language and Hearing Research, 62, 1486-1505.

**Alexander*, J.M.**, and Rallapalli[2*], V., (2017). Acoustic and perceptual effects of amplitude and frequency compression on high-frequency speech. Journal of the Acoustical Society of America, 142, 908-923.

Brennan*, M.A., Lewis, D., McCreery, R., Kopun, J., and **Alexander, J.M**. (2017). Listening effort and speech recognition with frequency compression amplification for children and adults with hearing loss. Journal of the American Academy of Audiology, 28, 823-837.

Lllanos[2*], F., **Alexander, J.M.**, Stilp, C.E., and Kluender, K.R. (2017). Power spectral entropy as an information-theoretic correlate of manner of articulation in American English. Journal of the Acoustical Society of America- Express Letters, 141, EL127-EL133.

Winiger[2*], A., **Alexander, J.M.**, and Diefendorf, A. (2016). Minimal hearing loss: From a failure based approach to evidence based practice. American Journal of Audiology, 25, 232-245.

Plotkowski [2*], A., and **Alexander*, J.M.** (2016). A sequential sentence test paradigm using revised PRESTO sentence lists. Journal of the American Academy of Audiology, 27, 647-660.

**Alexander, J.M.** (2016). Nonlinear frequency compression: Influence of start frequency and input bandwidth on consonant and vowel recognition. Journal of the Acoustical Society of America, 139, 938-957.

Brennan[*], M.A., McCreery, R., Kopun, J., **Alexander, J.M.**, Lewis, D., and Stelmachowicz, P.G. (2016). Masking release in children with hearing loss when using amplification. Journal of Speech Language and Hearing Research, 59, 110-121.

Rallapalli[2*], V., and **Alexander[*], J.M.** (2015). Neural-Scaled Entropy predicts the effects of nonlinear frequency compression on speech perception. Journal of the Acoustical Society of America, 138, 3061-3072.

**Alexander[*], J.M.**, and Masterson[2], K.M. (2015). Effects of WDRC release time and number of channels on output SNR and speech recognition. Ear and Hearing, 36, e35-e49.

**Alexander[*], J.M.**, Kopun, J.G., and Stelmachowicz, P.G. (2014). Effects of frequency compression and frequency transposition on fricative and affricate perception in listeners with normal hearing and mild to moderate hearing loss. Ear and Hearing, 35, 519-532.

McCreery[*], R.W., **Alexander, J.M.**, Brennan, M.A., Hoover, B., Kopun, J., and Stelmachowicz, P.G. (2014). The influence of audibility on speech recognition with nonlinear frequency compression for children and adults with hearing loss. Ear and Hearing, 35, 440-447.

Brennan[*], M.A., McCreery, R., Kopun, J., and **Alexander, J.M.**, Lewis, D., and Stelmachowicz, P.G. (2014). "Paired comparisons of nonlinear frequency compression, extended bandwidth, and restricted bandwidth hearing-aid processing for children and adults with hearing loss. Journal of the American Academy of Audiology, 25, 983-998.

**Alexander[*], J.M.**, Jenison, R.L., and Kluender, K.R. (2011). Real-time contrast enhancement to improve speech recognition. PLoS ONE, 6(9), e24630. doi: 10.1371/journal.pone.0024630.

**Alexander[*], J.M.**, and Kluender, K.R. (2010). Temporal properties of perceptual calibration to local and broad spectral characteristics of a listening context. Journal of the Acoustical Society of America, 128, 3597-3613.

Stilp[*], C.E., Kiefte, M., **Alexander, J.M.**, and Kluender, K.R. (2010). Cochlea-scaled spectral entropy predicts rate-invariant intelligibility of temporally distorted sentences. Journal of the Acoustical Society of America, 128, 2112-2126.

Stilp[*], C.E., **Alexander, J.M.**, Kiefte, M., and Kluender, K.R. (2010). Auditory color constancy: Calibration to reliable spectral properties across speech and nonspeech contexts and targets. Attention, Perception & Psychophysics, 72, 470-480.

**Alexander[*], J.M.**, and Kluender, K.R. (2009). Relativity of spectral tilt change in stop consonant perception by hearing-impaired listeners. Journal of Speech, Language, and Hearing Research, 52, 653-670.

**Alexander[*], J.M.**, and Kluender, K.R. (2008). Relativity of spectral tilt change in stop consonant perception. Journal of the Acoustical Society of America, 123, 386-396.

**Alexander[*], J.M.**, and Lutfi, R.A. (2008). Sample discrimination of frequency by hearing-impaired and normal-hearing listeners. Journal of the Acoustical Society of America, 123, 241-253.

Lutfi[*], R.A., and **Alexander, J.M.** (2005). Effects of informational maskers within and across trials. Journal of the Acoustical Society of America, 118, 322-324.

Lutfi*, R.A., Oh, E., Storm, E., and **Alexander, J.M.** (2005). Classification and identification of recorded and synthesized impact sounds by practiced listeners, musicians and nonmusicians. Journal of the Acoustical Society of America, 118, 393-404.

**Alexander*, J.M.**, and Lutfi, R.A. (2004). Informational masking of tones in hearing-impaired and normal-hearing listeners: Sensation level and decision weights. Journal of the Acoustical Society of America, 116, 2234-2247.

**B. Invited Book Chapters**

Kluender*, K.R., **Alexander, J.M.** (2007). "Perception of speech sounds," in P. Dallos and D. Oertel (Eds.) Handbook of the Senses: Audition (Elsevier: London).

**C. Edited Journal Editions**

"Hearing Aid Technology to Improve Speech Intelligibility in Noise," **Joshua M. Alexander (Ed.)** Seminars in Hearing, 42(3), (https://www.thieme-connect.de/products/ejournals/journal/10.1055/s-00000067).

**Alexander, J.M.** (2021). "Hearing aid technology to improve speech intelligibility in noise," Seminars in Hearing, 42(3), 175-185.

**D. Invited Review Articles**

**Alexander, J.M.** (2019). Frequency Compression and Transposition. In J. S. Damico & Martin J. Ball (eds.), The Sage Encyclopedia of Human Communication Sciences and Disorders (Sage: Thousand Oaks), pp. 781-784. DOI: http://dx.doi.org/10.4135/9781483380810.n259

**Alexander, J.M.** (2016). 20Q: Frequency lowering ten years later – new technology innovations. AudiologyOnline, Article #18040.

**Alexander, J.M.** (2016). Hearing aid delay and current drain in modern devices. Canadian Audiologist, 3(4).

Angelo*, K., **Alexander, J.M.**, Christiansen, T.U., and Jespersen, C.F. (2015). Oticon frequency composition. Oticon White Paper.

**Alexander, J.M.** (2014). How to use probe microphone measures with frequency-lowering hearing aids. Audiology Practices, 6, 8-13.

**Alexander, J.M.** (2013). Individual variability in recognition of frequency-lowered speech. Seminars in Hearing, 34, 86-109.

**Alexander, J.M.** (2013). 20Q: The highs and lows of frequency lowering amplification. AudiologyOnline, Article #11772.

Mueller*, H.G., **Alexander*, J.M.**, and Scollie*, S. (2013). 20Q: Frequency lowering - the whole shebang. AudiologyOnline, Article #11913. Rated one of the top AudiologyOnline articles of 2013: http://us1.campaign-archive1.com/?u=daf1002521399505f9a74892d&id=fd9976726f&e=13d96004b6.

Mueller[*], H.G., **Alexander[*], J.M.**, and Scollie[*], S. (2013). Frequency lowering amplification: function, clinical applications, and practical tips. AudiologyOnline, Article #23076. (A 3-part series that includes articles #11772 and #11913 above).

**E. Conference Proceedings**

Bouman[*], T., Barnard, A., and **Alexander, J.M.** (2017). Continued drive signal development for the carbon nanotube thermoacoustic loudspeaker using techniques derived from the hearing aid industry. SAE Technical Paper, 2017-01-1895, doi:10.4271/2017-01-1895.

Stilp[*], C.E., and **Alexander, J.M.** (2016). Spectral contrast effects in vowel categorization by listeners with sensorineural hearing loss. Proceedings of Meetings on Acoustics, 25, doi: 10.1121/2.0000233.

DeRoy Milvae[2*], K., **Alexander, J.M.**, and Strickland, E.A. (2015). Is cochlear gain reduction related to speech-in-babble performance? Proceeding of the International Symposium on Auditory and Audiological Research, 5, 43-50.

**Alexander[*], J.M.**, and Hariram[2], V. (2013). Neural-scaled entropy as a model of information for speech perception. Proceedings of Meetings on Acoustics, 19, 050179, doi: 10.1121/1.4799891.

**F. Patents**

"Hybrid Expansive Frequency Compression for Enhancing Speech Perception by Individuals with High-Frequency Hearing Loss," **J.M. Alexander**. Filed: May 17, 2022.
https://inventions.prf.org/innovation/7311

"Enhancing Perception of Frequency-Lowered Speech" (Patent No. US 10,083,702 B2), **J.M. Alexander**, Purdue Research Foundation. Patent issued: September 25, 2018.

"System and method for selective enhancement of speech signals" (Patent No. US 9,706,314 B2), R.L. Jenison, K.R. Kluender, and **J.M. Alexander**, Wisconsin Alumni Research Foundation. Patent issued: June 11, 2017.

"Enhancing Perception of Frequency-Lowered Speech" (Patent No. US 9,173,041 B2), **J.M. Alexander**, Purdue Research Foundation. Patent issued: October 27, 2015.

"Auditory Model-Inspired Automatic Speech Recognition," M. Beltman, M. Kwon, T. Talavage, M. Heinz, **J.M. Alexander**, S. J. Bolton, and Intel Corporation. Disclosed: February 5, 2014.

**G. Published Datasets and Test Stimuli**

**Alexander, J. M.**, Schmig, S., Wagner, R., Armstrong, S. (2021). Dataset of the peak height insertion gain (PHIG) method for quantifying acoustic feedback in hearing aids. Purdue University Research Repository. doi:10.4231/K1WJ-TW90

**Alexander, J. M.**, Plotkowski, A. (2021). Audio files and raw data for Perceptually Robust English Sentence Test - Revised (PRESTO-R). Purdue University Research Repository. doi:10.4231/FT0S-1715

**Alexander, J. M.** (2021). s-sh Confusion Test Audio Files. Purdue University Research Repository. doi:10.4231/AG8V-DM52

**H. Online Software**

"Frequency Lowering Fitting Assistants" (www.tinyURL.com/FLassist) designed to aid clinicians and researchers in objectively choosing program settings for hearing aids with different frequency-lowering technology.

**Invited Talks**

**Alexander, J.M.** (2022). Modern Hearing Aid Technology to Improve Speech Intelligibility in Noise. AudiologyOnline, Course #37378.

**Alexander, J.M.** (2021). Invited keynote address at Ordre des audioprothésistes du Québec Congrés Annuel 2021.

**Alexander, J.M.** (2021). Speech Acoustics and Frequency Lowering. AudiologyOnline, Course #36922.

**Alexander, J.M.** (2021). (Invited panelist) Open Source Audio Processing Platform--Live Workshop!, (Acoustical Society of America, Acoustics in Focus Virtual Conference).

**Alexander, J.M.** (2021). 5-Hour Master Class: Frequency lowering. AudiologyOnline, Course #36359.

**Alexander, J.M.** (2020). Reintroducing the high-frequency region to speech perception research (Acoustical Society of America, Acoustics Virtually Everywhere).

**Alexander, J.M.** (2019). Frequency Lowering – Is it in or is it out? University of Maryland 5th Annual Auditory and Vestibular Translational Day on New Technologies in Hearing (Baltimore, Maryland).

**Alexander, J.M.** (2019). Comparison of PHIG results with listening data and further modification and optimization of peak-height insertion gain (ANSI S3/WG48 working group, Columbus, Ohio).

**Alexander, J.M.** (2019). Frequency-lowering technologies to improve hearing. Indiana Clinical and Translational Sciences Institute Retreat (West Lafayette, Indiana).

**Alexander, J.M.** (2018). Wide dynamic range compression: The good, the bad, and the ugly. Convention of the Kansas Speech and Hearing Association (Wichita, Kansas).

**Alexander, J.M.** (2018). Adaptive nonlinear frequency compression reveals mechanisms for perception of frequency-lowered speech. Convention of the Kansas Speech and Hearing Association (Wichita, Kansas).

**Alexander, J.M.** (2018). Potential mechanisms for perception of frequency-lowered speech. University of Iowa Department of Communication Sciences and Disorders Professional Seminar Series (Iowa City, Iowa).

**Alexander, J.M.** (2018). Audiologic Evaluation of the Tympan Open Source Hearing Aid. Meeting of the Acoustical Society of America (Minneapolis, Minnesota).

**Alexander, J.M.** (2017). Enhancing perception of frequency-lowered speech. Palm Springs Hearing Seminar (Palm Springs, California).

**Alexander, J.M.** (2017). The trials and tribulations of using frequency compression to amplify speech. Palm Springs Hearing Seminar (Palm Springs, California).

**Alexander, J.M.** (2017). Nonlinear frequency compression - what's in and out. Canadian Academy of Audiology Conference (Ottawa, Canada).

**Alexander, J.M.** (2017). Signia Expert Series: Nonlinear frequency compression for the busy clinician. AudiologyOnline, Course #29400.

**Alexander, J.M.** (2016). Insights into nonlinear frequency compression, past, present, and future. Sonova (Stäfa, Switzerland).

**Alexander, J.M.** (2016). What every audiologist needs to know about speech perception. 2016 Annual Signia Student University (Piscataway, New Jersey).

**Alexander, J.M.** (2016). The role of neuroscience in the rehabilitation of hearing loss with hearing aids. Purdue Institute for Integrative Neuroscience (West Lafayette, Indiana).

**Alexander, J.M.** (2016). Development and implementation of a sequential sentence test paradigm using revised PRESTO sentence lists. Speech Research Laboratory of David Pisoni (Bloomington, Indiana).

**Alexander, J.M.** (2015). The hearing aid fitting process for frequency lowering amplification. Purdue Crossroads Conference (West Lafayette, Indiana).

**Alexander, J.M.** (2015). The trials and tribulations of amplifying speech for sensorineural hearing loss. Starkey Audiology Research Seminar Series.

**Alexander, J.M.** (2015). Results on a method of frication translocation. Oticon (Copenhagen, Denmark).

**Alexander, J.M.** (2015). Success or failure: The algorithm might be good, but not the fitting. Seventh International Forum for Hearing Instruments Developers (Oldenburg, Germany).

**Alexander, J.M.** (2015). Information for perception of speech distorted by sensorineural hearing loss. UC Berkeley Department of Psychology, Invited Colloquium (Berkeley, California).

**Alexander, J.M.** (2015). Frequency lowering techniques and results from the Purdue EAR Lab. Starkey Hearing Research Center (Berkeley, California).

**Alexander, J.M.** (2014). Hearing aid solutions for the speech-in-noise problem. AudiologyOnline, Course #24917.

**Alexander, J.M.** (2014). Everything you wanted to know about frequency lowering amplification. Convention of the Kansas Speech and Hearing Association (Kansas City, Kansas).

**Alexander, J.M.** (2014). Clinical considerations for using frequency lowering amplification. National Center for Rehabilitative Auditory Research (NCRAR) Monthly Seminar Series (Portland, Oregon).

**Alexander, J.M.** (2014). Hearing aid solutions for the speech-in-noise problem. 3rd Annual Siemens Student University (Piscataway, New Jersey).

**Alexander, J.M.** (2013). Research in frequency lowering. Oticon (Copenhagen, Denmark).

**Alexander, J.M.** (2013). Individual variability in recognition of frequency-lowered speech. AudiologyOnline, Course #23437.

**Alexander, J.M.** (2013). Clinical applications of frequency lowering. 2nd Annual Siemens Student University (Piscataway, New Jersey).

**Alexander, J.M.**, and Hariram, V. (2013). Neural-scaled entropy as a model of information for speech perception. 21st International Congress on Acoustics (Montreal, Canada).

**Alexander, J.M.** (2012). Frequency lowering in hearing aids. Indiana Speech-Language-Hearing Association Conference (Indianapolis, Indiana).

**Alexander, J.M.** (2011). Selection and verification of frequency-lowering technology. Nebraska Speech-Language-Hearing Association Conference (Kearney, Nebraska).

**Alexander, J.M.**, and Bentler, R.A. (2010). Update on frequency-lowering techniques in hearing aids. American Speech-Language-Hearing Association Conference (Philadelphia, Pennsylvania).

**Alexander, J.M.** (2010). The effects of nonlinear frequency compression on speech information. Boys Town National Research Hospital Colloquium (Omaha, Nebraska).

**Alexander, J.M.** (2010). The effects of nonlinear frequency compression on speech information. Hearing Aid Laboratory of Ruth Bentler (Iowa City, Iowa).

**Alexander, J.M.** (2010). Maximizing benefit from nonlinear frequency compression. 4th Phonak Virtual Audiology Conference.

**Alexander, J.M.** (2010). Considerations and techniques for frequency lowering in hearing aids. GN ReSound-TRUE Research Conference (St. Petersburg, Florida).

**Alexander, J.M.** (2009). Current frequency lowering options in hearing aids. American Speech-Language-Hearing Association Conference (New Orleans, Louisiana).

**Alexander, J.M.** (2009). Candidacy, selection, and verification of SoundRecover options. 3rd Phonak Virtual Audiology Conference.

**Alexander, J.M.** (2004). A molecular analysis of complex tone discrimination by normal-hearing and hearing-impaired listeners. University of Wisconsin Department of Communicative Disorders Colloquium.

**Alexander, J.M.**, and Lutfi, R.A. (2004). Listening weights for signals and maskers with uncertain frequency in normal-hearing and hearing-impaired listeners. Special Session honoring the work of Charles S. Watson at the Meeting of the Acoustical Society of America (New York, New York).

**Conference Presentations**

Kafi, H.I.[*2], **Alexander, J.M**, Bharadwaj, H.M. (2022). Characterizing the effect of distorted tonotopy on neural encoding and perception in sensorineural hearing loss. Meeting of the Acoustical Society of America.

Masters, B.P.[1], **Alexander, J.M.**[*] (2021). Directionality characteristics of the Tympan open-source hearing aid and earpieces. Meeting of the Acoustical Society of America.

**Alexander, J.M.** (2019). Use of signal detection theory to quantify the effects of adaptive nonlinear frequency compression on S-SH confusions. Contemporary Hearing Science Inspired by David M. Green, Symposium sponsored by the Knowles Hearing Center at Northwestern University.

**Alexander, J.M.** (2019). Difference limens for noise bandwidth discrimination in listeners with normal and impaired hearing. Meeting of the Acoustical Society of America.

**Alexander, J.M.** (2019). Frequency Lowering – Is Time on our Side? American Academy of Audiology Conference.

Trippel[*2], S., and **Alexander, J.M.** (2019). Validity of the Peak Height Insertion Gain (PHIG) Function for Quantifying Feedback. American Academy of Audiology Conference.

Mochel[*2], M., and **Alexander, J.M.** (2019). Quick Hearing Aid Verification using the New SPAN Test Signal. American Academy of Audiology Conference.

**Alexander, J.M.** (2018). Perceptual outcomes following parametric manipulations of adaptive nonlinear frequency compression. Annual Scientific and Technology Conference of the American Auditory Society.

Bouman[*], T., and **Alexander, J.M.** (2017). Continued drive signal development for the carbon nanotube thermoacoustic loudspeaker using techniques derived from the hearing aid industry. SAE Noise and Vibration Conference.

Mueller[*1], A., and **Alexander, J.M.** (2017). The Purdue S-SH (PUSSH) Test for frequency-lowered speech. American Academy of Audiology, AudiologyNOW! Conference.

Norris[*2], A., and **Alexander, J.M.** (2017). Factors influencing current drain in modern hearing aids. American Academy of Audiology, AudiologyNOW! Conference.

Rallapalli[*2], V., and **Alexander, J.M.** (2017). Individual differences in temporal envelope processing with amplitude compression. Annual Scientific and Technology Conference of the American Auditory Society.

Audette[*], W.E., Clavier, O., Rasetshwane, D., Neely, and **Alexander, J.M.** (2017). Development of an open source hearing aid platform. Meeting of the Acoustical Society of America.

Audette[*], W.E., Rasetshwane, D., Neely, S., Brennan, M., McCreery, R., **Alexander, J.M.**, and Clavier, O. (2017). Development of an open source hearing aid platform. Annual Scientific and Technology Conference of the American Auditory Society.

**Alexander[*], J.M.**, and Li[2], J. (2016). Real-time inverse frequency compression using an iPod. 2016 International Hearing Aid Conference.

Angelo[*], K., **Alexander, J.M.**, *et al*. (2016). Access to high-frequency speech sounds with Speech Rescue technology. HEAL (HEaring Across the Lifespan) Conference, Cernobbio (Lake Como), Italy.

Stilp[*], C.E., and **Alexander, J.M.** (2016). Spectral contrast effects in vowel categorization by listeners with sensorineural hearing loss. Meeting of the Acoustical Society of America.

Milvae[2*], K., **Alexander, J.M.**, and Strickland, E.A. (2016). Investigation of the relationship between cochlear gain reduction and speech-in-noise performance at positive and negative signal-to-noise ratios. Meeting of the Acoustical Society of America.

**Alexander[*], J.M.**, and Rallapalli[2], V. (2016). Acoustic effects of amplitude and frequency compression on high-frequency speech. Annual Scientific and Technology Conference of the American Auditory Society.

Schnetzer, L., and **Alexander, J.M.**, Humes, L., Withnell[*], R. (2016). A physiologically-based method for prescribing amplification for sensorineural hearing loss. MidWinter Meeting of the Association for Research in Otolaryngology.

Llanos[2*], F., and **Alexander, J.M.**, Stilp, C.E. (2015). Shannon entropy predicts the sonority status of natural classes in English. Meeting of the Acoustical Society of America.

Milvae[2*], K., and **Alexander, J.M.**, Strickland, E.A. (2015). Is cochlear gain reduction related to speech-in-babble performance? International Symposium on Auditory and Audiological Research (Nyborg, Denmark).

Plotkowski[2*], A.R., Hariram[2], V., and **Alexander, J.M.** (2015). Temporal envelope cues in frequency-lowered and un-lowered fricatives. Annual Scientific and Technology Conference of the American Auditory Society.

Hariram[2*], V., Plotkowski[2], A.R., and **Alexander, J.M.** (2015). Effects of WDRC on perception of high-frequency speech cues. Annual Scientific and Technology Conference of the American Auditory Society.

Plotkowski[2*], A.R., and **Alexander, J.M.** (2014). A new dual-task paradigm to assess cognitive resources utilized during speech recognition. Meeting of the Acoustical Society of America.

Hariram[2*], V., and **Alexander, J.M.** (2014). Neural-scaled entropy predicts the effects of nonlinear frequency compression on speech perception. Meeting of the Acoustical Society of America.

**Alexander[*], J.M.**, and Plotkowski[2], A.R. (2014). A dual-sentence paradigm using PRESTO to assess the effects of hearing aid algorithms on cognitive processing. HEAL (HEaring Across the Lifespan) Conference, Cernobbio (Lake Como), Italy.

Wendel[2*], J., Krishnan, A., and **Alexander, J.M.** (2014). Effects of frequency compression on the neural encoding of complex sounds in the human brainstem. Indiana Speech-Language-Hearing Association Conference.

Wendel[2*], J., Krishnan, A., and **Alexander, J.M.** (2014). Effects of frequency compression on the neural encoding of complex sounds in the human brainstem. MidWinter Meeting of the Association for Research in Otolaryngology.

Winiger[2*], A.M., Krishnan, L.A., and **Alexander, J.M.**, Diefendorf, A. O. (2013). Minimal hearing loss: From a failure-based approach to evidence-based practice. Phonak Pediatric Conference.

Francis[*], A.L., and **Alexander, J.M.** (2013). Effects of age and hearing impairment on perceptual weighting of acoustic cues. 5th International and Interdisciplinary Research Conference on Aging and Speech Communication.

Hariram[2*], V., and **Alexander, J.M.** (2013). Modeling Outcomes with Frequency Lowering using Neural-Scaled Entropy. Annual Scientific and Technology Conference of the American Auditory Society.

Witte[2*], A., and **Alexander, J.M.** (2013). The relative importance of spectral and temporal resolution for fricative identification. Annual Scientific and Technology Conference of the American Auditory Society.

Hariram[2*], V., and **Alexander, J.M.** (2013). Modeling Outcomes with Frequency Lowering using Neural-Scaled Entropy. Indiana Speech-Language-Hearing Association Conference.

Witte[2*], A., and **Alexander, J.M.** (2013). The relative importance of spectral and temporal resolution for fricative identification. Indiana Speech-Language-Hearing Association Conference.

**Alexander, J.M.** (2012). Inverse frequency compression for precipitous hearing loss. 2012 International Hearing Aid Conference.

Masterson[2*], K. M., and **Alexander, J.M.** (2012). Factors influencing differences between fast and slow WDRC for speech recognition in noise. Indiana Speech-Language-Hearing Association Conference.

**Alexander, J.M.** (2012). Nonlinear frequency compression: Balancing start frequency and compression ratio. Annual Scientific and Technology Conference of the American Auditory Society.

Masterson[2*], K.M., and **Alexander, J.M.** (2011). Factors influencing release from masking with fast vs. slow compression. Annual Scientific and Technology Conference of the American Auditory Society.

Shames[2*], Y.A., and **Alexander, J.M.** (2011). Novel dynamic frequency lowering techniques for precipitous hearing loss. Annual Scientific and Technology Conference of the American Auditory Society.

Keefe[*], D.H., **Alexander, J.M.**, and Fitzpatrick, D.F. (2009). Speech-evoked otoacoustic emissions elicited by speech in quiet and in noise. MidWinter Meeting of the Association for Research in Otolaryngology.

**Alexander[*], J.M.**, Lewis, D.E., Kopun, J.G., McCreery, R.W., and Stelmachowicz, P.G. (2008). Effects of frequency lowering in wearable devices on fricative and affricate perception. 2008 International Hearing Aid Conference.

Stilp[*], C.E., Kiefte, M., **Alexander, J.M.**, and Kluender, K.R. (2007). Intelligibility of information in temporally desynchronized bands of speech. Meeting of the Acoustical Society of America.

Fourakis[*], M.S., **Alexander, J.M.**, Hawks, J.W., and Kluender, K.R. (2007). The effect of the outer/middle ear transfer functions on vowel identification by persons fitted with a cochlear implant. 2007 Conference on Implantable Auditory Prostheses, 131.

Stilp[*], C.E., **Alexander, J.M.**, and Kluender, K.R. (2007). Spectral coherence predicts perceptual resilience of speech to temporal distortion. Meeting of the Acoustical Society of America.

**Alexander*, J.M.**, Kluender, K.R., and Jenison, R.L. (2007). Biologically-inspired spectral enhancement to improve speech recognition in hearing-impaired listeners. MidWinter Meeting of the Association for Research in Otolaryngology.

**Alexander*, J.M.**, and Kluender, K.R. (2005). Contributions of gross spectral properties and duration of spectral change to perception of stop consonants. Meeting of the Acoustical Society of America.

Lutfi*, R.A., Storm, E., **Alexander, J.M.**, and Oh, E. (2005). Psychoacoustic evaluation of a low-parameter modal model for synthesizing impact sounds. Meeting of the Acoustical Society of America.

**Alexander*, J.M.**, and Lutfi, R.A. (2005). Factors affecting sample discrimination for frequency in hearing-impaired and normal-hearing listeners. MidWinter Meeting of the Association for Research in Otolaryngology.

**Alexander*, J.M.**, and Lutfi, R.A. (2003). Upward spread of informational masking in normal-hearing and hearing-impaired listeners. Meeting of the Acoustical Society of America.

**Alexander*, J.M.**, and Lutfi, R.A. (2003). Informational masking for constant SL and SPL maskers in normal-hearing and hearing-impaired listeners. MidWinter Meeting of the Association for Research in Otolaryngology.

Lutfi*, R.A., and **Alexander, J.M.** (2002). Informational masking without maskers. Meeting of the Acoustical Society of America.

**Alexander*, J.M.**, and Lutfi, R.M. (2002). Sensation level and decision weights as factors affecting informational masking in hearing-impaired listeners. MidWinter Meeting of the Association for Research in Otolaryngology.

Lutfi*, R.A., Kistler, D.J., Oh, E., Callahan, M., Wightman, F. L., and **Alexander, J.M.** (2001). One factor underlies individual differences in informational masking. Meeting of the Acoustical Society of America.

**Research Grants**

1. Agency/Title of Grant: National Institutes of Health- National Institute on Deafness and Other Communication Disorders (NIH-NIDCD)/Open Source System for Audio Processing (R44 DC015445)
2. Duration of Funding: 5 years (07/01/16 – 12/31/21)
3. Total amount of award: $2,150,338
4. Role: Consultant (PI: Odile H. Clavier)

1. Agency/Title of Grant: Private Grant from Sonova USA, Inc.
2. Duration of Funding: 1 year (01/01/19 – 12/31/20)
3. Total amount of award: $9,990 (Direct Costs)
4. Role: PI

1. Agency/Title of Grant: Private Grant from William Demant Holding Group (Denmark)/Hybrid High Resolution Compression
2. Duration of Funding: 1 year (01/01/17 – 12/31/17)
3. Total amount of award: $19,997 (Direct Costs)
4. Role: PI

1. Agency/Title of Grant: Indiana Clinical and Translational Sciences Institute (CTSI)/A Wearable Processor for Testing Outcomes of New Hearing Aid Algorithm
2. Duration of Funding: 2 years (09/30/14 – 09/29/16)
3. Total amount of award: $9,973 (Direct Costs)
4. Role: PI

1. Agency/Title of Grant: Private Grant from William Demant Holding Group (Denmark)/Perceptual Effects of Speech Processing by Frequency Composition
2. Duration of Funding: 1 year (08/18/14 – 08/17/15)
3. Total amount of award: $40,354 (Direct Costs)
4. Role: PI

1. Agency/Title of Grant: NIH-NIDCD/Optimizing Amplification for Infants and Young Children (R01 DC004300)
2. Duration of Funding: 5 years (12/01/09 – 11/30/14)
3. Total amount of award: $2,211,490
4. Role: Consultant (PI: Walt Jesteadt; *formerly, Patricia G. Stelmachowicz*)

1. Agency/Title of Grant: Purdue Research Foundation Summer Faculty Grant/A Wearable Processor for Testing Outcomes of New Hearing Aid Algorithm
2. Duration of Funding: 2 months (05/19/14 – 07/18/14)
3. Total amount of award: $8,000 (Direct Costs)
4. Role: PI

1. Agency/Title of Grant: Clifford B. Kinley Trust Award/Do Older Adults Attend to Speech Differently than Younger Adults
2. Duration of Funding: 1 year (05/01/12 – 04/30/13)
3. Total amount of award: $20,000
4. Role: Co-PI (Co-PI: Alexander L. Francis)
5. Both Co-PIs equally responsible for funding

1. Agency/Title of Grant: NIH-NIDCD/Contrast Enhancement to Improve Speech Recognition with Hearing Devices (RC1 DC010601)
2. Duration of Funding: 2 years (10/01/09 – 09/30/11), 1 year NCE through 8/31/12
3. Total amount of award: $996,003

4. Role: PI on subcontract to Purdue (grant PI: Keith R. Kluender)
5. Total amount of sub-award to Alexander: $234,464

1. Agency/Title of Grant: National Organization for Hearing Research Foundation (NOHR)/Factors Influencing Perception of Coarticulated Speech by Hearing-Impaired Listeners
2. Duration of Funding: 1 year (01/19/06 – 01/18/07)
3. Total amount of award: $20,000 (Direct Costs)
4. Role: PI (grant to support post-doctoral research mentored by Keith R. Kluender)

1. Agency/Title of Grant: NOHR/The Effects of Hearing Loss on the Discrimination of Static and Dynamic Spectral Relationships
2. Duration of Funding: 1 year (01/15/04 – 01/14/05)
3. Total amount of award: $15,000 (Direct Costs)
4. Role: PI (grant to support doctoral research mentored by Robert A. Lutfi)

**Involvement in the Undergraduate and Graduate Research Programs**

Current Doctoral Students

Aditi Gargeshwari, SLHS, (Committee Member; A. Krishnan, Major Professor), 2021-Present

Past Doctoral Students

Vibha Viswanathan, BME, (Committee Member; M. Heinz, Major Professor), 2019-2021
Jing Li, ECE, (Committee Member; T. Talavage, Major Professor), 2016-2017
Varsha Rallapalli, SLHS, (Major Professor), 2014-2017
Kristina Milvae, SLHS, (Committee Member; E. Strickland, Major Professor), 2013-2017
Elin Roverud, SLHS, (Committee Member; E. Strickland, Major Professor), 2011-2014
Minseok Kwon, ECE (Committee Member; T. Talavage, Major Professor), 2011-2014
Jonathan Boley, BME, (Committee Member; M. Heinz, Major Professor), 2010-2013

Past Au.D. Capstone Project Advisees

Molly Mochel, 2018-2019
Stephanie Trippel, 2018-2019
Alexandra Norris, 2016-2017
Andrea Plotkowski, 2014-2015
Karen Schuster (L. Goffman, Co-Advisor), 2014-2015
Varsha Hariram, 2012-2013
Allison Witte, 2012-2013
Allison Winiger (L. Krishnan, Co-Advisor), 2012-2013
Dyanna Hamstra, 2011-2012
Kathleen Masterson, 2010-2011
Yonit Shames, 2010-2011

Committee Member
Jillian Wendel (R. Krishnan, Major Professor), 2013-2014
Kristina DeRoy (E. Strickland, Major Professor), 2011-2012
Madison Schumann (E. Strickland, Major Professor), 2011-2012
Caitlin Rinehart (A. Francis, Major Professor), 2011-2012
Kelsie Johnson (A. Francis, Major Professor), 2011-2012
Jennifer Karpicke (X. Luo, Major Professor), 2009-2010

Mentored Graduate Student Awards and Honors

Stephanie Trippel (2019)
Academy Research Conference (ARC) 2019 Student Poster Presentation Scholarship (American Academy of Audiology): "Validity of the Peak Height Insertion Gain (PHIG) Function for Quantifying Feedback."

Alli Norris (2017)
Best Student Poster, American Academy of Audiology-North Carolina Fall Conference: "Factors influencing current drain in modern hearing aids."

Troy Bouman (2017)
First Place for Best Overall Student Paper, SAE International Noise & Vibration Conference & Exhibition: "Continued drive signal development for the carbon nanotube thermoacoustic loudspeaker using techniques derived from the hearing aid industry."

Varsha Hariram (2014)
Honorable Mention for the Science, Culture and Policy graduate student poster competition (intramural): "Neural-scaled entropy predicts the effects of nonlinear frequency compression on speech perception."

Katie Masterson (2012)
Honorable Mention (3rd place) for Behavior Sciences in the Sigma Xi Graduate and Post-doctoral Research Poster Competition (intramural): "Factors influencing release from masking with fast vs. slow compression."

Katie Masterson (2011)
Resident and Graduate Student Poster Session grant from the National Institutes of Health and the American Auditory Society.

Yonit Shames (2011)
Resident and Graduate Student Poster Session grant from the National Institutes of Health and the American Auditory Society.

Undergraduate Research Advisees enrolled in the Honors College

Annika Schenkel, 2022-present
Amanda Mueller, 2015-2016

Directed Undergraduate Studies

Benjamin Pierce, (Multidisciplinary Engineering - Acoustical Engineering), 2021-2022

Michael Kellogg, BME 496 (Mentored Engineering Design), 2010
David Yeung, BME 496 (Mentored Engineering Design), 2010

Contributor on Senior Design Projects

Songjingwei Li, Kelsey Reilly, Nicole Kaminsky, and Kareem Hussein, "Occupational Hearing Loss Project HOPE, Fall 2017

Mentored Engineering Projects in Community Service (EPICS)

| | |
|---|---|
| Spring 2014 | EPICS Project Partner (Virtual Audiometer) |
| Fall 2013 | EPICS Project Partner (Virtual Audiometer) |
| Spring 2013 | EPICS Project Partner (Virtual Audiometer, Hearing Aid Isolation Chamber) |
| Fall 2012 | EPICS Project Partner (Virtual Audiometer, Hearing Aid Isolation Chamber, Frequency-Lowering Fitting Assistants Project) |
| Spring 2012 | EPICS Project Partner (Virtual Audiometer, Hearing Aid Isolation Chamber) |
| Fall 2011 | EPICS Project Partner (Virtual Audiometer) |
| Spring 2011 | EPICS Project Partner (Virtual Audiometer) |
| Fall 2010 | EPICS Project Partner (Virtual Audiometer) |
| Spring 2010 | EPICS Project Partner (Hearing Aid Isolation Chamber) |

**University, School, and Departmental Administrative Service**

Department

| | |
|---|---|
| 2019-2022 | Chair of the Au.D. Curriculum and Standards Committee |
| 2018-2019 | Au.D. Curriculum and Standards Committee |
| 2018-2022 | Au.D. Admission Committee |
| 2017 | Undergraduate Curriculum and Standards Committee |
| 2016-2017 | Au.D. Admission Committee |
| 2011-2017 | Ringel Research Symposium and Standards Committee |
| 2013-2015 | Advisory Committee to the Head |
| 2009-2014 | Au.D. Curriculum and Standards Committee |
| 2013-2014 | Academic Faculty Search Committee |
| 2011-2013 | Ringel Research Award Committee |
| 2012-2013 | Au.D. Clinical Faculty Search Committee |
| 2011-2013 | SLHS EPICS Liaison |
| 2009-2013 | Au.D. Clinical Education Committee |
| 2009-2012 | Au.D. Gateway Exam Committee |

College of Health and Human Sciences

| | |
|---|---|
| 2021-2022 | HHS Faculty Fellows Program |
| 2019-2020 | College of HHS Working Group on Strategic Planning |
| 2011-2012 | College of HHS Working Group on Engagement, Ad Hoc Committee |

College of Engineering

| | |
|---|---|
| 2013-2015 | Preeminent Pitch Team for Advanced Research Center for Acoustics |
| 2015 | Pitch Team for Diversity Transformation Award |

Community Outreach

| | |
|---|---|
| 2019 | Organized a 2-hour hands-on session titled “Engineering in Audiology” for almost 40 middle-school students participating in the Women In Engineering Program (WIEP) Innovation to Reality (I2R) Outreach Program at Purdue (4/25/19) |
| 2016 | Purdue Retirees Association talk (100+ attendees), “Hearing Technology - New Facts You Should Know” (5/2/16) |
| 2016 | Organized a 2-hour hands-on session titled “Engineering in Audiology” for almost 40 middle-school students participating in the Women In Engineering Program (WIEP) Innovation to Reality (I2R) Outreach Program at Purdue (4/21/16) |
| 2012 | Tour of research laboratory to the Lego League at East Tipp Middle School (10/11/12) |

**Professional Service**

| | |
|---|---|
| 2022 | Reviewer for the Purdue Engineering Student Council Industrial Roundtable Scholarships |
| 2021 | Reviewer for the Purdue Engineering Student Council Industrial Roundtable Scholarships |
| 2022 | Steering Committee for the ANSI S3W48 Working Group on Hearing Aid Measurement Standards |
| 2018-Present | Committee Member on the ANSI S3W48 Working Group on Hearing Aid Measurement Standards |
| 2019 | Review Committee Member for Student Poster Scholarships for the American Academy of Audiology Convention |
| 2018 | Grant Reviewer for the Indiana Clinical and Translational Sciences Institute |
| 2018 | Medical Research Council (UK) Grant Reviewer/Content Expert |
| 2015 | Ad Hoc Reviewer for the Engineering 2 Study Group of the FONDECYT 2015 Initiation into Research, an initiative of the Chilean National Science and Technology Commission |
| 2013 | Reviewer for the American Speech and Hearing Foundation Graduate Student Scholarships |

Reviewer/Editorial Consultant

Journal of the Acoustical Society of America
Journal of Speech, Language, and Hearing Research
Ear and Hearing
Hearing Research
International Journal of Audiology

Trends in Hearing
Journal of Disability and Rehabilitation
Audiology and Neurotology
Institute of Electrical and Electronics Engineers (IEEE) MultiMedia
Frontiers in Neuroscience
Nature Medicine

Book Consultant

"Engineering the Human Body - Hearing Devices" (2020). Focus Readers (Lake Elmo, MN). ISBN: 978-1-64185-835-9