

Curriculum Vitae

MATTHEW B. WINN
Speech-Language-Hearing Sciences
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Minneapolis, MN 55455

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PROFESSIONAL SUMMARY

My research is influenced by my clinical training in audiology as well as my training in speech science and linguistics. My work focuses on the ways in which hearing impairment affects speech communication, especially the ways that are not captured by conventional clinical testing. The main contributions that define my identity in the field are my work on listening effort (particularly the details of the time course of effort and best practices in measuring it) and detailed measurements of speech perception (particularly within a framework inspired by the auditory sciences). I have focused my research on people with cochlear implants, which are devices used to restore a sensation of hearing in those who have severe to profound deafness. Additionally, I have developed open-source solutions for speech stimulus generation for experiments involving phonetic categorization and cue weighting, as well as analysis tools for pupillometry (a tool for measuring cognitive effort).

Education

PhD, University of Maryland, Hearing and Speech Sciences Advisor: Monita Chatterjee	2011
Au.D. (Doctor of Audiology), University of Maryland	2010
BA, University of Delaware, Psychology & Philosophy	2005

Fellowships, Residencies, and Visiting Engagements

Audiology Extern	Dates
Veterans Affairs Medical Center, Audiology Department	July 2009 – June 2010
Postdoctoral fellow University of Wisconsin-Madison Waisman Center	April 2012 – August 2015

Academic Appointments

University of Minnesota, Twin Cities Campus Department of Speech-Language-Hearing Sciences Assistant Professor	August 2018 – Present
University of Washington, Seattle campus Department of Speech & Hearing Sciences Assistant professor	August 2015 – August 2018

Current Membership in Professional Organizations

Association for Research in Otolaryngology	2012 – present
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American Auditory Society	2009 – present
Association for Research in Otolaryngology mentorship program (clinician-scientist group)	2018 – present
CIAP Mentorship program (fostering communication between scientists and clinicians/patients)	2017 – present
Technical council on Psychological and Physiological Acoustics, Acoustical Society of America	2015 – 2019

HONORS AND RECOGNITION

	Date
Pre-Doctoral Training Grant (Univ. of Maryland Center for Comparative Evolution and Biology of Hearing)	2010; 2011
Distinguished Teaching Award (Univ. of Maryland Center for Teaching Excellence)	2010; 2011
Dean’s Scholar Mentorship Award (Univ. of Maryland College of Behavioral and Social Sciences)	2011
Charles N. Ford Best translational / Clinical Poster (Univ. of Wisconsin Dept. of Surgery)	2014
Second place, Poster Pitch Blitz (Association for Research in Otolaryngology)	2014
Young Investigator Award (8th Int’l Symposium on Objective Measures in Auditory Implants, Toronto)	2014
Young Investigator Travel Award (Association for Research in Otolaryngology)	2015

External Sources

	Date Awarded
Invitation to serve as a Core Member of the Brain Hearing Network	2019

Honors Awarded to Student/Trainee

National Institutes of Health National Research Dissertation Fellowship for Au.D. Audiologists (F32) Awarded to Steven Gianakas (PhD student)	2020
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RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

Grants, Contracts, Awards: External Sources

Award: NIH-NIDCD R01 DC017114 “Listening effort in cochlear implant users”
Principal Investigator: **Matthew B. Winn (myself)**
Team members on all associated projects:
Status: Funded, ongoing
Sponsoring Organization: National Institutes of Health / NIDCD
Award Dates: August 2018 – July 2023

Funded Amount: \$1,837,970
Direct Amount: \$1,250,000
Indirect Amount: \$587,970

Award: NIH-NIDCD R03 DC014309 “Measuring listening effort and spectral resolution in cochlear implant patients”

Principal Investigator: **Matthew B. Winn (myself)**

Team members on all associated projects:

Status: Funded, ongoing

Sponsoring Organization: National Institutes of Health / NIDCD

Award Dates: January 2016 – August 2019

Funded Amount: \$454,796

Direct Amount: \$300,000

Indirect Amount: \$154,796

Award: NIH-NIDCD R21 DC018070 “Race, ethnicity, and speech intelligibility in normal hearing and hearing impairment”

Principal Investigator: Benjamin Munson

Team members on all associated projects:

Status: Funded, ongoing

Sponsoring Organization: National Institutes of Health / NIDCD

Award Dates: July 2019 – June 2021

Funded Amount: \$389,318

Direct Amount: \$250,000

Indirect Amount: \$139,318

My Role: Consultant, 2%

Publications

Asterisk() - indicates student author*

Peer-reviewed publications (26; 25 since terminal degree)

1. **Winn, M.B.** & Idsardi, W.J. (2008). Musical evidence regarding trochaic inversion. *Language and Literature*, 17 (4), 335-349.
MW: collected data as undergraduate, wrote ~70% of the paper
2. **Winn, M.B.**, Chatterjee, M., & Idsardi, W.J. (2012). The use of acoustic cues for phonetic identification: Effects of spectral degradation and electric hearing. *Journal of the Acoustical Society of America*, 131, 1465-1479. doi: 10.1121/1.3672705
MW: developed the study, created stimuli, collected the data, performed the statistical analysis, generated all plots, wrote the paper
3. **Winn, M.B.**, Chatterjee, M., & Idsardi, W.J. (2013). The roles of voice onset time and F0 in stop consonant voicing perception: Effects of masking noise and low-pass filtering. *Journal of Speech, Language and Hearing Research*, 56, 1097-1107. doi: 10.1044/1092-4388(2012/12-0086)
MW: developed the study, created stimuli, collected the data, performed the statistical analysis, generated all plots, wrote the paper
4. **Winn, M.B.**, Rhone, A.E., Chatterjee, M., & Idsardi, W.J. (2013). Auditory and visual context effects in phonetic perception by normal-hearing listeners and listeners with cochlear implants.

Frontiers in Psychology: Auditory Cognitive Neuroscience, 4, article 824, 1-13. doi: 10.3389/fpsyg.2013.00824

MW: developed the study, created stimuli, collected the data, performed the statistical analysis, generated all plots, wrote ~80% of the paper

5. Chrabaszcz, A.V., **Winn, M.B.**, Lin, C.Y., & Idsardi, W.J. (2014). Acoustic Cues to Perception of Word Stress by English, Mandarin and Russian Speakers. *Journal of Speech, Language, and Hearing Research*, 57, 1468-1479. doi:10.1044/2014_JSLHR-L-13-0279
MW: helped to develop the project, generated stimuli, consulted on statistical analysis and visualizations, wrote ~ 25% of the paper.
6. **Winn, M.B.**, Edwards, J.R., and Litovsky, R.Y. (2015). The impact of auditory spectral resolution on listening effort revealed by pupil dilation. *Ear and Hearing*. 36(4):e153-65. doi: 10.1097/AUD.0000000000000145
MW: developed the study, created stimuli, collected the data, performed the statistical analysis, generated all plots, wrote ~90% of the paper
7. **Winn, M.B.** & Litovsky, R.Y. (2015) Using speech sounds to test functional spectral resolution in listeners with cochlear implants. *Journal of the Acoustical Society of America*, 137, 1430-1442. doi: 10.1121/1.4908308
MW: developed the study, created stimuli, collected the data, performed the statistical analysis, generated all plots, wrote ~90% of the paper
8. Stilp, C.E., Anderson, P.W., **Winn, M.B.** (2015) Predicting contrast effects following reliable spectral properties in speech perception. *Journal of the Acoustical Society of America*, 137, 3466-3476. doi: 10.1121/1.4921600
MW: consulted on statistical analysis, provided stimulus generation code
9. * Ehlers, E., Kan, A., **Winn, M.B.**, Stoelb, C., Litovsky, R. (2016). Binaural hearing in children using Gaussian enveloped and transposed tones. *Journal of the Acoustical Society of America*, 139, 1724-1733. doi: 10.1121/1.4945588
MW: consulted on statistical analysis and visualization, generated new analysis pipeline, wrote ~ 15% of the paper
10. **Winn, M.B.**, Won, J.H., Moon, I.J. (2016). Assessment of spectral and temporal resolution in cochlear implant users using psychoacoustic discrimination and speech cue categorization. *Ear and Hearing*, 37(6):e377–e390. doi: 10.1097/AUD.0000000000000328
MW: helped design the project, generated stimuli, performed statistical analysis, generated plots, wrote ~80% of the paper
11. Kong, Y.-Y., **Winn, M.B.**, Poellmann, K., Donaldson, G. (2016) Discriminability and perceptual saliency of temporal and spectral cues for final fricative consonant voicing in simulated cochlear-implant and bimodal hearing. *Trends in Hearing*, 20, 1-15. doi: 10.1177/2331216516652145
MW: helped design the project, generated stimuli, consulted on analysis, wrote ~40% of the paper

12. Reidy, P., Kristensen, K., **Winn, M.B.**, Litovsky, L., Edwards, J. (2016). The acoustics of word-initial fricatives and their effect on word-level intelligibility in children with bilateral cochlear implants. *Ear and Hearing*. doi: 10.1097/AUD.0000000000000349
MW: consulted on data analysis and visualization, wrote ~ 15% of the paper
13. **Winn, M.B.** (2016). Rapid release from listening effort resulting from semantic context, and effects of spectral degradation and cochlear implants. *Trends in Hearing*, 20, 1-17. doi: 10.1177/2331216516669723
MW: sole-author paper (stimuli, data collection, statistics, visualizations, writing)
14. *DiNino, M., Wright, R., **Winn, M.B.**, Bierer, J.A. (2016). Vowel and consonant confusion patterns resulting from spectral manipulations in vocoded stimuli designed to replicate poor electrode-neuron interfaces in cochlear implants. *Journal of the Acoustical Society of America*, 140(6), 4404–4418.
MW: helped to develop the project with PhD student, oversaw its completion, generated stimuli, consulted on statistical analysis and visualizations, wrote ~ 25% of the paper.
15. * Kapnoula, E., **Winn, M.B.**, Kong, E.J., Edwards, J., McMurray, B. (2017). Evaluating the sources and functions of gradiency in phoneme categorization: An individual differences approach. *Journal of Experimental Psychology: Human Perception and Performance*, 43, 1594-1611. doi: 10.1037/xhp0000410
MW: helped to develop the project, generated all stimuli, wrote ~25% of the paper
16. **Winn, M.B.**, Wendt, D., Koelewijn, T., Kuchinsky, S. (2018). Best practices in using pupillometry to measure listening effort: an introduction for those who want to get started. *Trends in Hearing*, 22, 1-32. doi: 10.1177/2331216518800869
MW: Developed the project, wrote ~70% of the paper, handled communication, generated all plots
*** Note: #2 all-time most viewed paper in Trends in Hearing, second only to a paper published in 2008.*
17. **Winn, M.B.**, Moore, A. (2018). Pupillometry reveals that context benefit in speech perception can be disrupted by later-occurring sounds, especially in listeners with cochlear implants. *Trends in Hearing*, 22, 1-22. doi: 10.1177/2331216518808962
MW: developed the study, created stimuli, collected the data, performed the statistical analysis, generated all plots, wrote ~75% of the paper
18. **Winn, M.B.**, Kan, A., Litovsky, R. (2019). Temporal dynamics and uncertainty in binaural hearing revealed by anticipatory eye movements. *Journal of the Acoustical Society of America*, 145, 676–691.
MW: developed the study, created stimuli, collected the data, performed the analysis, wrote the paper

19. *Gianakas, S., & **Winn, M.B.** (2019). Lexical bias in word recognition by cochlear implant listeners. *Journal of the Acoustical Society of America*, 146, 3373-3383.
MW: helped to develop the project with PhD student, created stimuli, guided the analysis, co-wrote the paper
20. **Winn, M.B.** (2020). Accommodation of gender-related phonetic differences by listeners with cochlear implants and in a variety of vocoder simulations. *Journal of the Acoustical Society of America*, 147, 174-190.
MW: sole-author paper (stimuli, data collection, statistics, visualizations, writing)
21. Geller, J., **Winn, M.B.**, Mahr, T., Mirman, D. (2020). GazeR: A package for processing gaze position and pupil size data. *Behavior Research Methods*. <https://doi.org/10.3758/s13428-020-01374-8>
MW: contributed R code, visualizations, assisted with writing
22. **Winn, M.B.** (2020). Manipulation of voice onset time in speech stimuli: A tutorial and flexible Praat script. *Journal of the Acoustical Society of America*, 147, 852-866.
*MW: sole-author paper (coding, data repository, visualizations, writing)
Selected as cover feature for JASA issue 147*
23. * DiNino, M., Arenberg, J., Duchen, A., **Winn, M.B.** (2020). Effects of Age and Cochlear Implantation on Spectrally Cued Speech Categorization. *Journal of Speech, Language and Hearing Research*, 63, 2425-2440.
MW: Oversaw PhD student project, developed stimuli, assisted with writing
24. * Dirks, C., Nelson, P., **Winn, M.B.**, Oxenham, A. (2020). Sensitivity to binaural temporal-envelope beats with single-sided deafness and a cochlear implant as a measure of tonotopic match. *Journal of the Acoustical Society of America*, 147, 3626-3630.
MW: performed statistical analyses, generated visualizations
25. **Winn, M.B.** & Moore, A.N. (2020). Acoustic cues used for accommodating gender-related voice differences heard by listeners with cochlear implants and with normal hearing. *Journal of the Acoustical Society of America*, 148, 496-510.
MW: Developed the project, created the stimuli, performed statistical analysis, created visualizations, wrote ~75% of the paper.
26. **Winn, M.B.** & Teece, K. (2020). Slower speaking rate reduces listening effort and increases benefit of contextual cues among listeners with cochlear implants. *Ear & Hearing*, published ahead of print. doi: 10.1097/AUD.0000000000000958
MW: Developed the project, created the stimuli, performed statistical analysis, created visualizations, wrote ~75% of the paper.

* Indicates student lead authorship under my mentorship

Invited book chapter

Winn, M.B. & Stilp, C. (2019) "Phonetics and the Auditory System" in *The Routledge Handbook*

of *Phonetics* (W. Katz & P. Assmann, eds).

MW: performed data analysis, generated all plots, wrote ~50% of the chapter

Publications Submitted or in Progress

Asterisk() - indicates student author*

* Smith, M.L. & **Winn, M.B.** Individual variability in the adjustment to simulated shallow cochlear implant insertion depths (in revision, *Ear and Hearing*)
MW: helped to develop the project with PhD student, created stimuli, guided the analysis, co-wrote the paper

Winn, M.B. & O'Brien, G. Distortion of spectral ripples through cochlear implants has major implications for interpreting performance scores (submitted, *Ear and Hearing*)
MW: performed data analysis, generated plots, wrote ~85% of the paper

Winn, M.B. & Teece, K. Listening effort: Not just a function of speech intelligibility scores (submitted, *Trends in Hearing*)
MW: performed data analysis, generated plots, wrote ~70% of the paper

Ihlefeld, A., Thakkar, T., **Winn, M.B.**, Dhar, S., Litovsky, R. Robust spatial release from masking for spectrally degraded vocoded speech (in revision)
MW: consulted on statistical analysis and visualization, wrote ~20% of the paper

Presentations, Posters, and Exhibits

Asterisk() - indicates student co-presenter*

International Invited Podium Presentations (6)

1. **Winn, M.B.**, (2016). Objective measures of effort and speech perception in hearing aid users. Podium presentation at the World Congress of Audiology, Vancouver, BC.
2. **Winn, M.B.** (2017). Using the pupil response to measure how hearing loss and task demands affect the timing (not just the amount) of listening effort. Podium presentation at Pupillometry in Hearing Science workshop, Amsterdam.
3. **Winn, M.B.** (2017). Temporal dynamics of speech perception and listening effort in people with hearing impairment. Invited presentation at University College London, London, England.
4. **Winn, M.B.** (2018). Invitation to speak at XII International Meeting on Advances in Audiology, Salamanca, Spain
5. **Winn, M.B.** (2020). Uncertainty in speech perception. Invited presentation at the Workshop on Perceptual Confidence and Uncertainty, Paris, France. Postponed due to COVID-19 pandemic.
6. **Winn, M.B.** (2020). Uncertainty in speech perception. Invited presentation at the First Session on Cognitive Hearing Science, Copenhagen, Denmark. Postponed due to COVID-19 pandemic.
7. **Winn, M.B.** (2020). Cue weighting as evaluation of the auditory system. Invited presentation at "Cue weighting: Thinking outside the box" satellite workshop at the 17th biennial conference of the Association for Laboratory Phonology.

National Invited Podium Presentations (17)

1. **Winn, M.B.**, Edwards, J.R., Litovsky, R.Y. (2015). The relationship between phonetic cue weighting and listening effort in listeners with cochlear implants. Invited podium presentation at the 169th meeting of the Acoustical Society of America, Pittsburgh, PA.
2. **Winn, M.B.** (2016). Pupillary responses signify more than just effort: windows into processing, prediction, reflection, and uncertainty. Podium presentation at the Acoustical Society of America Fall meeting, Honolulu, HI.
3. **Winn, M.B.** (2017). Pupillary responses show deployment of listening effort during and after the processing of speech. Invited presentation at National Center for Rehabilitative Auditory Research; nationally telecast VA audiology research seminar.
4. **Winn, M.B.** (2017). Speech perception with a cochlear implant: the rules are different. Invited podium presentation at the Conference on Implantable Auditory Prostheses. Lake Tahoe, CA.
5. **Winn, M.B.**, Picou, E., Teubner-Rhodes, S., Eckert, M. (2017). Measuring and understanding listening effort. Invited presentation for American Academy of Audiology nationally telecast e-seminar.
6. **Winn, M.B.** (2017). Using pupillometry to look inside the process of repairing mistakes in speech perception. Invited presentation at Boston University Pupillometry Symposium, Boston, MA.
7. **Winn, M.B.** (2017). Temporal dynamics of speech perception and listening effort in people with hearing impairment. Invited presentation at Boys Town National Research Hospital, Omaha, NE.
8. **Winn, M.B.** (2018). More readable code in R using pipes and layers. Invited presentation at ancillary meeting at the 40th Annual midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
9. **Winn, M.B.** & Moore, A. (2019). Backwards and indirect context effects in accommodating gender differences in speech. Podium presentation at the Acoustical Society of America Spring meeting, Louisville, KY.
10. **Winn, M.B.** (2019). Understanding and measuring listening effort in people with hearing loss. Invited presentation at Northeast Ohio Medical University, Kent, OH.
11. **Winn, M.B.** & Teece, K. (2019). Speech perception tests motivated by everyday patient experience. Invited Podium presentation at the Annual Midwest CI Crash research conference, Madison, WI.
12. **Winn, M.B.** (2019). Listening effort: How it affects your patients' lives and how to measure it. Invited podium presentation at the annual convention of the American Speech-language Hearing Association, Orlando, FL.
13. **Winn, M.B.** (2020). Listening effort associated with misperceptions and confusions in speech perception by individuals with cochlear implants. Podium presentation at the annual Rush Ear Day conference, Chicago, IL.
14. **Winn, M.B.** (2020). Interactive in-class simulations of hearing loss and cochlear implants to learn about hearing and the acoustics of speech. Invitation for podium presentation at the semi-annual meeting of the Acoustical Society of America. Postponed due to COVID-19 pandemic.

15. **Winn, M.B.** (2020). Using Praat for high-quality speech manipulation and illustration: recommended practices and demonstrations. Invitation for podium presentation at the semi-annual meeting of the Acoustical Society of America. Postponed due to COVID-19 pandemic.
16. **Winn, M.B.** & Wright, R. (2020). Commonly used speech stimuli in auditory experiments: a critical look. Invitation for podium presentation at the semi-annual meeting of the Acoustical Society of America. Postponed due to COVID-19 pandemic.
17. **Winn, M.B.** (2020). Listening effort in people with hearing loss reflects economical language processing rather than audibility or speech intelligibility. Invited presentation at Gordon Research Conference, Providence, RI. Canceled due to COVID-19 pandemic.

Podium Presentations (contributed) (21; 17 since terminal degree)

1. **Winn, M.B.** & Pence, K. (2003). More verbs to come: The developing focus on verbs in parents' speech to infants. Podium presentation at Delaware Speech, Language & Hearing Association conference, Wilmington, DE.
2. **Winn, M.B.**, Chatterjee, M.C., Idsardi, W.J. (2010). Phonetic cues are weighted differently when spectral resolution is degraded. Invited talk at the Joint Scientific Meeting of the Center for Comparative and Evolutionary Biology of Hearing (C-CEBH) at the Univ. of MD and the National Institute of Deafness and Other Communication Disorders (NIDCD) of the NIH, College Park, MD.
3. **Winn, M.B.**, Rhone, A.E., Idsardi, W.J. & Chatterjee, M. (2011). The perception of phonetic features and acoustic cues by impaired listeners. Invited talk at the 162nd meeting of the Acoustical Society of America, San Diego, CA.
4. **Winn, M.B.**, Idsardi, W.J. and Chatterjee, M. (2011). Implications of hearing impairment on phonetic perception. Invited talk at the Joint Scientific Meeting of the Center for Comparative and Evolutionary Biology of Hearing (C-CEBH) at the Univ. of MD and the National Institute of Deafness and Other Communication Disorders (NIDCD) of the NIH, College Park, MD.
5. **Winn, M.B.**, Rhone, A.E., Idsardi, W.J. & Chatterjee, M. (2013). Auditory and visual adaptation in cochlear implant speech perception. Podium presentation at the annual meeting of the American Auditory Society, Scottsdale, AZ.
6. **Winn, M.B.** & Litovsky, R.Y. (2014). Measuring listening effort in CI listeners using pupil dilation. Podium presentation at the 8th International Symposium on Objective Measures in Auditory Implants, Toronto, ON, Canada.
7. **Winn, M.B.** (2014). Single-sided deafness with a cochlear implant: a unique opportunity to learn about speech perception and the auditory system. Podium presentation at the CRASH Cochlear Implant Research Mini-Conference, Madison, WI.
8. **Winn, M.B.** and Litovsky, R.Y. (2014). The impact of bilateral cochlear implantation on listening effort revealed through measurements of pupil dilation. Podium presentation at the 2014 American Cochlear Implant Alliance Conference, Nashville, TN.
9. **Winn, M.B.**, Buhr-Lawler, M., Kan, A., Jones, H., Litovsky, R., Gubbels, S. (2014). The impact of adding a contralateral cochlear implant to a normal hearing ear in terms of spatial hearing

abilities and listening effort during speech perception. Podium presentation at the 2014 American Cochlear Implant Alliance Conference, Nashville, TN.

10. **Winn, M.B.**, Litovsky, R.Y. (2015). The roles of harmonicity and temporal pitch in the perception of speech in noise: a study of intelligibility and listening effort. Podium presentation at the 38th Annual midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
11. **Winn, M.B.** (2016). Hearing impairment and listening effort: How do we measure it and why does it matter? Podium presentation at the local chapter of the Hearing Loss Association of America, Seattle, WA and Bellevue, WA.
12. **Winn, M.B.** (2016). Sensitivity to binaural cues above threshold as revealed by eye movements. Podium presentation at the Acoustical Society of America, Salt Lake City, UT.
13. DiNino, M., **Winn, M.B.**, Bierer, J.A. (2016). Cochlear implant listener vowel identification performance and confusion patterns with selective channel activation programs. Podium presentation at the Acoustical Society of America Fall meeting, Honolulu, HI.
14. **Winn, M.B.** (2017). Signs of Post-stimulus Auditory Processing in Pupillary Responses. Podium presentation at the 39th Annual midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
15. O'Brien, G., **Winn, M.B.** (2017). Uncertainty in Binaural Hearing Linked to Inherent Envelope Fluctuations. Podium presentation at the 39th Annual midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
16. **Winn, M.B.** (2017). Dynamic control over the allocation of listening effort in speech perception. Podium presentation at the Acoustical Society of America, Boston, MA.
17. DiNino, M., **Winn, M.B.**, Arenberg, J. (2017). Vowel recognition scores of children with cochlear implants are related to speech-based spectral resolution and time with the Implant. Podium presentation at the American Cochlear Implant Alliance, Washington, DC.
18. **Winn, M.B.**, Moore, A. (2017). Direct and indirect context effects in speech perception by CI listeners. Podium presentation at the CI Crash conference, Madison, WI.
19. Gianakas, S., **Winn, M.B.** (2017). Severe deficits in perception of coarticulation in listeners with cochlear implants. Podium presentation at the CI Crash conference, Madison, WI.
20. **Winn, M.B.** (2018). Dynamic allocation of listening effort when listening to speech. Presentation at the meeting of the Acoustical Society of America, Minneapolis, MN.
21. **Winn, M.B.** & O'Brien, G. (2019). Flaws in the use of spectral ripples in cochlear implants. Podium presentation at the Acoustical Society of America, Louisville, KY.

Posters (41; 32 since terminal degree)

1. Blodgett, A., Bowles, A., Bauman, J., Shamo, J., & **Winn, M.B.** (2007). Same or different: A preliminary acoustic analysis comparing native and non-native speaker production of Vietnamese lexical tones. Presentation at the 17th Annual Conference of the Southeast Asian Linguistics Society (SEALS XVII), College Park, MD.

2. **Winn, M.B.**, Blodgett, A., Bauman, J., Bowles, A., Charters, L., Rytting, C.A., & Shamoo, J. (2008). Vietnamese monophthong vowel production by native speakers and American adult learners. "Acoustics '08" the joint meeting of the Acoustical Society of America, the European Acoustics Association, and the Société Française D'Acoustique, Paris, France.
3. Blodgett, A., **Winn, M.B.**, Bauman, J., Bowles, A., Charters, L., Rytting, C.A., & Shamoo, J. (2009). Identifying adult learner difficulties in the acquisition of lexical tone. Presentation at American Association for Applied Linguistics, Denver, CO.
4. **Winn, M.B.**, Chatterjee, M.C., Idsardi, W.J. (2010). Phonetic cues are weighted differently when spectral resolution is degraded. Poster presentation at the annual meeting of the American Auditory Society, Scottsdale, AZ.
5. **Winn, M.B.**, Chatterjee, M. (2011). Modulation of phonetic cue-weighting in adverse listening conditions. Presented at 34th MidWinter meeting of the Association for Research in Otolaryngology, Baltimore, MD. 3
6. Rhone, A.E. **Winn, M.B.** (2011). Effects of spectral degradation on contextually-driven shifts in phonetic categorization. Presented at the 161st meeting of the Acoustical Society of America. Seattle, WA.
7. **Winn, M.B.**, Idsardi, W.J. and Chatterjee, M. (2011). Divergent patterns of voicing perception in various challenging listening conditions. Presented at the 161st meeting of the Acoustical Society of America, Seattle, WA.
8. Blodgett, A., Twist, A., Bauman, J., Bowles, A., Fox, M., Luu, P., Rytting, C.A., Marx, J. & **Winn, M.B.** (2011). Northern Vietnamese perception of non-native tones. Presented at the 17th International Congress of Phonetic Sciences ICPhS XVII, Hong Kong.
9. **Winn, M.B.**, Rhone, A.E., Idsardi, W.J. & Chatterjee, M. (2011). Normalization to talker gender and F0: Phonetic category adjustment by cochlear implant users. Presented at the 15th Conference on Implantable Auditory Prostheses, Asilomar, CA.
10. Lin, C., Lukyanenko, A., **Winn, M.B.**, Idsardi, W. (2012). Acoustic Cues to Perception of Word Stress by English, Mandarin and Russian Speakers. Boston University Conference on language Development, Boston, MA.
11. Moon, I.J., Won, J.-H. & **Winn, M.B.** (2014). Assessment of spectral and temporal resolution in cochlear implant users: speech and psychoacoustic approach. MidWinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
12. Kan, A., **Winn, M.B.**, Litovsky, R.Y. (2015) Investigating the ear advantage using pupillometry. MidWinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
13. **Winn, M.B.**, Misurelli, S.M., Litovsky, R.Y. (2015). The impact of spectral resolution on the efficiency of sentence processing. Poster presented at the 38th Annual midwinter meeting of the Association for Research in Otolaryngology.
14. Venker, C., **Winn, M.B.**, Ellis-Weismer, S., Saffran, J., Edwards, J. (2015). Mutual Exclusivity in Young Children with ASD: An Eye-Gaze Study. Presentation accepted to the International Meeting for Autism Research, Salt Lake City, UT.
15. **Winn, M.B.** (2016) Sound quality impacts the speech and effort of sentence perception. Poster presented at the meeting of the American Auditory Society, Scottsdale, AZ.

16. **Winn, M.B.** (2016). Rapid reduction of listening effort resulting from predicting speech processing, and delays associated with cochlear implantation. Poster presented at the Acoustical Society of America, Salt Lake City, UT.
17. **Winn, M.B.** (2016). Using sociolinguistic phonetic perception to fine tune cochlear implant simulations. Poster presented at the Acoustical Society of America, Salt Lake City, UT.
18. DiNino, M., **Winn, M.B.**, Bierer, J.A. (2016). Cochlear implant listener vowel identification performance and confusion patterns with reduced channel programs. Poster presented at the Acoustical Society of America, Honolulu, HI.
19. Gianakas, S., **Winn, M.B.** (2016). Exploiting the Ganong effect to probe for phonetic uncertainty resulting from hearing loss. Poster presented at the Acoustical Society of America, Honolulu, HI.
20. Moore, A., **Winn, M.B.** (2016). Acoustic cues underlying the adjustment to talker sex in perception of fricative sounds. Poster presented at the Acoustical Society of America, Honolulu, HI.
21. O'Brien, G., **Winn, M.B.** (2016). Uncertainty in binaural hearing linked to inherent envelope fluctuations. Poster presented at the Acoustical Society of America, Honolulu, HI.
22. Gianakas, S., **Winn, M.B.** (2017). Severe deficits in perception of anticipatory coarticulation in cochlear implant listeners in cochlear implant listeners. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
23. Gianakas, S., **Winn, M.B.** (2017). Revealing phonetic uncertainty in cochlear implant listeners. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
24. Moore, A., **Winn, M.B.** (2017). Adjustment to variable voice acoustics by cochlear implant listeners. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
25. O'Brien, G., **Winn, M.B.** (2017). Aliasing of spectral ripples through CI processors: a challenge to the interpretation of correlation with speech recognition scores. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
26. DiNino, M., **Winn, M.B.**, Duchen, A., Arenberg, J. (2018). Phonetic cue-weighting in children and adults with cochlear implants. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
27. Jahn, K., DiNino, M., **Winn, M.B.**, Arenberg, J. (2018). Relating vowel confusions to focused thresholds in pediatric cochlear implant users. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
28. Burg, E., Thakkar, T., Godar, S., **Winn, M.B.**, Litovsky, R. (2019). Listening effort in bilateral cochlear implant users with asymmetric across-ear performance in speech perception. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
29. Gianakas, S., **Winn, M.B.** (2018). Listening to degraded speech can cause listeners to “wait and see”. Poster presented at the meeting of the Acoustical Society of America, Minneapolis, MN.
30. Dirks, C., & **Winn, M.B.** (2019). Envelope compression as a qualifying factor in the “eight-channel” limit. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.

31. Gianakas, S., & **Winn, M.B.** (2019). Disruption of the benefit of sentence context in listeners with cochlear implants. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
32. Smith, M., & **Winn, M.B.** (2019). Individual differences in recalibrating to upward spectral shifts. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
33. Burg, E., Thakkar, T., Anderson, S., Godar, S. **Winn, M.B.**, Litovsky, R. (2019). Does degree of speech asymmetry modulate bilateral speech intelligibility and listening effort in adults with bilateral cochlear implants and adults with normal hearing? Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
34. **Winn, M.B.** (2019). The effect of speaking rate on CI users' listening effort and access to sentence context. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
35. Burg, E., Thakkar, T., Anderson, S., **Winn, M.B.**, Litovsky, R. (2020). Effects of asymmetric envelope compression on speech intelligibility and binaural unmasking. 2020 Speech In Noise Workshop, Toulouse, France.
36. Burg, E., Thakkar, T., Anderson, S., **Winn, M.B.**, Litovsky, R. (2020). The effect of asymmetric dynamic range on speech intelligibility and binaural unmasking in normal hearing individuals listening to vocoded speech. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, San Jose, CA.
37. Gianakas, S., Fitzgerald, M., **Winn, M.B.** (2020). Identifying listeners whose speech intelligibility depends on an extra moment to repair perceptual mistakes. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, San Jose, CA.
38. **Winn, M.B.**, Teece, K. (2020). Pupillometry reveals the cost of recovering from errors in speech perception. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, San Jose, CA.
39. **Winn, M.B.** (2020). Asymmetrical forward and backward auditory context effects in listeners with normal hearing and with cochlear implants. Poster presented at the Annual midwinter meeting of the Association for Research in Otolaryngology, San Jose, CA.
40. **Winn, M.B.** & Teece, K. (2020). Immediate and Ongoing Cost of Repairing Errors in Speech Perception. Poster presentation at the annual meeting of the American Auditory Society, Scottsdale, AZ.
41. **Winn, M.B.** & Teece, K. (2020). The mental cost of repairing errors in speech perception. Poster presentation accepted for the semi-annual meeting of the Acoustical Society of America, Chicago, IL. Postponed due to COVID-19 pandemic.
42. Stilp, C. & **Winn, M.B.** (2020). Effects of silent interstimulus interval duration between precursor and target stimuli on spectral context effects in vowel and consonant categorization. Poster presentation at the Acoustical Society of America Acoustics Virtually Everywhere meeting.

Media Contributions

“There is only one Beethoven”, Minnesota Public Radio (provided input for the content of this on this 36-minute program regarding the nature

Date

of hearing impairment and how it affects peoples' lives, provided audio content and simulations of tinnitus and hearing loss) available online at <https://www.decomposedshow.org/episode/2019/05/14/there-is-only-one-beethoven>

May 2019

“Speech: It’s Not as Acoustic as You Think”

Summer 2018

published in *Acoustics Today*, volume 14, issue 2, 2018. *Acoustics Today* is a publication covering basic and practical applications of acoustics to a global audience. Its reach includes educators, designers, engineers, buyers, and the service sector.

Other Research/Research in Progress

- Primary sponsor for Steven Gianakas, National Research Service Award (F32) application “Identifying listeners with hearing loss at risk for exerting extra effort in speech perception”
- Principal investigator, “Auditory and perceptual talker effects in speech perception” Preparation of NIH R01 grant
- Co-Investigator, “Auditory and perceptual context effects: an individual-differences approach” Preparation of NIH R01 grant with Christian Stilp, Ph.D.
- Principal investigator, “Judgment of effort and uncertainty in spoken responses by listeners with hearing loss”. Research project in progress, temporarily suspended because of COVID-19 pandemic.

TEACHING

Scheduled Teaching

Course Name: Course Prefix Course Number: Term(s) taught	
Introduction to Phonetic Science [HESP403] 15 semesters from 2005-2011	U. Maryland Enrollment: ~40 undergraduates
Implantable Auditory Prostheses [CSD863] Fall 2012	U. WI-Madison Enrollment: ~15 AuD students
Phonetics [SPHSC302] Winter 2016	U. Washington Enrollment: ~65 undergraduates
Hearing Science [SPHSC461] Winter 2016; 2017	U. Washington Enrollment: ~70 undergraduates
Advanced Hearing Science [SPHSC509] Autumn 2016; 2017	U. Washington Enrollment: ~15 AuD students
Physics and Biology of Spoken Language [SLHS1301] Fall 2018, Fall 2019, Spring 2020, Fall 2020	U. Minnesota Enrollment: ~40-50 undergraduates
Cochlear Implants [SLHS5804] Spring 2019	U. Minnesota Enrollment: 19 AuD students

Instructional Activity

University of Minnesota

<i>Best Practices in Scientific Presentations</i> , guest lecture in Speech-Language-Hearing Sciences graduate student ProSeminar 10 participants	September 14, 2018
<i>Listening Effort and Quality of Life</i> , guest lecture in Speech-Language-Hearing Sciences audiology grand rounds 33 participants	October 5, 2018
<i>The time course of listening effort in listeners with normal hearing and with cochlear implants</i> , guest lecture in Department of Psychology Cognitive Science colloquium series 7 participants	November 29, 2018
<i>The time course of listening effort in listeners with normal hearing and with cochlear implants</i> , guest lecture in Speech-Language-Hearing Sciences audiology grand rounds 33 participants	November 30, 2018
<i>Preparing for Job Talks</i> . Department of Speech-Language-Hearing Sciences PhD student ProSeminar 10 participants	February 15, 2019
<i>What your professor didn't tell you about speech perception</i> , guest lecture in Department of Psychology Perception Lunch seminar series 28 participants	April 9, 2019
<i>Best Practices in Data Visualization in Scientific Presentations</i> , guest lecture in Neuroscience Research Training program 10 participants	April 23, 2019
<i>Best Practices for Data Visualization</i> , guest lecture in Neuroscience Research Training program 10 participants	July 9, 2019
<i>Preparing Elevator Pitches</i> . Department of Speech-Language-Hearing Sciences PhD student ProSeminar 10 participants	October 14, 2019
<i>The cost of making mistakes in speech perception</i> , guest lecture in Department of Psychology Perception Lunch seminar series 25 participants	November 12, 2019
<i>Moving Beyond McGurk</i> , guest lecture in Department of Psychology Journal club/ seminar series 20 participants	December 9, 2019
<i>Writing Results & Discussion Sections in Research Articles</i>	March 20, 2020

Guest lecture in SLHS 8410 Research Seminar
8 participants

Other Institution(s)

Instruction Type (e.g. Guest Lecture), Title, Role,
Enrollment/Number of Participants participant(s)

Dates

CURRICULUM DEVELOPMENT

Curriculum Development Activities

Early Career Teaching and Learning program.

I developed a nearly completely-new approach to teaching my graduate course in cochlear implants. I created a new assignment where students would explain complicated and controversial topics as they would to a patient or parent of a patient in a clinic, using lay language in situations that they are very likely to encounter in professional practice.

I have adopted *in-class live feedback systems* (TopHat and ChimeIn2), to get instant assessment of student knowledge that helps to shape lecture topics and discussions.

Multiple *in-class teaching evaluations* from people with varying perspectives, including Paul Ching (co-leader of the Early Career Teaching & Learning Program), Arlene Carney (former Professor in my department), and Tiffany Wolf (peer assistant professor in the College of Veterinary Medicine, who also was a participant in the ECTL Program).

During the 2020 COVID-19 pandemic, I developed *online video capsules* for each unit of my course to facilitate non-synchronous learning opportunities for students.

Collaborative Efforts and Activities

Overhaul of graduate admissions

Dates

Together with a small committee within the department of Speech-Language-Hearing sciences, I helped to changed department graduate admissions to embrace holistic admission principles that would embody a spirit of anti-racism, diversity, equity and justice.

Summer 2020

PROFESSIONAL DEVELOPMENT

Pedagogical training
“Early Career Teaching and Learning Program”

Oct 2018 – May 2019

ADVISING AND MENTORING

Graduate Student Activities

Advisees

Steven Gianakas, PhD, Speech-Language-Hearing Sciences	September 2019 – present
Michael Smith, PhD, Speech-Language-Hearing Sciences	August 2020 – present
Harley Wheeler, PhD, Speech-Language-Hearing Sciences	August 2020 – present
Maria Paula Rodriguez, AuD, Speech-Language-Hearing Sciences	May 2019 – present
Siuho Gong (Legal name: Rylie Sanders), AuD, Speech-Language-Hearing Sciences	September 2019 - present

Other Advising Activities

e.g. lab participation, directed research, honors theses, etc.

	Dates
Hannah Matthys, B.A. Speech-Language Hearing Sciences	February 2019 - present
Emily Hugo, B.A. Speech-Language Hearing Sciences	February 2019 – present
Lindsay Williams, B.A. Speech-Language Hearing Sciences	February 2019 - present

Committee Advising

Coral Dirks, PhD, Speech-Language-Hearing Sciences	October 2018 - present
Nisarg Desai, PhD, Anthropology	October 2018 - present
Chieh Kao, PhD, Speech-Language-Hearing Sciences	January 2019 – present
Kristi Oeding, PhD, Speech-Language-Hearing Sciences	August 2019 – present

Professional Student Activities

Advisees

Leigh Rohren, AuD, Speech-Language-Hearing Sciences	Spring 2020
Martha Westman, AuD, Speech-Language-Hearing Sciences	Spring 2020
Danielle Barr, AuD, Speech-Language-Hearing Sciences	Spring 2020
Zachary Herbert, AuD, Speech-Language-Hearing Sciences	Spring 2020

SERVICE

Service to the Discipline/Profession/Interdisciplinary Area(s) *[edit title as needed]*

Leadership on Organizing Committees

Association for Research in Otolaryngology Annual Meeting Program Committee
Association for Research in Otolaryngology Poster Blitz
Association for Research in Otolaryngology Science Communication Workshop
Acoustical Society of America Special Session Chair
Acoustical Society of America Technical Council

Editorial Consultant

Journal of the Association for Research in Otolaryngology
Journal of the Acoustical Society of America
JASA Express Letters
Ear and Hearing
Journal of Phonetics
PLoS One
Journal of Communication Disorders
Attention, Perception & Psychophysics
Frontiers in Psychology
Journal of Speech, language and Hearing Research

Mind, Brain and Education
Cochlear Implants International
Hearing Research
American Journal of Audiology
Annals of Otolaryngology and Laryngology
Trends in Hearing

Guest Editorial Manager
Ear and Hearing

Service to the University/College/Department

University of Washington

Reviewer, Royalty Research Fund 2017
Member, graduate admissions committee, 2017
Member, Undergraduate curriculum committee 2018
Member, Auditory Neuroscience Training Grant 2018
Member, Faculty search committee (audiology) 2017-2018

University of Minnesota

Member, Search Committee, assistant professor in speech-language pathology, 2018-2019, Dept of Speech-Language-Hearing Sciences
Member, search committee, assistant professor in audiology, 2019-2020, Dept of Speech-Language-Hearing Sciences
Member, merit committee, Dept of Speech-Language-Hearing Sciences, 2019, 2020
College of Liberal Arts (CLA) Assembly, 2020
Member, Department Committee on Diversity, Equity, Inclusion and Anti-Racism, 2020
Member, Department curriculum committee
Chair, Search Committee for Research Engineer, 2020

Public and External Service

Position/Role, Organization/Committee/Club, City,	Dates
“Hearing impairment and listening effort: How do we measure it and why does it matter?” Podium presentation at the local chapter of the Hearing Loss Association of America, Seattle, WA	February 9, 2016
Hearing Loss and Listening Effort: How do we measure it and why does it matter? Invited podium presentation at Seattle Children’s hospital, Seattle, WA.	February 24, 2016
“Hearing impairment and listening effort: How do we measure it and why does it matter?” Podium presentation at the local chapter of the Hearing Loss Association of America, Bellevue, WA.	April 9, 2016
Paws-on-Science community event – demonstrations of hearing and sound	May 7, 2016
“The importance of effort in speech communication” Contributed	June 1, 2016

article to Hearing Loss Association of America newsletter.

“Measuring and understanding listening effort” Invited presentation for American Academy of Audiology nationally telecast e-seminar. co-authored with Picou, E., Teubner-Rhodes, S., Eckert, M. September 18, 2017

“Listening effort: ways that it affects your life and how it is measured” Invited podium presentation at the Hearing Loss Association of America. September 20, 2019

“Listening effort: ways that it affects your life and how it is measured”, guest lecture to M Health / Fairview audiology continuing education series. October 12, 2019

“Listening effort: It’s about time” invited article in the Minnesota Academy of Audiology newsletter, Winter 2019/20 December 6, 2019