

## Curriculum Vitae

Matthew B. Winn, Au.D., Ph.D  
Assistant Professor  
Speech-Language-Hearing Sciences  
University of Minnesota  
164 Pillsbury Dr SE  
Minneapolis, MN 55455

Email: [mwinn@umn.edu](mailto:mwinn@umn.edu)

### **(1) Education – institutions, degrees granted, dates**

B.A., University of Delaware, Psychology & Philosophy, 2001-2005  
Au.D, University of Maryland (Clinical audiology), 2005-2010  
Ph.D., University of Maryland (Hearing & Speech Sciences), 2005-2011

### **(2) Ph.D. Dissertation title:**

The use of acoustic cues in phonetic perception:  
effects of spectral degradation, limited bandwidth and background noise

### **(3) Employment – institutions (including UW), positions, dates**

**Assistant Professor** Speech-language-Hearing Sciences, College of Liberal Arts,  
University of Minnesota-Twin Cities, Minneapolis, MN (August 2018 – present)

**Assistant Professor** Speech and Hearing Sciences, College of Arts and Sciences,  
University of Washington, Seattle, WA (September 2015 – August 2018)

**Postdoctoral Researcher** Waisman Center, University of Wisconsin-Madison,  
Madison, WI (2012-2015)

**Clinical Audiologist** Veterans Affairs Medical Center, Washington DC (2009-2012)

**Graduate research associate** Center for Advanced Study of Language, College  
Park, MD (2007 – 2009)

### **(4) Committees and other duties**

#### **a. Student committees**

	Student	Research topic	Department/University	Completion date
<b>Chair, PhD committees</b>	Steven Gianakas	Speech perception and hearing loss	Speech and Hearing Sciences, University of Washington	in progress

<b>Member, PhD committees</b>	Lindsay DeVries	Cochlear implants	Speech and Hearing Sciences, University of Washington	Expected 2018
	Mishaela DiNino	Cochlear implants	Speech and Hearing Sciences, University of Washington	Expected 2018
	Nicole Chartier	Dialect perception	Linguistics, University of Washington	in progress
	Jesse Resnick	Auditory nerve modeling	Otolaryngology, University of Washington	in progress
<b>AuD Capstone projects</b>	Steven Gianakas	Speech perception and hearing loss	Speech and Hearing Sciences, University of Washington	2018
	Heather Fischle	phonetics	Speech and Hearing Sciences, University of Washington	2018
	Michael Smith	phonetics	Speech and Hearing Sciences, University of Washington	expected 2019
	Annie Duchen	Cochlear implants	Speech and Hearing Sciences, University of Washington	2018
	Janice Vong	Auditory-visual integration	Speech and Hearing Sciences, University of Washington	2017
<b>Chair, Undergraduate honors projects</b>	Siuho Gong (legal name: Rylie Sanders)	Speech perception and hearing loss	Speech and Hearing Sciences, University of Washington	2018

## **b. University service**

2016 Faculty search committee (Univ of WA)

2018 Chair, audiology graduate admissions committee (Univ of WA)

2018 Undergraduate curriculum committee (Univ of WA)

2018 Auditory Neuroscience Training Grant (Univ of WA)

2017 Reviewer, Royalty Research Fund (Univ of WA)

## **c. Editorial**

2010 – present – Reviewer

The Journal of the Acoustical Society of America (3 manuscripts/year)

Ear and Hearing (3 / year)

Trends in Hearing (3 / year)

Journal of Speech, Language and Hearing Research (2 / year)

Journal of the Association for Research in Otolaryngology (2 / year)

Hearing Research (1 / year)

Journal of Phonetics (1 / 2 years)

Journal of Communication Disorders (1 / 2 years)

Frontiers in Psychology (1 /2 years)  
PLoS One (1 /2 years)  
Veni grant (Netherlands Organisation for Scientific research (once)  
Action on Hearing Loss (once)

**(5) Research projects, grants, contracts – funding agencies, dates, amounts of funding, individual's role**

**Funded Grants Active**

Title: NIH-NIDCD R01 DC 017114 “Listening effort in cochlear implant users”  
Effective dates: August 2018 – July 2023  
Total Award: \$1,837,970  
PI: Matthew B. Winn  
Status: Active

Title: NIH-NIDCD R03 DC014309 Measuring listening effort and spectral resolution in cochlear implant patients”  
Effective dates: January 2016 – December 2018  
Total Award: \$300,000  
PI: Matthew B. Winn  
Status: Active

Title: Measuring effects of binaural asynchrony on auditory perception (Bloedel mini-grant)  
Effective dates: May 2017 – April 2018  
Total Award: \$4766.50  
PI: Matthew B. Winn  
Status: Active

Title: Listening effort in people with hearing impairment (NIH Loan Repayment Program)  
Effective dates: 2013 – 2018  
Total Award: \$108,000  
PI: Matthew Winn  
Status: Active

**Funded Grants Closed**

(none)

### **Submitted – Pending**

Title: Functional Impact of Hidden Hearing Loss: Listening Effort During Speech Perception (NIH-NIDCD R21)

Effective Dates: July 2018 – June 2021

PI: Naomi Bramhall

Status: Pending

### **Submitted – But Not Funded**

Title: Measuring effects of binaural asynchrony on auditory perception (Royalty Research Fund)

Total Award: \$40,000

PI: Matthew B. Winn

Status: denied

## **(6) Professional office and awards, with dates**

### **Professional Membership**

2010 – present: Acoustical Society of America

2010 – present: American Auditory Society

2012 – present: Association for Research in Otolaryngology

2015 – 2016: International Society of Audiology

### **Activities in the Profession**

2016 – present: Technical Council, Acoustical Society of America, committee on psychological and physiological acoustics

2018: Association for Research in Otolaryngology mentorship program (clinician-scientist group)

### **Honors**

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)

Young Investigator Travel Award (Association for Research in Otolaryngology, 2015)

## **(7) Talks, papers, and presentations**

### **Published Abstracts (Poster presentations)**

- Winn**, M.B., Blodgett, A., Bauman, J., Bowles, A., Charters, L., Rytting, C.A., & Shamo, 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

### **Invited Lectures, Speeches**

#### International

- 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.
- 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.
- 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.
- Winn**, M.B. (2018). Invitation to speak at XII International Meeting on Advances in Audiology, Salamanca, Spain
- Winn**, M.B. (2018). The impact of hearing impairment and cochlear implants on the timing of listening effort and speech understanding. Invited presentation at Oticon Headquarters, Smørum, Denmark.

#### National

- 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.

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

### **Refereed podium presentations**

- 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.
- Winn, M.B. and 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Gianakas, S., **Winn, M.B.** (2018). Title: Listening to degraded speech can cause listeners to “wait and see”. Presentation at the meeting of the Acoustical Society of America, Minneapolis, MN.
- 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.

### **Peer-reviewed publications**

1. **Winn, M.B** & Idsardi, W.J. (2008). Musical evidence regarding trochaic inversion. *Language and Literature*, 17 (4), 335-349.
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
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)
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



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
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
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
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
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
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
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
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
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
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.
15. Kapnoura, E., **Winn**, M.B., Kong, E.J., Edwards, J., McMurray, B. (2017) Evaluating the sources and functions of gradience in phoneme categorization: An individual differences approach. *Journal of Experimental Psychology: Human Perception and Performance*, 43, 1594-1611. doi: 10.1037/xhp0000410
16. **Winn**, M.B., Wendt, D., Koelewijn, T., Kuchinsky, S. Best practices in using pupillometry to measure listening effort: an introduction for those who want to get started. *In Press, Trends in Hearing*.

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. *Provisionally accepted, Trends in Hearing*.

### **Papers under review**

**Winn, M.B.**, Kan, A., Litovsky, R. Temporal dynamics and uncertainty in binaural hearing as revealed through anticipatory eye gaze movements

Ihlefeld, A., Thakkar, T., **Winn, M.B.**, Dhar, S., Litovsky, R. Robust spatial release from masking for spectrally degraded vocoded speech

### **Papers in preparation**

Gianakas\*, S., **Winn, M.B.** Revealing phonetic uncertainty in cochlear implant listeners

**Winn, M.B.** Acoustic phonetic cue weighting in people who use a single cochlear implant and normal hearing in the contralateral ear

**Winn, M.B.** Using a subtle test of phonetic perception to evaluate the quality of cochlear implant simulations

### **Invited book chapters**

**Winn, M.B.** & Stilp, C. (2018) "Phonetics and the Auditory System" in *The Routledge Handbook of Phonetics* (W. Katz & P. Assmann, eds).

## **TEACHING EXPERIENCE**

Introduction to Phonetic Science 15 semesters. Average enrollment: ~40 undergraduates	U. Maryland
Implantable Auditory Protheses Fall 2012. Enrollment: 16 AuD students	U. WI-Madison
Phonetics (primary instructor of record) Winter 2016. Enrollment: 68 undergraduates	U. Washington
Hearing Science Winter 2016; 2017. Enrollment: ~72 undergraduates	U. Washington
Advanced Hearing Science Autumn 2016; 2017. Enrollment: ~14 AuD students	U. Washington
Physics and Biology fo Spoken Language Fall 2018. Enrollment: ~40 undergraduates	U. Minnesota

## **WEBSITES**

[www.mattwinn.com](http://www.mattwinn.com)

*Last updated: September 4, 2018*