

Erol James Ozmeral

Research Assistant Professor
Auditory and Speech Sciences Laboratory
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Research Interests

I am a cognitive neuroscientist with expertise in psychoacoustics, electrophysiology, and hearing instruments. Currently, my interests are in aided speech perception, spatial attention, cognitive aging, and emerging technologies in medical and consumer hearing devices.

Education

University of North Carolina at Chapel Hill

Ph.D. Cognitive Psychology
–Minor: Neurobiology

Chapel Hill, NC
5/2011 – 12/2013

University of North Carolina at Chapel Hill

M.A. Cognitive Psychology

Chapel Hill, NC
8/2008 – 5/2011

Boston University

M.A. Cognitive and Neural Systems

Boston, MA
9/2004 – 5/2007

Boston University

B.S. Biomedical Engineering
–Minor: Philosophy

Boston, MA
9/2000 – 9/2004

Current Appointments

Research Assistant Professor

Department of Communication Sciences and Disorders

University of South Florida
since 12/2017

Previous Appointments and Research Experience (supervisors in parentheses)

Postdoctoral Fellow

Auditory and Speech Sciences Laboratory (David A. Eddins, Ann C. Eddins)

University of South Florida
12/2013 – 12/2017

Graduate Research Assistant

Hearing Research Laboratory (Joseph W. Hall, III, Emily Buss)

University of North Carolina at Chapel Hill
8/2008 – 12/2013

Research Specialist

Auditory Neurosciences Laboratory (Barbara G. Shinn-Cunningham)

Boston University
5/2007 – 8/2008

Graduate Research Assistant

Auditory Neurosciences Laboratory (Barbara G. Shinn-Cunningham)

Boston University
9/2004 – 5/2007

Undergraduate Research Assistant

Natural Sounds and Neural Coding Laboratory (Kemal Sen)

Boston University
9/2003 – 9/2004

Grants and Contracts as PI, Co-PI, or Co-I

Pediatric dysphonia: Multidisciplinary advances to improve voice quality outcomes

NIH NIDCD (R01 DC018008; Eddins, D.; PI)

Co-Investigator
2020 – 2025

A multi-modal streaming approach to understanding aided speech perception in noise: discovering relationships between device limitations, perceptual abilities, and neuro-modulation of feature coding

NIH NIDCD (ECR R21 DC017832)

Principal Investigator
2019–2022

Toward a more intelligent hearing system: Making sense of the wearer's head movements Sonova Corporation (Eddins, D.; PI)	Co-Principal Investigator 2019-2022
Self-management of hearing devices Bose Corporation (Eddins, D.; PI)	Co-Investigator 2020
Bose device comparison 2.0 Bose Corporation	Principal Investigator 2019-2020
Spatial tuning to speech in noise measured using electroencephalography USF College of Behavioral and Community Science (CBCS) Internal Grant	Principal Investigator 2019
Electroacoustic and quality assessment Bose Corporation (Eddins, D.; PI)	Co-Investigator 2019
Sound quality comparison of Bose Hearphones and premium hearing aids Bose Corporation (Eddins, D.; PI)	Co-Investigator 2018-2019
Analysis and development supporting new generations of binaural hearing systems Sonova Corporation (Eddins, D.; PI)	Co-Investigator 2017-2019
Behavioral and cortical signatures of reduced auditory spatial tuning with age NIH NIDCD (F32 DC013724)	Principal Investigator 2013-2016
Asynchronous glimpsing of speech in the hearing impaired NIH NIDCD (F31 DC012694)	Principal Investigator 2012-2013

Awards & Honors

Travel Award, Acoustical Society of America Early Career Travel Subsidy.....	2019
NSF Junior Investigator Travel Grant, "Listening into 2030" Workshop, Berkeley, CA.....	2016
Travel Award, Aging and Speech Communications Conference.....	2015
Travel Award, Association for Research in Otolaryngology Mid-Winter Meeting.....	2015
Graduate Tuition Incentive Scholarship, University of North Carolina at Chapel Hill.....	2012-2013

Peer-Reviewed Publications (published manuscripts available for download at <http://eozmeral.myweb.usf.edu>)

1. Isarangura, S., **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (in prep). Neural encoding of spectral modulation and the role of selective attention using cortical auditory evoked potentials (CAEP).
2. Eddins, D.A., Isarangura, S., **Ozmeral, E.J.**, Hoover, E.C., & Gallun, F.J. (in prep). The effects of masker bandwidth and marker-to-masker ratio on temporal gap detection.
3. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (in prep). Active attention modulates cortical responses to auditory location change in younger and older adults.
4. Eddins, A.C., **Ozmeral, E.J.**, & Eddins, D.A., (in prep). Age-related hemispheric asymmetry reduction during interaural time difference processing: evidence from cortical evoked responses and the binaural interaction component.
5. Eddins, D.A., Godar, S.P., **Ozmeral, E.J.**, & Eddins, A.C. (in prep). The dependence of temporal gap detection thresholds in bandlimited noise on stimulus generation methods.
6. Yellamsetty, A.; **Ozmeral, E.J.**, Budinsky, R.A. & Eddins, D.A. (in review). A comparison of environment classification among premium hearing instruments. *Trends in Hearing*.
7. **Ozmeral, E.J.**, Hoover, E.C., Gabbidon, P., & Eddins, D.A. (2020). Development of the Continuous Number Identification Test (CNIT): Feasibility of dynamic assessment of speech intelligibility. *International Journal of Audiology*. DOI: 10.1080/14992027.2020.1718782
8. Isarangura, S., Eddins, A.C., **Ozmeral, E.J.**, & Eddins, D.A. (2019). The effects of duration and level on spectral modulation perception. *Journal of Speech, Language, and Hearing Research*. 62(10), 3876-3886.
9. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (2019). Electrophysiological responses to lateral shifts are not consistent with opponent-channel processing of interaural level differences. *Journal of Neurophysiology*. 122(2), 737-748

10. **Ozmeral, E.J.**, Eddins, A.C., & Eddins, D.A. (2018). How do age and hearing loss impact spectral envelope perception? *Journal of Speech, Language, and Hearing Research*. 61 (9), 2376-2385.
11. Eddins, A.C., **Ozmeral, E.J.**, & Eddins, D.A. (2018). How aging impacts encoding of binaural cues and the perception of auditory space. *Hearing Research*. 369, 79-89.
12. Carlile, S., Ciccarelli, G., Cockburn, J., Diedesch, A., Finnegan, M., Hafter, E., Henin, S., Kalluri, S., Kell, A., **Ozmeral, E.J.**, Roark, C., & Sagers, J. (2017). Listening into 2030 workshop: An experiment in envisioning the future of hearing and communication science. *Trends in Hearing*. 21, 1-11.
13. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (2016). Reduced temporal processing in older, normal-hearing listeners evident from electrophysiological responses to shifts in interaural time difference. *Journal of Neurophysiology*. 116, 2720-2729.
14. **Ozmeral, E.J.**, Eddins, A.C., Frisina Sr., D.R., & Eddins, D.A. (2016). Large cross-sectional study of presbycusis reveals rapid progressive decline in auditory temporal acuity. *Neurobiology of Aging*, 43, 72-78.
15. **Ozmeral, E.J.**, Buss, E., & Hall III, J.W. (2016). The effects of sensorineural hearing impairment on asynchronous glimpsing of speech. *PLoS ONE* 11(5):e0154920.
16. Hall III, J.W., Buss, E., **Ozmeral, E.J.**, & Grose, J.H. (2016). The effect of noise fluctuation and spectral bandwidth on gap detection. *Journal of the Acoustical Society of America*, 139(4), 1601-1610.
17. **Ozmeral, E.J.**, Buss, E., & Hall III, J.W. (2012). Asynchronous glimpsing of speech: Spread of masking and task set-size. *Journal of the Acoustical Society of America*, 132(2), 1152-1165.
18. Varghese, L., **Ozmeral, E.J.**, Best, V., & Shinn-Cunningham, B.G. (2012). How visual cues for when to listen aid selective auditory attention. *Journal of the Association for Research in Otolaryngology*, 13(3), 359-368.
19. Best, V., Shinn-Cunningham, B.G., **Ozmeral, E.J.**, & Kopčo, N. (2010). Exploring the benefit of auditory spatial continuity. *Journal of the Acoustical Society of America*, 127(6), EL258-EL264.
20. Dent, M., McClaine, E., Best, V., **Ozmeral, E.J.**, Narayan, R., Sen, K., & Shinn-Cunningham, B.G. (2009). Spatial unmasking of birdsong in Zebra Finches (*Taeniopygia guttata*) and Budgerigars (*Melopsittacus undulatus*). *Journal of Comparative Psychology*, 123(4), 357-367.
21. Best, V., **Ozmeral, E.J.**, Kopčo, N., & Shinn-Cunningham, B.G. (2008). Object continuity enhances selective auditory attention. *Proceedings of the National Academy of Sciences*, 105(35), 13174-13178.
22. Narayan, R., Best, V., **Ozmeral, E.**, McClaine, E., Dent, M., Shinn-Cunningham, B.G., & Sen, K. (2007). Cortical interference effects in the cocktail party problem. *Nature Neuroscience*, 10(12), 1601-1607 (with supplementary material).
23. Best, V., **Ozmeral, E.J.**, & Shinn-Cunningham, B.G. (2007). Visually guided attention enhances target identification in a complex auditory scene. *Journal of the Association for Research in Otolaryngology*, 8(2), 294-304.
24. Best, V., **Ozmeral, E.**, Gallun, F., Sen, K., & Shinn-Cunningham, B.G. (2005). Spatial unmasking of birdsong in human listeners: Energetic and informational factors. *Journal of the Acoustical Society of America*, 118(6), 3766-3773.

Refereed Conference Proceedings and Book Chapters

1. Palandrani, K.N. & **Ozmeral, E.J.** (2019). "Auditory spatial tuning to moving speech in quiet or background babble measured in cortex." *Proceedings of Meetings on Acoustics*, 36, 050001.
2. Shinn-Cunningham, B.G., Best, V., Dent, M.L., Gallun, F.J., McClaine, E., Narayan, R., **Ozmeral, E.J.**, & Sen, K. (2006). "Behavioral and neural identification of birdsong under several masking conditions," *Proceedings of the International Symposium on Hearing*, Cloppenberg, Germany, 164-170.
3. Shinn-Cunningham, B.G., Best, V., Dent, M.L., Gallun, F.J., McClaine, E., Narayan, R., **Ozmeral, E.J.**, & Sen, K. (2006). "Behavioral and neural identification of birdsong under several masking conditions," In *Hearing—From Sensory Processing to Perception*, B. Kollmeier, G. Klump, V. Hohmann, U. Langemann, M. Mauermann, S. Uppenkamp, & J. Verhey (eds.). Berlin: Springer Verlag, pp. 207-214.

Conference Presentations

1. Cherri, D., Palandrani, K.N., & **Ozmeral, E.J.** (May, 2020 – postponed to Dec, 2020). “Psychophysical performance differences associated with cortical measures of spatial-change tuning and auditory spatial attention.” Acoustical Society of America Meeting, Chicago, IL. *Poster*.
2. Eddins, D.A., **Ozmeral, E.J.**, Hoover, E.C., Palandrani, K.N., & Gallun, F.J. (May, 2020 – postponed to Dec, 2020). “The effects of masker bandwidth and marker-to-masker bandwidth in temporal gap detection.” Acoustical Society of America Meeting, Chicago, IL. *Poster*.
3. Lertpoompunya, A., **Ozmeral, E.J.**, Eddins, A.C., & Eddins, D.A. (May, 2020 – postponed to Dec, 2020). “Why is the just-noticeable difference of interaural cross-correlation poor in some normal hearing listeners?” Acoustical Society of America Meeting, Chicago, IL. *Poster*.
4. Isarangura, S., Eddins, D.A., **Ozmeral, E.J.**, Lutfi, R., & Eddins, A.C. (May 2020 – postponed to Dec, 2020). Neural encoding of perceptual decision weights and attention during a spectral modulation task.” Acoustical Society of America Meeting, Chicago, IL. *Poster*.
5. **Ozmeral, E.J.**, Palandrani, K.N., Eddins, D.A., & Eddins, A.C. (May, 2019). “Cortical effects on spatial tuning to speech in background babble.” Acoustical Society of America Meeting, Louisville, KY. *Podium*.
6. Isarangura, S., Eddins, A.C., **Ozmeral, E.J.**, & Eddins, D.A. (February, 2019). “The effects of duration and level on spectral modulation perception.” Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Poster*.
7. Hayes, D., **Ozmeral, E.J.**, & Eddins, D.A. (August, 2018). “Benchmarking detection and classification in automatic hearing aids.” International Hearing Aid Conference (IHCON). Lake Tahoe, CA. *Poster*.
8. **Ozmeral, E.J.** & Eddins, D.A. (July, 2018). “Assessing adaptive directional hearing-aid systems using a novel speech-in-noise task and high-rate momentary data logging from premium aids.” Gordon Research Conference – Auditory System. Smithfield, RI. *Poster*.
9. Eddins, A.C., **Ozmeral, E.J.**, & Eddins, D.A. (November, 2017). “Characterizing declines in spatial hearing with age using behavioral and neurophysiological measures.” Aging and Speech Communications Conference, Tampa, FL. *Podium*.
10. **Ozmeral, E.J.**, Berg, M., Eddins, D.A., & Eddins, A.C. (June, 2017). “Age-related cortical changes in spatial auditory attention.” Acoustical Society of America Meeting, Boston, FL. *Podium*.
11. **Ozmeral, E.**, Berg, M., Eddins, D., & Eddins A.C. (March, 2017). “Aging alters attentional modulation of spatial processing in auditory cortex.” American Auditory Society Meeting, Scottsdale, AZ. *Poster*.
12. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (November, 2016). “Human electrophysiology of endogenous auditory spatial attention.” Acoustical Society of America Meeting, Honolulu, HI. *Poster*.
13. Hoover, E.C., **Ozmeral, E.J.**, Gabbidon, P.A., & Eddins, D.A. (August, 2016). “A novel approach to behavioral assessment in dynamic acoustic environments.” International Hearing Aid Research Conference, Lake Tahoe, CA. *Poster*.
14. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (November, 2015). “Age-related differences in auditory cortical representations of spatial cues.” Acoustical Society of America Meeting, Jacksonville, FL. *Poster*.
15. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (October, 2015). “Cortical dynamics associated with spatial coding change with age.” Aging and Speech Communications Conference, Bloomington, IN. *Poster*.
16. Durkin, A.M., **Ozmeral, E.J.**, & Eddins, A.C. (September 2015). “Effects of age on the hemispheric distribution of interaural time difference (ITD) processing. North Carolina Speech, Hearing, and Language Association 2015 Fall Conference, Wilmington, NC. *Poster*.
17. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (April, 2015). “The effect of age on the opponent-channel model of ITD processing.” Acoustical Society of America Florida Chapter Meeting, Gainesville, FL. *Podium*.
18. **Ozmeral, E.J.**, Eddins, D.A., & Eddins, A.C. (February, 2015). “Are age-related changes in ITD coding due to changes in the binaural opponent-channel mechanism associated with down-regulation of neural inhibition?” Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Podium*.

19. Eddins, A.C., **Ozmeral, E.J.**, & Eddins, D.A. (October, 2014). "Age-related declines in hemispheric asymmetry as revealed in the binaural interaction component." Acoustical Society of America Meeting, Indianapolis, IN. *Podium*.
20. Eddins, D.A., **Ozmeral, E.J.**, & Eddins, A.C. (October, 2014). "Aging as a window into central auditory dysfunction: Combining behavioral and electrophysiological approaches." Acoustical Society of America Meeting, Indianapolis, IN. *Podium*.
21. **Ozmeral, E.J.**, Buss, E., & Hall III, J.W. (February, 2013). "Asynchronous glimpsing of speech in natural and simulated hearing loss." Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Poster*.
22. **Ozmeral, E.J.**, Buss, E., & Hall III, J.W. (July, 2012). "Asynchronous glimpsing of speech in normal and hearing-impaired listeners." Auditory System – Gordon Research Conference, Lewiston, ME. *Podium*.
23. Hall III, J.W, Buss, E., **Ozmeral, E.** & Grose, J. (February, 2012). "Gap detection and noise fluctuation in normal and impaired hearing." Association for Research in Otolaryngology Mid-Winter Meeting, San Diego, CA. *Poster*.
24. **Ozmeral, E.J.**, Buss, E. & Hall III, J.W. (February, 2011). "The role of upward spread of masking in the ability to benefit from asynchronous glimpsing of masked speech." Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Poster*.
25. **Ozmeral, E.J.**, Best, V., McGuffin, C., Hurd, B., Kopco, N. & Shinn-Cunningham, B.G. (February, 2009). "Exploring how auditory spatial continuity enhances speech perception." Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Poster*.
26. Varghese, L., **Ozmeral, E.J.** & Shinn-Cunningham, B.G. (February, 2009). "Visual cues for when to listen improve signal identification most when target and masker are perceptually confusable." Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Poster*.
27. **Ozmeral, E.**, Best, V., McCoin, J. & Shinn-Cunningham, B.G. (July, 2008). "Across-ear grouping of speech bands in quiet and in the presence of interference." Acoustical Society of America Conference, Acoustics '08, Paris, France. *Poster*.
28. **Ozmeral, E.**, Best, V., Kopco, N., Mason, C., Kidd, Jr., G. & Shinn-Cunningham, B.G. (February, 2008). "Dynamic aspects of auditory spatial attention." Association for Research in Otolaryngology Mid-Winter Meeting, Phoenix, AZ. *Poster*.
29. **Ozmeral, E.**, Best, V. & Shinn-Cunningham, B.G. (July, 2007). "Target identification aided by simple visual cues in a complex auditory scene." Annual International Multisensory Research Forum, Sydney, Australia. *Poster*.
30. Dent, M.L., McClaine, E.M., Shinn-Cunningham, B.G., Best, V., **Ozmeral, E.**, Narayan, R., Gallun, E. & Sen, K. (February, 2007). "Spatial unmasking of birdsong by budgerigars and zebra finches." Association for Research in Otolaryngology Mid-Winter Meeting, Denver, CO. *Poster*.
31. **Ozmeral, E.**, Zutshi, P., Best, V. & Shinn-Cunningham, B.G. (November, 2006). "Spectrotemporal structure influences spatial release from informational masking in reverberant settings." Acoustical Society of America Conference, Honolulu, HI. *Poster*.
32. Dent, M.L., McClaine, E.M., Shinn-Cunningham, B.G., Best, V., **Ozmeral, E.**, Gallun, E., Sen, K. & Narayan, R. (November, 2006). "An avian cocktail party: Masking and unmasking in birds." Acoustical Society of America Conference, Honolulu, HI. *Poster*.
33. **Ozmeral, E.**, Best, V. & Shinn-Cunningham, B.G. (February, 2006). "Simple visual cues enhance the identification of target sounds in complex auditory scenes." Association for Research in Otolaryngology Mid-Winter Meeting, Baltimore, MD. *Podium*.
34. **Ozmeral, E.**, Best, V. & Shinn-Cunningham, B.G. (January, 2006). "Enhanced target identification in a complex auditory scene via visual cueing." Australian Neuroscience Society Annual Meeting, Sydney, Australia. *Podium*.
35. Narayan, R., Best, V., **Ozmeral, E.**, Shinn-Cunningham, B.G., & Sen, K. (November, 2005). "Neural discrimination of complex stimuli in the presence of masking sounds." Society for Neuroscience Annual Meeting, Washington, DC. *Poster*.

36. **Ozmeral, E.**, Best, V., Gallun, F., Sen, K. & Shinn-Cunningham, B.G. (February, 2005). "Identifying a Bird in a Chorus: How Target and Masker Statistics Influence Spatial Unmasking." Association for Research in Otolaryngology Mid-Winter Meeting, New Orleans, LA. *Poster*.

Patents

1. **Ozmeral, E.J.** and Ozmeral, A.C. Voice tallying system for conducting a meeting among multiple participants. Flagler LLC, assignee. Patent WO2016022588-A1. **11 Feb. 2016**. Geneva, Switzerland: International Bureau of WIPO.

Academic Service

Professional Membership

Member, The Acoustical Society of America (ASA)since 2015
 Member, The American Association for the Advancement of Science (AAAS)since 2014
 Member, National Postdoctoral Association (NPA).....2014 – 2017
 Member, The Association for Research in Otolaryngology (ARO).....since 2006

Society Leadership

Elected Member, Technical Committee (Psychological and Physiological Acoustics), ASA2020 – 2023
 President, USF Chapter of the NPA2014 – 2015
 Steering Committee, The Student-Postdoc Chapter of ARO (spARO)2011 – 2013

Conference Service

Meeting Co-chair, International Hearing Aid Seminar (IHAS)2020 (postponed to 2022)
 Session Moderator, The Association for Research in Otolaryngology MidWinter Meeting2015

Ad hoc Review of Manuscripts

Attention Perception & Psychophysics, Auditory Perception & Cognition, Ear and Hearing, Journal of the Acoustical Society of America, Journal of Communication Disorders, Journal of Neurophysiology, Journal of Speech Language and Hearing Research, Hearing Research, Nature

Teaching Experience

Computational Methods and Data Visualization Using MATLAB (SPA 7931)	Instructor
University of South Florida	Summer 2019
	Spring 2016
Introduction to Cognitive Psychology (PSYC 230)	Teaching Assistant
University of North Carolina at Chapel Hill	Spring 2011
Laboratory Research in Psychology (PSYC 270)	Teaching Assistant
University of North Carolina at Chapel Hill	Fall 2012
	Fall 2011
	Fall 2010
SAT/PSAT Test Preparation	Instructor/Private Tutor
The Princeton Review (Newton, MA)	2007-2008

Students Mentored

Ph.D. Candidates

Angkana Lertpoompunya (USF, Committee)since 2020
 Dana Cherri (USF, Committee).....since 2020
 Sittiprapa Isarangura (USF, Committee).....2018-2020