

I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

Educational Background.

Mediterranea University, Reggio Calabria, Italy, B. S., Telecommunications Engineering, 2005

Polytechnic University of Turin, Turin, Italy, M. S., Telecommunications Engineering, 2007

Conservatory of Music F. Cilea, Reggio Calabria, Italy, B. A., Vocal Performance, 2008

Polytechnic University of Turin, Department of Energy, Turin, Italy, Ph.D., Acoustical Metrology, 2011

A. List of Academic Positions since Final Degree.

2009 Visiting scholar, Technical University of Denmark (DTU), Department of Electrical Engineering, Lyngby, Denmark
2011 Research Associate, Polytechnic University of Turin, Turin, Italy
2008 – 2014 Lecturer Polytechnic University of Turin, Turin, Italy
2013 – 2014 Research Associate, Polytechnic University of Turin, Turin, Italy
2014 – 2017 Research Associate, Michigan State University, East Lansing, MI
2017-Present Assistant Professor, University of Illinois Urbana-Champaign

B. Other Professional Employment.

2005 – 2014 Musician, Symphonic Choir Ruggero Maghini, Turin, Italy
2012 – 2021 Consultant in Environmental and Building Acoustics, Studio Progetto Ambiente Srl, Turin, Italy
2014 – 2021 Founding partner, P.R.O.VOICE S.R.L.

C. Honors, Recognitions, and Outstanding Achievements.

2008 – 2010 Doctorate Scholarship from Italian Ministry of Education
2009 Barducci Award at Congress "Associazione Italiana Acustica '09" for the paper: *Influence of noise and reverberation on speech intelligibility for children between 7 and 11 years in classrooms.*
2010 Best Poster Award at Congress Associazione Italiana Acustica 10 for the poster: *Measurements of vocal doses in virtual classrooms*
2012-Present Environmental Acoustics Technician: Italian national license for engineers in environmental acoustics
2015 Michiko So Finegold Award at InterNoise 2015 for the paper: *Vocal effort and the effect of room acoustics in noisy environments*
2018 Lessons for Success, American Speech-Language-Hearing Association (ASHA), Intensive training to a promising selected group of early career scientists in the areas of (a) grant preparation and funding opportunities, (b) development and management of a successful program of research, and (c) advancement of professional competencies.
2018 Reading, Writing, and Language Development Grant Writing Webinars for 10 selected New and Early Stage Investigators,

Institute of Education Sciences, The objective of the webinar series was to provide more in-depth support for selected new and early stage investigators to prepare successful grant applications related to literacy.

2018 Acoustical Society of America Early Career Travel Award at 176th Meeting of the ASA and 2018 Acoustics Week Canada for the paper: *Lombard effect in restaurant setting: How much would you spend to eat at this restaurant?*

D. Invited Lectures and Invited Conference Presentations since Last Promotion.

Invited lectures

1. **Bottalico, P.** (2016). Silence and voicing accumulations of teachers with and without voice disorders in classrooms with different reverberation time, I Congreso Internacional en Voz y Trabajo, Bogotá, Colombia.
2. **Bottalico, P.,** Cantor Cutiva, L.C., Hunter, E.J. (2018). A model for the vocal fatigue from acoustic vocal parameters, 11th International Conference on Voice Physiology and Biomechanics, East Lansing, Michigan, USA
3. **Bottalico, P.** (2018). Vocal load, effort and fatigue, Lund University, Lund, Sweden.
4. **Bottalico, P.** (2018). Speech communication, Universidad Manuela Beltran, Bogota, Colombia.
5. **Bottalico, P.** (2018). Voice conservation among teachers, Avogadro, Biella, Italy.
6. **Bottalico, P.** (2018). Hearing conservation among musicians, Universidad Nacional de Colombia, Bogota, Colombia.
7. **Bottalico, P.** (2018). Creating quieter communities, University of Victoria, Victoria, Canada.
8. **Bottalico, P.** (2018). Lombard effect in restaurants, Politecnico di Torino, Torino, Italy.
9. **Bottalico, P.** (2019). Acoustic environment: speech intelligibility and vocal load in primary classrooms, X Congresso Internacional de Fonoaudiologia, Belo Horizonte, MG, Brazil.
10. **Bottalico, P.** (2019). Research lines in the voice field, X Congresso Internacional de Fonoaudiologia, Belo Horizonte, MG, Brazil.
11. **Bottalico, P.** (2019). Lombard effect in restaurants, Universidad Manuela Beltran, Bogota, Colombia.
12. **Bottalico, P.** (2019). Lombard effect in restaurants, Università degli studi di Torino, Torino, Italy.
13. **Bottalico, P.** (2019). Vocal effort and fatigue among occupational voice users, University of South Florida, Tampa, Florida, USA.
14. **Bottalico, P.** (2020). Voice research: Trends and challenges, Università degli Studi di Torino, Torino, Italy.
15. **Bottalico, P.** (2020). Voice research: Trends and challenges, Universidad Manuela Beltran, Bogota, Colombia.
16. **Bottalico, P.** (2020). Alumni dal Mondo, Politecnico di Torino, Torino, Italy.
17. **Bottalico, P.** (2020). The acoustics of restaurants, Ordine degli Ingegneri del Veneto (Engineering Society of Veneto, Italy), Webinar.

18. **Bottalico, P.** (2020). New research lines on voice, Universidad Manuela Beltran, Bogota, Colombia.
19. **Bottalico, P.** (2020). The acoustics of restaurants, Acoustical Society of Italy, Webinar.
20. **Bottalico, P.** (2021). Listening under competitive acoustic conditions, Guest speaker at XXXVIII Congress SIAF, Turin, Nov 10-13, 2021

Other

1. **Bottalico, P.** (2016). Vocal load, effort and fatigue, Michigan State University, East Lansing, MI, USA.
2. **Bottalico, P.** (2018). Hearing conservation among musicians, School of Music, University of Illinois Urbana-Champaign, USA.
3. **Bottalico, P.** (2018). Lombard effect in restaurants, Studio Progetto Ambiente, Torino, Italy.
4. **Bottalico, P.** (2022). Complex sounds, Department of Speech and Hearing Science, University of Illinois Urbana-Champaign, USA.

E. Offices Held in Professional Societies.

None

F. Editorships of Journals or Other Learned Publications.

2019-present	Editorial Board Member, Journal of Voice
2021-present	Editorial Board Member, American Journal of Audiology

G. Grants Received since Last Promotion at Illinois.

- 1 Bottalico P. (PI), Behrens and Associates, Inc., *Effect of environmental noise on birds*, 10/2015-12/2015, \$5,100.
- 2 Hunter E., (PI) Trifecta Initiative, Michigan State University, *Improving speech intelligibility by controlling background noise in the classroom* 10/2015-09/2016, \$8,500, effort 30%, award for the candidate \$2,000, role of the candidate co-I.
- 3 Redman Y., Bottalico P. (Co-PI) College of Fine and Applied Arts, Strategic Research Initiative Program, *Work-related communicative profile of instructors of voice*, 03/2018-02/2019, \$30,000, effort 50%, award for the candidate \$15,000, role of the candidate co-PI.
- 4 Bottalico P. (PI), ASHFoundation, New Century Scholars Research Grant, *Classroom acoustics for enhancing students' understanding when a teacher suffers from voice problems*. 01/2020-12/2022, \$25,000
- 5 Bottalico P. (PI), Campus Research Board- UIUC, *Classroom acoustics for enhancing students' understanding when a teacher suffers from a hoarse voice in bilingual schools*. 11/2019-06/2022, \$30,000

I. Review Panels.

2021	Natural Sciences and Engineering Research Council of Canada, Discovery Grants Program
2020, 2021	AHSFoundation, Graduate Student Scholarship

II. PUBLICATIONS AND CREATIVE WORKS

- # Denotes any publication derived from the candidate's thesis.
- * Denotes publication that has undergone stringent editorial review by peers.
- + Denotes publication that was invited and carries special prestige and recognition.
Authors underlined are students or other mentees/trainees.)

A. Doctoral Thesis Title

#**Bottalico, P.** (2011). Acoustical safety in classrooms. Unpublished doctoral dissertation, Politecnico di Torino, Italy

B. Books Authored or Co-Authored (in print or accepted)

None

C. Books Edited or Co-Edited (in print or accepted)

None

D. Chapters in Books (in print or accepted)

Astolfi, A., Bottalico, P., (2008). Valutazione dell'intelligibilità del parlato in aule di scuola elementare (Evaluation of speech intelligibility in primary school classrooms), In G. Brambilla; P. Nataletti; A. Peretti, *Acustica e ambienti scolastici: La fatica di imparare e insegnare nella scuola che cambia* (pp. 37-61), Associazione Italiana di Acustica, ISPEL (ITA), ISBN: 9788888942254

E. Monographs (in print or accepted).

None

F. Articles in Journals (in print or accepted).

1. #+Astolfi, A., **Bottalico, P.** & Bronuzzi, F. (2009). Intelligibilità del parlato per bambini di scuola elementare in diverse condizioni acustiche (Speech intelligibility for primary schools pupils in different acoustic conditions). *Rivista italiana di acustica*, 33(4), 35-44.
2. #+Astolfi, A., **Bottalico, P.**, Bronuzzi, F., Accornero, A., Garzaro, M., Pecorari, G., Nadalin, J. & Giordano, C. (2010). Vocal dosimetry on primary school teachers. *Rivista italiana di acustica*, 36(4), 43-50.
3. #Nadalin J., Astolfi, A., **Bottalico, P.**, Riva, G., Garzaro, M., Raimondo, L., & Giordano, C. (2011). Effetto del rumore e della riverberazione sullo sforzo vocale degli insegnanti di scuola primaria (Effect of noise and reverberation on vocal effort in primary school teachers). *Giornale italiano di medicina del lavoro ed ergonomia, PI-ME Editrice*, 122-125.
4. *+La Malva, F., Astolfi, A., **Bottalico, P.**, Lo Verso, V. R., & Bronuzzi, F. (2011). Livingscape approach to improve urban historical places. *Journal of Temporal Design in architecture and the environment*, 11, 20-24.
5. *+La Malva, F., Astolfi, A., **Bottalico, P.**, Lo Verso, V. R., & Bronuzzi, F. (2011). Livingscape multi-sensory experience in urban historical places: subjective assessment from the local people and quality of the urban environment. *Journal of Temporal Design in architecture and the environment*, 11, 25-29.

6. *#**Bottalico, P.**, & Astolfi, A. (2012). Investigations into vocal doses and parameters pertaining to primary school teachers in classrooms. *The Journal of the Acoustical Society of America*, 131(4), 2817-2827.
7. *#Astolfi, A., **Bottalico, P.**, & Barbato, G. (2012). Subjective and objective speech intelligibility investigations in primary school classrooms. *The Journal of the Acoustical Society of America*, 131(1), 247-257.
8. *#Genta, G., Astolfi, A., **Bottalico, P.**, Barbato, G., & Levi, R. (2013). Management of truncated data in speech transmission evaluation for pupils in classrooms. *Measurement Science Review*, 13(2), 75-82.
9. #+**Bottalico, P.**, Astolfi, A. & Bronuzzi, F. (2014). Dosimetria vocale su maestri di scuola ele- mentare durante la giornata lavorativa (Vocal dosimetry on primary schoolteachers during the working day), *ISL Igiene & Sicurezza del Lavoro*, 1, 15-19.
10. #+Astolfi, A., **Bottalico, P.** & Bronuzzi, F. (2014). Indagini oggettive e soggettive sull'influenza del rumore e della riverberazione sullo sforzo vocale di insegnanti di scuola primaria (Objective and subjective investigations about the influence of noise and reverberation on vocal effort in primary school teachers), *ISL Igiene & Sicurezza del Lavoro*, 1, 19-23.
11. ***Bottalico, P.**, Graetzer, S., & Hunter, E. J. (2015). Effects of voice style, noise level, and acoustic feedback on objective and subjective voice evaluations. *The Journal of the Acoustical Society of America*, 138(6), EL498-EL503.
12. *+Hunter, E. J., **Bottalico, P.**, Graetzer, S., Leishman, T. W., Berardi, M. L., Eyring, N. G., Jensen, Z.R., Rolins, M.K. & Whiting, J. K. (2015). Teachers and teaching: speech production accommodations due to changes in the acoustic environment. *Energy procedia*, 78, 3102-3107.
13. ***Bottalico, P.**, Graetzer, S., & Hunter, E. J. (2016). Effect of training and level of external auditory feedback on the singing voice: volume and quality. *Journal of Voice*, 30(4), 434-442.
14. *+**Bottalico, P.**, Bertetti, C. A., & Falossi, M. (2016). Effects of noise generated by construction sites on wild birds. *Noise Control Engineering Journal*, 64(4), 544-554.
15. ***Bottalico, P.**, Graetzer, S., & Hunter, E. J. (2016). Effects of speech style, room acoustics, and vocal fatigue on vocal effort. *The Journal of the Acoustical Society of America*, 139(5), 2870-2879.
16. ***Bottalico, P.**, Graetzer, S., & Hunter, E. J. (2016). Effect of training and level of external auditory feedback on the singing voice: pitch accuracy. *Journal of Voice*, 31(1), 122.e9-122.e16.
17. ***Bottalico, P.** (2017). Speech adjustments for room acoustics and their effects on vocal effort. *Journal of Voice*, 31(3), 392.e13-392.e32.
18. *#**Bottalico, P.**, Graetzer, S., Astolfi, A., & Hunter, E. J. (2017). Silence and voicing accumulations in Italian primary school teachers with and without voice disorders. *Journal of Voice*, 31(2), 260.e11- 260.e20.
19. *#**Bottalico, P.**, Astolfi, A., & Hunter, E. J. (2017). Teachers' voicing and silence periods during continuous speech in classrooms with different reverberation times. *The Journal of the Acoustical Society of America*, 141(1), EL26-EL31.

20. ***Bottalico, P., Ipsaro Passione, I.**, Graetzer, S., & Hunter, E. J. (2017). Evaluation of the starting point of the Lombard effect. *Acta Acustica United With Acustica*, 103(1), 169-172.
21. *Graetzer, S., **Bottalico, P.**, & Hunter, E. J. (2017). Speech produced in noise: Relationship between listening difficulty and acoustic and durational parameters. *The Journal of the Acoustical Society of America*, 142(2), 974-983.
22. *Cantor-Cutiva, L. C., **Bottalico, P.**, Ishi, C. T., & Hunter, E. J. (2017). Vocal fry and vowel height in simulated room acoustics. *Folia Phoniatrica et Logopaedica*, 69(3), 118-124.
23. ***Banks, R. E., Bottalico, P.**, & Hunter, E. J. (2017). The effect of classroom capacity on vocal fatigue as quantified by the vocal fatigue index. *Folia Phoniatrica et Logopaedica*, 69(3), 85-93.
24. *Cantor-Cutiva, L. C., **Bottalico, P.**, & Hunter, E. (2018). Factors associated with vocal fry among college students. *Logopedics Phoniatrics Vocology*, 43(2), 73-79.
25. ***Bottalico, P., Ipsaro Passione, I.**, Astolfi, A., Carullo, A., & Hunter, E. J. (2018). Accuracy of the quantities measured by four vocal dosimeters and its uncertainty. *The Journal of the Acoustical Society of America*, 143(3), 1591-1602.
26. *+**Bottalico, P.** (2018). Lombard effect, ambient noise, and willingness to spend time and money in a restaurant. *The Journal of the Acoustical Society of America*, 144(3), EL209-EL214.
27. *Rakerd, B., Hunter, E. J., Berardi, M., & **Bottalico, P.** (2018). Assessing the acoustic characteristics of rooms: a tutorial with examples. *Perspectives of the ASHA special interest groups*, 3(19), 8-24.
28. *Cantor-Cutiva, L. C., **Bottalico, P.**, & Hunter, E. (2019). Work-related communicative profile of radio broadcasters: a case study. *Logopedics Phoniatrics Vocology*, 44(4), 178-191.
29. ***Bottalico, P.**, Codino, J., Cantor-Cutiva, L. C., Marks, K., Nudelman, C. J., Skeffington, J., Shrivastav, R., Jackson-Menaldi, M.C., Hunter, E.J. & Rubin, A. D. (2020). Reproducibility of voice parameters: the effect of room acoustics and microphones. *Journal of Voice*, 34(3), 320-334.
30. *+Hunter, E. J., Cantor-Cutiva, L. C., van Leer, E., Van Mersbergen, M., Nanjundeswaran, C. D., **Bottalico, P.**, Sandage M.J. & Whitling, S. (2020). Toward a consensus description of vocal effort, vocal load, vocal loading, and vocal fatigue. *Journal of Speech, Language, and Hearing Research*, 63(2), 509-532.
31. *+**Bottalico, P.**, Murgia, S., Puglisi, G. E., Astolfi, A., & Kirk, K. I. (2020). Effect of masks on speech intelligibility in auralized classrooms. *The Journal of the Acoustical Society of America*, 148(5), 2878-2884.
32. *Cantor-Cutiva, L. C., **Bottalico, P.**, Nudelman, C., Webster, J., & Hunter, E. J. (2021). Do voice acoustic parameters differ between bilingual English-Spanish speakers and monolingual English speakers during English productions? *Journal of Voice*, 35(2), 194-202.

33. *Anand, S., **Bottalico, P.**, & Gray, C. (2021). Vocal fatigue in prospective vocal professionals. *Journal of Voice*, 35(2), 247-258.
34. ***Bottalico, P.**, Marunick, M. T., Nudelman, C., Webster, J., & Jackson-Menaldi, M. C. (2021). Singing voice quality: The effects of maxillary dental arch and singing style. *Journal of Voice*, 35(3), 501.e11-501.e18.
35. *Rubin, A. D., Codino, J., Costeloe, A., Johns, M. M., Collum, A., & **Bottalico, P.** (2021). The effect of unilateral hearing protection on vocal intensity with varying degrees of background noise. *Journal of Voice*, 35(6), 886-891.
36. *Anand, S., Gutierrez, D., & **Bottalico, P.** (2021). Acoustic-perceptual correlates of voice among steam train engineers: effects of noise and hearing protection. *Journal of Voice*. (Published online) Doi: 10.1016/j.jvoice.2021.01.006
37. *Rubin, A. D., Codino, J., **Bottalico, P.**, Parrish, S., & Jackson-Menaldi, C. (2021). Hyoid bone syndrome and dysphonia: can throat pain affect the voice? *The Laryngoscope*, 131(7), E2303-E2308.
38. *Cantor-Cutiva, L. C., Jiménez-Chala, E. A., **Bottalico, P.**, & Hunter, E. J. (2021). Bilingualism and voice production. Differences between bilingual Latin-American Spanish-English female speakers and monolingual Spanish female speakers during Spanish productions. *Journal of Voice*. (Published online) doi: 10.1016/j.jvoice.2021.04.026
39. *Nudelman, C., Webster, J., & **Bottalico, P.** (2021). The effects of reading speed on acoustic voice parameters and self-reported vocal fatigue in students. *Journal of Voice*. (Published online) doi: 10.1016/j.jvoice.2021.05.021
40. *Cantor-Cutiva, L. C., **Bottalico, P.**, Webster, J., Nudelman, C., & Hunter, E. (2021). The effect of bilingualism on production and perception of vocal fry. *Journal of Voice*. (Published online) doi: 10.1016/j.jvoice.2021.06.002
41. *+Sierra-Polanco, T., Cantor-Cutiva, L. C., Hunter, E. J., & **Bottalico, P.** (2021). Changes of voice production in artificial acoustic environments. *Frontiers in Built Environment*, 7, 71.
42. ***Bottalico, P.**, Murgia, S., Puglisi, G. E., Astolfi, A., & Ishikawa, K. (2021). Intelligibility of dysphonic speech in auralized classrooms. *The Journal of the Acoustical Society of America*, 150(4), 2912-2920.
43. *Redman, Y., Vercelli, C., Cantor-Cutiva, L. C., & **Bottalico, P.** (2020). Work-related communicative profile of voice teachers: effects of classroom noise on voice and hearing abilities. *Journal of Voice*, 36(2), 291.e17-291.e31
44. ***Bottalico, P.**, Piper, R. N. & Legner, B. (2022). Lombard Effect, intelligibility, ambient noise, and willingness to spend time and money in a restaurant amongst older adults. *Scientific Reports*, 12, 6549.
45. ***Bottalico, P.**, Lastowiecka, N., Glasner, J.D., & Redman, Y. (2022). Singing in different performance spaces; the effect of room acoustics on vibrato and pitch inaccuracy. *The Journal of the Acoustical Society of America*. (Accepted for publication)

G. Creative Works.

None

H. Patents

Bottalico, P., Astolfi, A., Bronuzzi, F. & Vannelli, G. (2014). Device and procedure of sound measurement and warning. Italian Patent No.0001408737, Ministero dello Sviluppo Economico, Ufficio Italiano Brevetti e Marchi.

III. CONTRIBUTIONS TO TEACHING AND LEARNING

1. Supervision of Graduate Students.

Committee Chair and Director of Ph.D. Research in Speech and Hearing Science

1. Murgia, Silvia., Ph.D., 2019-Present, "Speech intelligibility in classrooms."

Committee Member of Ph.D. Dissertation at UIUC

1. Cotoc, Crina, PhD in Community Health, 2018-2020, "Self-stigmatization, perceptions of oncologist's role in prognostic communication and information seeking behaviors in breast cancer," now at University of Minnesota Medical School.
2. Saeger, Lauren, PhD in Music, 2018-2020, "Effects of vibrato rate, extent and duration: differences between ensemble and solo singing in the vocal jazz style," now at Meredith College.

Committee Chair and Director of Au.D. Research

1. Putira, Lauren, Au.D., 2017-2019, "Effects of noise exposure and voice use on music teachers' hearing and vocal abilities," now at Audiology of Charlotte, Matthews, NC.
2. Piper, Rachael, Au.D., 2017-2021, "Lombard Effect in restaurants for seniors with and without hearing loss," now at East Coast Hearing and Balance, Leland, NC.
3. Legare, Carolyn, Au.D., 2017-2021, "Influence of noise frequency components on the Lombard Effect," now at Marion VA Medical Center, Marion, IL.
4. Moore, Kristen, Au.D. student, 2019- present, "Speech intelligibility in dining halls."
5. Mekus, Taylor, Au.D. student, 2019-present, "Speech intelligibility in primary schools with and without face masks."
6. Plachno, Isabella, Au.D. student, 2020-present, "Voice related quality of life in CI users."
7. Lowrance, Rachel, Au.D. student, 2021-present, "Longitudinal noise dosimetry in music students."

Committee Member of Au.D Capstone Projects

1. Johnson, Kristin, Au.D., 2015-2020, "Examining involvement of olivocochlear efferents for frequency discrimination," now at Audiology Innovations PC., Bloomington, IL.
2. Trine, Alisson, Au.D. student 2018-present, "Extended high frequencies provide both spectral and temporal information to improve speech-in speech listening."

3. Price, Rachel, Au.D. student, 2019-present, "Effect of familiarity in speech intelligibility."
4. Arzuaga, Briana, Au.D. student, 2019-present, "The effect of masks on speech."
5. Brennan, Callie, Au.D. student, 2019-present, "Misophonia Prevalence and Co-Morbidities in a Collegiate Population."
6. Auriemma, Celine, Au.D. student, 2019- present, "Effect of Time-Windowing on Transient-Evoked Otoacoustic Emission Amplitude."

Committee Chair and Director of Master Thesis in Speech and Hearing Science

1. Sierra, Tomas, M.A., 2019-2021, "Vocal fatigue in virtual acoustics," now in Ibagué, Colombia.
2. Webster, JosseMia, M.A., 2019-2021, "Vocal fatigue among bilinguals," now Speech Language Pathologist Clinical Fellow at Detroit Public Schools Community District. Co-Chair: Dr. Keiko Ishikawa.

Other contributions

1. Vercelli, Chiara, 2018, M.S. in Architecture, Visiting scholar from Politecnico di Torino for the master thesis, "Room acoustics effect on voice and noise dosimetry in voice professors."
2. Carzedda, Giorgio, 2021, M.S. in Cinema Engineering, Politecnico of Turin, committee member for the master thesis, "Study and implementation of a methodology for measuring and assessing the Lombard effect in eating establishments during COVID-19 pandemic."
3. Calia, Giulia, 2021, M.S. in Architecture, Politecnico of Turin, committee member for the master thesis, "Validation of predictive algorithm control of gatherings in enclosed places."
4. Di Iulio, Michele, 2021, M.S. in Biomedical Engineering, Politecnico of Turin, committee member for the master thesis, "Speech intelligibility of speakers with masks in children with CI."
5. Minelli, Greta, 2022, PhD candidate in Energetics, Politecnico of Turin, committee member, "Classroom acoustics for learning and well-being: in-field measurements, questionnaires and binaural speech intelligibility."
6. Ümit Daşdoğan, 2022 Ph.D. candidate in Communication Sciences and Disorders, University of Delaware, "Influence of virtual reality on voice perception and production."