

**Pavel Zahorik, Ph.D.**

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**I. EDUCATIONAL AND PROFESSIONAL HISTORY****Education:**

1998 – 2001 Postdoctoral Fellow, Visual & Auditory Space Perception,  
University of California – Santa Barbara (mentor: Dr. Jack Loomis)

1993 – 1998 Ph.D., Experimental Psychology (Psychoacoustics Emphasis),  
University of Wisconsin – Madison (mentor: Dr. Fred Wightman)

1992 – 1993 Postbaccalaureate studies, Psychoacoustics,  
University of California – Berkeley (mentor: Dr. Ervin Hafter)

1987 – 1991 B.S., Psychology/Philosophy double major,  
University of Wisconsin – Madison

**Professional and Academic Positions:**

2013 – present Heuser Hearing Research Endowed Chair & Associate Professor (with tenure), Department of  
Otolaryngology and Communicative Disorders, University of Louisville School of Medicine

2009 – present Associate Professor (with tenure), Department of Psychological & Brain Sciences, University of  
Louisville (joint appointment)

2003 – 2009 Assistant Professor, Department of Psychological & Brain Sciences, University of Louisville

2001 – 2003 Assistant Scientist, University of Wisconsin – Madison

2000 – 2001 Consultant, 3D sound technology/displays, Rockwell Science Center, Thousand Oaks, CA

1998 – 2001 Postdoctoral Fellow, Dept. of Psychology, University of California – Santa Barbara

1993 – 1998 Research Assistant, Hearing Development Research Laboratory, University of Wisconsin –  
Madison

1993 Project Assistant, Hearing Development Research Laboratory, University of Wisconsin – Madison

1992 – 1993 Research Assistant, Hafter Auditory Perception Lab, University of California – Berkeley

**Honors and Awards:**

Member, Psi Chi (Psychology Honor Society, Inducted 1991)

NIH/NEI Postdoctoral Fellow (1999 – 2001)

Acoustical Society of America Young Investigator Travel Award (2001)

University of Louisville "Faculty Favorite" Nominee (2005)

Member, Sigma Xi (Scientific Honor Society, Inducted 2007)

Oculus distinguished faculty award (2017)

University of Louisville "Student Champion" (2021)

Fellow of The Acoustical Society of America (2021)

**Professional Memberships:**

*Acoustical Society of America, Association for Research in Otolaryngology, Audio Engineering Society.*

## II. RESEARCH

### A. Publications (\* supervised students)

#### Journal Articles (peer-reviewed):

1. **Zahorik, P.** (2022). Asymmetric visual capture of virtual sound sources in the distance dimension. *Frontiers in Neuroscience – Perception Science*, 16. doi: 10.3389/fnins.2022.958577
2. Kim, D. O., Holmes, N. P., Manson, G. A., & **Zahorik, P.** (2022). Response to an object near the head/body: Multisensory coding and motor processing guided by sensory systems. *Frontiers in Neuroscience – Perception Science*, 16. doi: 10.3389/fnins.2022.1124062
3. Neal, M. T., & **Zahorik, P.** (2022). The impact of head-related impulse response delay treatment strategy on psychoacoustic cue reconstruction errors from virtual loudspeaker arrays. *Journal of the Acoustical Society of America*, 151(6), 3729-3744.
4. Xu, L., Luo, J., Xie, D., Chao, X., Wang, R., **Zahorik, P.**, & Luo, X. (2022). Reverberation degrades pitch perception but not mandarin tone and vowel recognition of cochlear implant users. *Ear and Hearing*, 43(4), 1139-1150.
5. \*Ellis, G. & **Zahorik, P.** (2021). Reverberation strength perceived by normal-hearing listeners predictable based on time-varying binaural loudness. *Hearing Research*, 409, 108316.
6. \*Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2020). Associations between speech recognition at high levels, the middle ear muscle reflex and noise exposure in individuals with normal audiograms. *Hearing Research*, 107982.
7. \*Reinhart, P., **Zahorik, P.**, & Souza, P. E. (2020). Interactions between digital noise reduction and reverberation: Acoustic and behavioral effects. *Journal of the American Academy of Audiology*, 31(1), 17-29. PMID: PMC7416503.
8. Strelcyk, O., **Zahorik, P.**, Shehorn, J., Patro, C., & Derleth, P. (2019). Sensitivity to interaural phase in older hearing-impaired listeners correlates with nonauditory trail making scores and with a spatial auditory task of unrelated peripheral origin. *Trends in Hearing*, 23, 2331216519864499. PMID: PMC6755865.
9. \*Ellis, G.M. & **Zahorik, P.** (2019). A dissociation between speech understanding and perceived reverberation. *Hearing Research*, 379, 52-58.
10. \*Reinhart, P., **Zahorik, P.**, & Souza, P. E. (2019). Effects of reverberation on the relationship between compression speed and working memory for speech-in-noise perception. *Ear and Hearing*, 40(5), 1098-1110. PMID: PMC6688967.
11. \*Brandewie, E. & **Zahorik, P.** (2018). Speech intelligibility in rooms: Disrupting the effect of prior listening exposure. *Journal of the Acoustical Society of America*, 43(5), 3068-3078. PMID: PMC5966308
12. \*Reinhart, P., **Zahorik, P.**, & Souza, P. E. (2017). Effects of reverberation, background talker number, and compression release time on signal-to-noise ratio. *Journal of the Acoustical Society of America*, 142(1), EL130-EL135. PMID: PMC5724723
13. Stilp, C.E., \*Anderson, P.W., Assgari, A.A., \*Ellis, G.M., & **Zahorik, P.** (2016). Speech perception adjusts to reliable spectrotemporal properties in the listening environment. *Hearing Research*, 341, 168-178. PMID: PMC5086439
14. **Zahorik, P.** & \*Brandewie, E. (2016). Speech intelligibility in rooms: Effect of prior listening exposure interacts with room acoustics. *Journal of the Acoustical Society of America*, 140(1), 74-86. PMID: PMC6497457.
15. Kolarik, A. J., Moore, B. C. J., **Zahorik, P.**, Cirstea, S., & Pardhan, S. (2016). Auditory distance perception in humans: a review of cues, development, neuronal bases and effects of sensory loss. *Attention, Perception, & Psychophysics*, 78, 373-395. PMID: PMC4744263
16. Kim, D. O., **Zahorik, P.**, Bishop, B, Carney, L., & Kuwada, S. (2015). Auditory distance coding: rabbit midbrain neurons and human perception. *Journal of Neuroscience*, 35(13), 5360-5372. PMID: PMC4381006

17. Kuwada, S., Kim, D. O., Koch, K., Abrams, K. S., Idrobo, F., **Zahorik, P.**, & Carney, L. (2015). Near-field discrimination of sound source distance in the rabbit. *Journal of the Association for Research in Otolaryngology*, *16*(2), 255-262. PMID: PMC4368658
18. \*Anderson, P. W., & **Zahorik, P.** (2014). Auditory/visual distance estimation: accuracy and variability. *Frontiers in Auditory Cognitive Neuroscience*, *5*, 1097. PMID: PMC4188027
19. \*Srinivasan, N. K., & **Zahorik, P.** (2014). Enhancement of speech intelligibility in reverberant rooms: Role of amplitude envelope and temporal fine structure. *Journal of the Acoustical Society of America*, *135*(6), EL239-EL245. PMID: PMC4032445
20. \*Brandewie, E. & **Zahorik, P.** (2013). Time course of perceptual speech enhancement in reverberant environments. *Journal of the Acoustical Society of America*, *134*(2), EL265-EL270. PMID: PMC3732299
21. \*Srinivasan, N. K. & **Zahorik, P.** (2013). Prior listening exposure to a reverberant room improves open-set intelligibility of high-variability sentences. *Journal of the Acoustical Society of America*, *133*(1), EL33-EL39. PMID: PMC3555507
22. \*Srinivasan, N. K. & **Zahorik, P.** (2012). Phonemic restoration effect reversed in a reverberant room. *Journal of the Acoustical Society of America*, *131*(1), EL28-EL34. PMID: PMC3261052
23. Wolbers, T., **Zahorik, P.**, & Giudice, N.A. (2011). Decoding the direction of auditory motion from BOLD responses in blind humans. *Neuroimage*, *56*(2), 681-687.
24. \*Brandewie, E. & **Zahorik, P.** (2010). Prior listening in rooms improves speech intelligibility. *Journal of the Acoustical Society of America*, *128*(1), 291-299. PMID: PMC2921430
25. **Zahorik, P.** (2009). Perceptually relevant parameters for virtual listening simulation of small room acoustics. *Journal of the Acoustical Society of America*, *126*(2), 776-791. PMID: PMC2730711
26. \*Longworth-Reed, L., \*Brandewie, E. & **Zahorik, P.** (2009). Time-forward speech intelligibility in time-reversed rooms. *Journal of the Acoustical Society of America*, *125*(1), EL13-EL19. PMID: PMC2677280
27. **Zahorik, P.** & Kelly, J.W. (2007). Accurate vocal compensation for sound intensity loss with increasing distance in natural environments. *Journal of the Acoustical Society of America*, *122*(5), EL143-EL150. PMID: PMC3412342
28. **Zahorik, P.**, Bangayan, P., Sundareswaran, V. Tam, C., & Wang, K., (2006). Perceptual recalibration in human sound localization: Learning to resolve front-back confusions. *Journal of the Acoustical Society of America*, *120*(1), 343-359.
29. **Zahorik, P.**, Brungart, D. S., & Bronkhorst, A. W. (2005). Auditory distance perception in humans: A summary of past and present research. *Acta Acustica*, *91*(3), 409-420.
30. **Zahorik, P.** (2002). Direct-to-reverberant energy ratio sensitivity. *Journal of the Acoustical Society of America*, *112*(5), 2110-2117.
31. **Zahorik, P.** (2002). Assessing auditory distance perception using virtual acoustics. *Journal of the Acoustical Society of America*, *111*(4), 1832-1846.
32. Loomis, J. M., Philbeck, J. W., & **Zahorik, P.** (2002). Dissociation between location and shape in visual space, *Journal of Experimental Psychology: Human Perception and Performance*, *28*(5), 1202-1212.
33. **Zahorik, P.** & Wightman, F. L. (2001). Loudness constancy with varying sound source distance. *Nature Neuroscience*, *4*(1), 78-83.
34. **Zahorik, P.** (2001). Estimating sound source distance with and without vision. *Optometry and Vision Sciences*, *78*(5), 270-275.
35. **Zahorik, P.** (2000). Limitations in using Golay codes for head-related transfer function measurement. *Journal of the Acoustical Society of America*, *107*(3), 1793-1796.
36. **Zahorik, P.** & Jenison, R. L. (1998). Presence as Being-in-the-World. *Presence*, *7*(1), 78-89.

#### Book Chapters:

37. **Zahorik, P.** (2021). "Spatial Hearing in Rooms and Effects of Reverberation," in Litovsky R.Y., Goupell M.J., Fay R.R., Popper A.N. (eds) Binaural Hearing. Springer Handbook of Auditory Research, vol 73. Springer, Cham. doi: 10.1007/978-3-030-57100-9\_9

38. **Zahorik, P.**, \*Brandewie, E., & \*Sivonen, V. P. (2011). "Auditory perception in reverberant sound fields and effects of prior listening exposure," in Y. Suzuki, D. Brungart, Y. Iwaya, K. Iida, D. Cabrera, & H. Kato (eds.) Principles and Applications of Spatial Hearing. World Scientific Publishing Co., Hackensack, NJ. ISBN: 978-981-4313-87-2. pp. 24-34.

#### Magazines:

39. **Zahorik, P.** & Neal, M.T. (2022). Reflected Sound – Friend or Foe? *Acoustics Today*, 18(4), 44-55.

#### Refereed Proceedings:

40. Neal, M.T. & **Zahorik, P.** (2022). Accurate rendering of binaural cues with principal component-base amplitude panning (PCBAP). *Proceedings of the Audio Engineering Society Conference: AES 2022 International Audio for Virtual and Augmented Reality Conference*. Redmond, WA.
41. **Zahorik, P.** (2019). Audio/visual interaction in the perception of sound source distance, *Proceedings of the 23<sup>rd</sup> International Congress on Acoustics (ICA)*, Aachen, Germany, 7927-7931.
42. **Zahorik, P.** (2019). Adaptation to room acoustics and its effect of speech understanding, *Proceedings of the 23<sup>rd</sup> International Congress on Acoustics (ICA)*, Aachen, Germany, 5890-5895.
43. \*Ellis, G.M., **Zahorik, P.**, & Hartmann, W.M. (2016). Using multidimensional scaling techniques to quantify binaural squelch. *Proceedings of Meetings on Acoustics*, 23, 050007.
44. **Zahorik, P.** & \*Anderson, P. W. (2014). The role of amplitude modulation in auditory distance perception. *Proceedings of Meetings on Acoustics*, 21, 050006.
45. **Zahorik, P.** & Rothpletz, A. M. (2014). Speech, Spatial, and Qualities of Hearing Scale (SSQ): Normative data from young, normal-hearing listeners. *Proceedings of Meetings on Acoustics*, 21, 050007.
46. **Zahorik, P.** & \*Anderson, P. W. (2013). Amplitude modulation detection by human listeners in reverberant sound fields: effects of prior listening exposure. *Proceedings of Meetings on Acoustics*, 19, 050139. PMCID: PMC3806493
47. \*Brandewie, E. & **Zahorik, P.** (2012). Adaptation to room acoustics using the modified rhyme test. *Proceedings of Meetings on Acoustics*, 12, 050007. PMCID: PMC3579633
48. **Zahorik, P.**, Kim, D. O., Kuwada, S., \*Anderson, P. W., \*Brandewie, E., \*Collecchia, R., & \*Srinivasan, N. K. (2012). Amplitude modulation detection by human listeners in reverberant sound fields: carrier bandwidth effects and binaural versus monaural comparison. *Proceedings of Meetings on Acoustics*, 15, 050002. PMCID: PMC3579647
49. \*Anderson, P. W. & **Zahorik, P.** (2011). Auditory and visual distance estimation. *Proceedings of Meetings on Acoustics*, 12, 050004.
50. \*Srinivasan, N. K. & **Zahorik, P.** (2011). The effect of semantic context on speech intelligibility in reverberant rooms. *Proceedings of Meetings on Acoustics*, 12, 060001. PMCID: PMC3778373
51. **Zahorik, P.** & \*Brandewie, E. (2011). Perceptual adaptation to room acoustics and effects on speech intelligibility in hearing-impaired populations. Proceedings of the 2011 Forum Acusticum, Aalborg, Denmark. European Acoustics Association (ISBN: 978-84-694-1520-7), pp. 2167-2172. PMCID: PMC3582192
52. **Zahorik, P.**, Kim, D. O., Kuwada, S., \*Anderson, P. W., \*Brandewie, E., & \*Srinivasan, N. K. (2011). Amplitude modulation detection by human listeners in sound fields. *Proceedings of Meetings on Acoustics*, 12, 050005. PMCID: PMC3400464.
53. **Zahorik, P.**, \*Brandewie, E., & \*Sivonen, V. P. (2009). Spatial hearing in reverberant rooms and effects of prior listening exposure. *Proceedings of the International Workshop on Principles and Applications of Spatial Hearing (IWPASH)*, Nov. 11-13, 2009, Zao, Miyagi, Japan (eISBN 978-981-4299-31-2).
54. **Zahorik, P.** (2007). Challenges in the auditory display of distance information. *Publication of the 19th International Congress on Acoustics*. Madrid, Spain. *Revista de Acústica* (ISBN: 84-87985-12-2), 38(3-4), PPA-08-002-IP.
55. V. Sundareswaran, K. K. Wang, S. L. Chen, R. Behringer, J. H. McGee, C. Tam, & **Zahorik, P.** (2003). 3D Audio Augmented Reality: Implementation and Experiments. *Proceedings of the 2003 IEEE / ACM International*

*Symposium on Mixed and Augmented Reality (ISMAR 2003)*, Tokyo, Japan, (ISBN 0-7695-2006-5), pp. 296-297.

56. **Zahorik, P.** (2002). Auditory display of sound source distance. In R. Nakatsu & H. Kawahara (Eds.) *Proceedings of the 8<sup>th</sup> International Conference on Auditory Display, ICAD 2002*, Kyoto, Japan, pp. 326-332.
57. Wang, K., Sundareswaran, V., Tam, C., Bangayan, P., & **Zahorik, P.** (2002). Efficient and effective use of low-cost 3D audio systems. In R. Nakatsu & H. Kawahara (Eds.) *Proceedings of the 8<sup>th</sup> International Conference on Auditory Display, ICAD 2002*, Kyoto, Japan, pp. 239-243.
58. **Zahorik, P.**, Tam, C., Wang, K., Bangayan, P., & Sundareswaran, V. (2001). Localization accuracy in 3D sound displays: The role of visual-feedback training. In P. N. Rose (Ed.), *Proceedings of the Advanced Displays Consortium: ARL's 5th Federated Laboratory Annual Symposium*, College Park, MD. pp. 17-22.
59. Wightman, F. L., Kistler, D. J., & **Zahorik, P.** (2001). Issues and non-issues in the production of high-resolution auditory virtual environments. In M. J. Smith, G. Salvendy, D. Harris, & R. J. Koubek (Eds.), *Proceedings of the 9th Human-Computer Interaction International Conference: Usability Evaluation and Interface Design*, Volume 1, New Orleans. (pp. 594-596). Mahwah, New Jersey: Lawrence Erlbaum Associates.
60. **Zahorik, P.**, Wightman, F. L., & Kistler, D. J. (1995). On the discriminability of virtual and real sound sources. *Applications of Signal Processing to Audio and Acoustics, IEEE ASSP Workshop on Applications of Signal Processing to Audio and Acoustics*. New York: IEEE Press. 76-79. DOI: 10.1109/ASPAA.1995.482951
61. **Zahorik, P.**, Kistler, D. J., & Wightman, F. L. (1994). Sound localization in varying virtual acoustic environments. In G. Kramer (Ed.), *Proceedings of the Second International Conference on Auditory Display, ICAD 1994*, Santa Fe, NM. pp. 179-186. <http://hdl.handle.net/1853/50875>

#### **Published Abstracts:**

1. \*Neal, M., & **Zahorik, P.** (2021). Improved accuracy and computational efficiency in virtual acoustic rendering using principal components-based amplitude panning. *Journal of the Acoustical Society of America*, 150(4), A299.
2. \*Holmes, A., Neal, M., & **Zahorik, P.** (2021). The relationship between spatial release from masking and the ventriloquist effect. *Journal of the Acoustical Society of America*, 150(4), A302.
3. \*Neal, M.T. & **Zahorik, P.** (2021). Comparing the differences in robustness between interaural time delay calculation methods. *Journal of the Acoustical Society of America*, 149(4), A104.
4. **Zahorik, P.** (2020). Psychoacoustics and classroom acoustics: New possibilities for interaction. *Journal of the Acoustical Society of America*, 148(4), 2632.
5. **Zahorik, P.** & \*Neal, M.T. (2020). Reverberation detection threshold estimates in normal-hearing listeners: Effect of direct-path level. *Journal of the Acoustical Society of America*, 148(4), 2619.
6. Morgan, S.D., Stilp, C.E., & **Zahorik, P.** (2020). Graduate training opportunities in the hearing sciences at the University of Louisville. *Journal of the Acoustical Society of America*, 148(4), 2745.
7. Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2020). A population of adults with normal hearing sensitivity but significant noise exposure and/or tinnitus exhibit speech recognition deficits at high levels and weak middle-ear-muscle-reflexes. *Association for Research in Otolaryngology Abstracts*, 43, 346.
8. **Zahorik, P.** Carney, L.H., & Kim, D.O. (2020). Auditory distance coding using amplitude modulation depth. *Association for Research in Otolaryngology Abstracts*, 43, 159-160.
9. Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2019). Selective deficits in a clinical population with self-reported hearing difficulties but normal audiometric thresholds. *Journal of the Acoustical Society of America*, 145(3), 1877.
10. **Zahorik, P.** & Shehorn, J. (2019). Reverberation detection threshold estimates in normal-hearing listeners. *Journal of the Acoustical Society of America*, 145(3), 1875.
11. Morgan, S.D., AlMakadma, H., Kondaurova, M.V., Stilp, C.E., & **Zahorik, P.** (2019). Graduate training opportunities in the hearing sciences at the University of Louisville. *Journal of the Acoustical Society of America*, 145(3), 1705.

12. \*Ellis, G. & **Zahorik, P.** (2018). Binaural perceptual weighting of reverberation level in normal hearing listeners. *Journal of the Acoustical Society of America*, 143(3), 1939.
13. \*Anderson, P. W. & **Zahorik, P.** (2018). Differential use of absolute and relative distance information in auditory/visual distance perception. *Association for Research in Otolaryngology Abstracts*, 41, 257-258.
14. \*Ellis, G. M. & **Zahorik, P.** (2018). Binaural aspects of perceived reverberation strength in normal-hearing and hearing-impaired listeners. *Association for Research in Otolaryngology Abstracts*, 41, 402.
15. Strelcyk, O., **Zahorik, P.**, Patro, C., & Derleth, P. (2018). Variability of binaural-phase sensitivity measurements in hearing-impaired listeners with similar audiograms. *Association for Research in Otolaryngology Abstracts*, 41, 401-402.
16. \*Reinhart, P.N., **Zahorik, P.**, Souza, P.E. (2017). The relationship between hearing aid compression and working memory under realistic reverberant conditions. OVERHEAR: Real-world assessment of hearing aids and listening behaviour, London UK.
17. \*Reinhart, P.N., **Zahorik, P.**, & Souza, P. (2017). The interaction between reverberation and digital noise reduction in hearing aids: Acoustic and behavioral effects. *Journal of the Acoustical Society of America*, 141(5), 3971.
18. \*Ellis, G. & **Zahorik, P.** (2017). Perceived amount of reverberation consistent with binaural summation model. *Journal of the Acoustical Society of America*, 141(5), 3636.
19. **Zahorik, P.**, Preminger, J. E., & Stilp, C. E. (2017). Graduate training opportunities in the hearing sciences at the University of Louisville. *Journal of the Acoustical Society of America*, 141(5), 3679.
20. **Zahorik, P.** & \*Ellis, G. M. (2016). An example of dissociation between speech intelligibility and perceived reverberation. *Journal of the Acoustical Society of America*, 139(4), 2118.
21. Shore, A., Hartmann, W. M., Rakerd, B., Ellis, G. M., & **Zahorik, P.** (2016). Squelch of room effects in everyday conversation. *Journal of the Acoustical Society of America*, 139(4), 2212.
22. \*Ellis, G. M. & **Zahorik, P.** (2016). A situation in which the ipsilateral ear does not contribute to the amount of perceived reverberation. *Association for Research in Otolaryngology Abstracts*, 39, 116.
23. Luo, X., **Zahorik, P.**, & Chang, Y. (2016). Mandarin tone and vowel recognition in reverberation with cochlear implants. *Association for Research in Otolaryngology Abstracts*, 39, 470-471.
24. \*Anderson, P. W. & **Zahorik, P.** (2016). Perceptual weighting of modulation depth during monaural distance judgments. *Association for Research in Otolaryngology Abstracts*, 39, 250-251.
25. **Zahorik, P.** & He, Z. J. (2015). Virtual auditory display validation using transaural techniques. *Journal of the Acoustical Society of America*, 137(4), 2230.
26. **Zahorik, P.** (2015). Auditory/visual distance perception. *Journal of the Acoustical Society of America*, 137(4), 2374.
27. \*Ellis, G. M., **Zahorik, P.** & Hartmann, W. M. (2015). Using multidimensional scaling techniques to quantify binaural squelch. *Journal of the Acoustical Society of America*, 137(4), 2231.
28. Srinivasan, N. K., **Zahorik, P.**, Kampel, S. D., Jakien, K. M., Gordon, S., Stansell, M., & Gallun, F. J. (2015). Effect of age and hearing loss on intelligibility enhancement in a loudspeaker-based simulated reverberant environment. *Journal of the Acoustical Society of America*, 137(4), 2209.
29. Stilp, C. E., **Zahorik, P.** Assgari, L., \*Anderson, P. W., \*Ellis, G. M. (2015). Reverberation increases perceptual calibration to reliable spectral peaks. *Journal of the Acoustical Society of America*, 137(4), 2321.
30. **Zahorik, P.**, Preminger, J. E., and Stilp, C. E. (2014). Graduate training opportunities in the hearing sciences at the University of Louisville. *Journal of the Acoustical Society of America*, 136(4), 2198.
31. **Zahorik, P.** \*Anderson, P. W., Brandewie, E., and Srinivasan, N. K. (2014). Improved speech understanding and amplitude modulation sensitivity in rooms: Wait a second! *Journal of the Acoustical Society of America*, 136(4), 2242.
32. **Zahorik, P.** (2014). Amplitude modulation sensitivity in rooms. *Journal of the Acoustical Society of America*, 135(4), 2399.
33. **Zahorik, P.** & \*Anderson, P. W. (2014). The role of amplitude modulation in auditory distance perception. *Journal of the Acoustical Society of America*, 135(4), 2281.

34. **Zahorik, P.** & Rothpletz, A. M. (2014). Speech, Spatial, and Qualities of Hearing Scale (SSQ): Normative data from young, normal-hearing listeners. *Journal of the Acoustical Society of America*, 135(4), 2163-2164.
35. **Zahorik, P.** & \*Anderson, P. W. (2014). Enhanced amplitude modulation sensitivity in reverberant soundfields: Effects of prior listening exposure, soundfield, and modulation frequency. *Association for Research in Otolaryngology Abstracts*, 37, 90.
36. \*Brandewie, E. & **Zahorik, P.** (2013). Speech enhancement effects robust to changes in spatial position within a room. *Association for Research in Otolaryngology Abstracts*, 36, 245.
37. Kim, D.O., Kuwada, S., **Zahorik, P.**, & Bishop, B.B. (2013). Effect of reverberation on acoustic measures relevant for localization and recognition of sounds for various sound-source azimuth, distance and frequency: a study of humans and rabbits. *Association for Research in Otolaryngology Abstracts*, 36, 250-251.
38. **Zahorik, P.**, \*Brandewie, E., & \*Srinivasan, N. K. (2012). Speech intelligibility improves with listening exposure in reverberant rooms. *Journal of the Acoustical Society of America*, 131(4), 3318.
39. **Zahorik, P.**, Kim, D. O., Kuwada, S., \*Anderson, P. W., \*Brandewie, E., \*Collecchia, R., & \*Srinivasan, N. K. (2012). Amplitude modulation detection by human listeners in reverberant sound fields: carrier bandwidth effects and binaural versus monaural comparison. *Journal of the Acoustical Society of America*, 131(4), 3517.
40. Kim, D. O., Kuwada, S., Bishop, B., & **Zahorik, P.** (2012). Acoustic modulation transfer functions for human listeners in anechoic and reverberant environments. *Association for Research in Otolaryngology Abstracts*, 35, 37.
41. Kuwada, S., **Zahorik, P.**, Bishop, B. & Kim, D. O. (2012). What and where processing in the inferior colliculus. *Association for Research in Otolaryngology Abstracts*, 35, 92.
42. **Zahorik, P.**, \*Brandewie, E., & \*Srinivasan, N. K. (2012). Perceptual adaptation to room acoustics. *Association for Research in Otolaryngology Abstracts*, 35, 191-192.
43. \*Anderson, P. W. & **Zahorik, P.** (2011). Auditory and visual distance estimation. *Journal of the Acoustical Society of America*, 129(4), 2487.
44. \*Brandewie, E. & **Zahorik, P.** (2011). Adaptation to room acoustics using the modified rhyme test. *Journal of the Acoustical Society of America*, 129(4), 2487.
45. \*Srinivasan, N. K. & **Zahorik, P.** (2011). The effect of semantic context on speech intelligibility in reverberant rooms. *Journal of the Acoustical Society of America*, 129(4), 2682.
46. **Zahorik, P.**, Kim, D. O., Kuwada, S., \*Anderson, P. W., \*Brandewie, E., & \*Srinivasan, N. K. (2011). Amplitude modulation detection by human listeners in sound fields. *Journal of the Acoustical Society of America*, 129(4), 2487-2488.
47. **Zahorik, P.** (2010). Perceptual adaptation to room acoustics and effect on speech intelligibility. *Journal of the Acoustical Society of America*, 128(4), 2361.
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54. **Zahorik, P.**, \*Longworth-Reed, L., & \*Brandewie, E. (2007). Time-forward speech intelligibility in time-reversed rooms. *Association for Research in Otolaryngology Abstracts*, 30, 323.

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56. **Zahorik, P.** (2005). Measuring precedence effect buildup using subjective scaling methods. *Association for Research in Otolaryngology Abstracts*, 28, 338.
57. **Zahorik, P.** (2004). Perceptual scaling of room reverberation. *Journal of the Acoustical Society of America*, 115(5), 2598.
58. Wightman, F. L., & **Zahorik, P.** (2004). Basic research on auditory-visual interaction and listening in rooms. *Journal of the Acoustical Society of America*, 115(5), 2402.
59. **Zahorik, P.** (2003). Auditory and visual distance perception: The proximity-image effect revisited. *Journal of the Acoustical Society of America*, 113(4), 2270.
60. **Zahorik, P.**, Wightman, F. L., Ives, T., & Kistler, D. J. (2003). Precedence effects for varying source and echo locations. *Association for Research in Otolaryngology Abstracts*, 26, 91.
61. Bronkhorst, A. W. & **Zahorik, P.** (2002). The direct-to-reverberant ratio as a cue for distance perception in rooms. *Journal of the Acoustical Society of America*, 111(5), 2440-2441.
62. **Zahorik, P.**, Tam, C., Wang, K., Bangayan, P., & Sundareswaran, V. (2001). Effects of visual-feedback training in 3D sound displays. *Journal of the Acoustical Society of America*, 109(5), 2487.
63. **Zahorik, P.** (2000). Distance localization using non-individualized head-related transfer functions. *Journal of the Acoustical Society of America*, 108(5), 2597.
64. **Zahorik, P.** (2000). Visual capture effects for distance-varying sound sources. *Optometry and Vision Sciences*, 77(12s), 205.
65. Loomis, J. M. & **Zahorik, P.** (1999). Perceptual shape distortion under full-cue viewing is coupled to optical slant. *Abstracts of the Psychonomic Society*, 4, 59.
66. **Zahorik, P.** (1997). Scaling perceived distance of virtual sound sources. *Journal of the Acoustical Society of America*, 101(5), 3105-3106.
67. **Zahorik, P.**, Wightman, F. L., & Kistler, D. J. (1996). The fidelity of virtual auditory displays. *Journal of the Acoustical Society of America*, 99(4), 2596.

#### **Technical Reports:**

1. Lowe, M. J., Cordes, D., Li, D., Mock, B., & **Zahorik, P.** (1996). *Motion measurements with Polhemus Fastrak position monitor*. University of Wisconsin Department of Medical Physics Technical Report (UW-fMRI-12/96-01).

#### **Patents:**

1. \*Neal, M.T. & **Zahorik, P.** (2021, March, submitted). A method for virtual audio simulation of unaided and aided listening in a realistic environment.

#### **Manuscripts Under Review:**

1. Neal, M.T. & Zahorik, P. (2023, under review). An efficient and accurate virtual acoustic rendering method using principal component-base amplitude panning (PCBAP), *Journal of the Acoustical Society of America*.

#### **Submitted Conference Presentations:**

1. N/A.



## B. Grants (External)

(ONGOING)

Zahorik (PI)

10/1/2016 – present

Sonova

Listening evaluations of linked binaural hearing aid algorithms

Role: PI

Total Costs (to date): \$821,112

The goal of this project is to improve hearing aid performance and outcomes in everyday listening situations with complex noise patterns and effects of room acoustics. A secondary goal is to identify and validate potential predictors of positive hearing aid outcomes in complex listening situations. This project is ongoing and renewable annually. The project is administered through the Heuser Hearing Institute.

Zahorik (PI)

1/1/2022 – 3/31/2023

Sonova

Research Scientist: Scientific study of hearing impairment and its treatment

Role: PI

Total Costs: \$138,821

This grant funds a full-time research scientist to conduct research related to the treatment of hearing impairment, broadly defined. The research scientist will be a part of a basic science research team dedicated to better understanding human auditory perception in realistic listening situations, including the impact of hearing loss and its treatment. The research team represents a synergistic collaboration between the University of Louisville (UofL), the Heuser Hearing Institute (HHI), and Sonova, and includes employees from each entity. The fellow will be housed in the laboratory of Dr. Pavel Zahorik (UofL), which has facilities both at HHI and on UofL's Belknap campus. The research scientist position will be a UofL position, fully funded by Sonova.

Neal (PI)

6/1/2022 – 12/31/2022 (in NCE)

NSF

National Innovation-Corps Grant: Virtual Reality Software for Hearing Aid Fitting in Audiology Clinics

Role: co-PI

Total Costs: \$50,000

The goal of this project is to support entrepreneurial training and the customer discovery interview process for refining the minimum viable product for a virtual reality software to be used for fitting hearing aids in audiology clinics.

Neal (PI)

6/1/2022 – 12/31/2022 (in NCE)

US Economic Development Agency

PRePARE Technology Acceleration Grant: A virtual reality software for listening with hearing aids in realistic environments

Role: co-PI

Total Costs: \$58,450

The goal of this project is to develop an implementation of a minimum viable of a virtual reality software which will also be tested by audiologists for fitting hearing aids in a clinical setting. The grant specifically aims to address COVID-19 related health difficulties, which occurred since new hearing aid users could not go out and use their products in difficult, loud public environments.

Zahorik (PI)

11/9/2016 – present

Oculus

Distinguished faculty award to facilitate research on auditory perception and the development of techniques to simulate "virtual auditory space"

Role: PI

Total Direct Costs: \$25,000

This award enables ongoing research on virtual auditory space techniques for normal-hearing listeners. A primary goal is to further understand and develop improved techniques for the simulation of auditory distance and externalized sounds.

(SUBMITTED, UNDER REVIEW)

N/A

(COMPLETED)

Zahorik (PI)

4/22/2019 – 2/28/2022

Sonova

Postdoctoral Fellowship: Scientific study of hearing impairment and its treatment

Role: PI

Total Costs: \$189,589

The fellowship is a full-time research position related to the treatment of hearing impairment, broadly defined. The fellow will be a part of a basic science research team dedicated to better understanding human auditory perception in realistic listening situations, including the impact of hearing loss and its treatment. The research team represents a synergistic collaboration between the University of Louisville (UofL), the Heuser Hearing Institute (HHI), and Sonova, and includes employees from each entity. The fellow will be housed in the laboratory of Dr. Pavel Zahorik (UofL), which has facilities both at HHI and on UofL's Belknap campus. The postdoctoral fellowship will be a UofL position, fully funded by Sonova.

R01DC006014

Souza (PI)

8/1/2017 – 7/31/2021

Acoustic and perceptual effects of WDRC amplification

Role: Consultant

My role in this project was to provide consultation on room acoustic analysis and simulation techniques to be used in the proposed work.

R21EY023767

He, Zahorik (multi-PI)

7/1/2013 – 6/30/2017 (NCE)

NIH (RFA-EY-13-001)

Psychophysical Research on Auditory/Visual Space Perception and Navigation

Role: PI

Total Direct Costs: \$275,000

This project seeks to validate an innovative conceptual model of how auditory and visual distance information is combined and processed. Validation of the model will inform the development of new strategies for assisting or enhancing degraded spatial information to improve orientation and navigation abilities in visually- and/or hearing-impaired populations.

F31DC015373

Reinhart (PI)

10/1/2016-9/31/2017

NIH-NIDCD

Individual differences with WDRC amplification in challenging environments

Role: Co-Mentor

Total Direct Costs: \$37,301

My role in this project was to provide training to Paul Reinhart in room acoustics and room acoustic simulation techniques that he then used in his dissertation work.

R01DC008168                      Zahorik (PI)    7/1/2007 – 6/30/2013  
NIH-NIDCD  
Perceptual processing of indirect sound.  
Role: PI  
Total Direct Costs: \$1,000,000  
The long-term goal of this project is a complete understanding of the mechanisms and the potentially adaptive processes that subserve auditory localization and communication in everyday acoustic environments with complex patterns of indirect sound and the potential impact of hearing loss on these processes.

FA9550-08-1-0234                      Zahorik (PI)    6/1/2008 – 5/31/2012  
AFOSR (KY DEPSCoR)  
Enhancing the utility of spatial auditory displays for military applications  
Role: PI  
Total Direct Costs: \$645,333 (+ \$423,228 UofL costshare)  
The major goal of this project is to explore methods of various short-comings of virtual auditory displays. Grant funds support both research and research infrastructure (construction of a large anechoic chamber).

Zahorik (PI)    3/1/2011 – 3/31/2011

AFOSR  
2011 Heuser Hearing Institute Research Symposium  
Role: PI  
Total Direct Costs: \$5,642  
This application requested partial funding for a small research symposium on “Spatial Hearing and Hearing Loss”, which took place at the Heuser Hearing Institute (HHI), Louisville, KY, Friday, April 15 – Saturday, April 16, 2011. The primary goal of the symposium was to bring together recognized experts in a targeted area within the hearing sciences that has direct implications for the treatment and management of hearing loss.

R03DC005709                      Zahorik (PI)    8/1/2002 – 7/29/2006  
NIH-NIDCD  
Perceptual adaptation to realistic acoustic environments.  
Role: PI  
Total Direct Costs: \$150,000  
NOTE: No-cost extension granted for 8/1/2005 - 7/29/2006.  
The major goal of this project was to understand how the processes subserving human auditory perception adapt to changes in environmental acoustics, and in particular how this adaptation may facilitate sound localization and communication.

F32EY07010                      Zahorik (PI)    7/1/1999 – 6/30/2001  
NIH-NEI  
Distance Perception: Auditory/Visual Interactions.  
Role: PI  
The major goals of this project were to investigate auditory/visual interactions in depth perception, and provide training in spatial vision.

**C. Grants (Internal)**

(ONGOING)  
None.

(COMPLETED)

2021: NSF I-Corps, "Perceptually-optimized audio algorithm for virtual and augmented reality applications."  
Total Costs: \$2500. Academic Lead: Zahorik, Entrepreneurial Lead: Neal.

2011-2013: SUN i2a Grant: "Assessing critical thinking in psychology." Total Costs: \$4976.46. PI: Alison A. Sommers; co-PI: Pavel Zahorik.

2007: University of Louisville Competitive Enhancement Grant (CEG), "Perceptual processing of indirect sound".  
Total Costs: \$14,960. PI: Zahorik.

2005: University of Louisville grant for instructional improvement in multi-section courses. Total Costs: \$4000.  
Co-PIs: Drs. Lora Haynes, Pavel Zahorik, & Fred Wightman.

#### D. Presentations (\* supervised students)

##### Presentations (or accepted presentations) at Scientific Meetings:

1. \*Neal, M., & **Zahorik, P.** (2021). Improved accuracy and computational efficiency in virtual acoustic rendering using principal components-based amplitude panning. Talk, 181<sup>st</sup> Meeting of the Acoustical Society of America, Seattle, WA.
2. \*Holmes, A., Neal, M., & **Zahorik, P.** (2021). The relationship between spatial release from masking and the ventriloquist effect. Poster presentation, 181<sup>st</sup> Meeting of the Acoustical Society of America, Seattle, WA.
3. \*Neal, M.T. & **Zahorik, P.** (2021). Perceptually improved Ambisonics and vector-base amplitude panning using minimum-phase time alignment of head-related impulse responses. Talk, International Conference on Immersive and 3D Audio (I3DA), 8-10 September 2021, Bologna, Italy.
4. \*Neal, M.T. & **Zahorik, P.** (2021). Comparing the differences in robustness between interaural time delay calculation methods. Talk, 180<sup>th</sup> Meeting of the Acoustical Society of America (virtual meeting).
5. **Zahorik, P.** (2020). Psychoacoustics and classroom acoustics: New possibilities for interaction. **Invited Talk**, 179<sup>th</sup> Meeting of the Acoustical Society of America, *Acoustics Virtually Everywhere*.
6. **Zahorik, P.** & \*Neal, M.T. (2020). Reverberation detection threshold estimates in normal-hearing listeners: Effect of direct-path level. Poster presentation, 179<sup>th</sup> Meeting of the Acoustical Society of America, *Acoustics Virtually Everywhere*.
7. Morgan, S.D., Stilp, C.E., & **Zahorik, P.** (2020). Graduate training opportunities in the hearing sciences at the University of Louisville. Poster presentation, 179<sup>th</sup> Meeting of the Acoustical Society of America, *Acoustics Virtually Everywhere*, Fall 2020.
8. Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2020). A population of adults with normal hearing sensitivity but significant noise exposure and/or tinnitus exhibit speech recognition deficits at high levels and weak middle-ear-muscle-reflexes, Podium Presentation, 43<sup>rd</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Jose, CA.
9. **Zahorik, P.** Carney, L.H., & Kim, D.O. (2020). Auditory distance coding using amplitude modulation depth, Podium Presentation, Special Session in Honor of Shig Kuwada, 43<sup>rd</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Jose, CA.
10. **Zahorik, P.** (2019). Audio/visual interaction in the perception of sound source distance. **Invited Talk**, *The 23<sup>rd</sup> International Congress on Acoustics (ICA)*, Aachen, Germany.
11. **Zahorik, P.** (2019). Adaptation to room acoustics and its effect of speech understanding. **Invited Talk**, *The 23<sup>rd</sup> International Congress on Acoustics (ICA)*, Aachen, Germany.
12. \*Lorenz, S., Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2019). Measures of cognitive ability in listeners with self-reported hearing difficulties but normal audiograms. Poster presentation, *American Academy of Audiology*, Annual Conference, Columbus, OH.

13. \*Vajda, R., \*Nunn, H., Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2019). Spatial hearing deficits in normal-hearing listeners that self-report hearing difficulties. Poster presentation, *American Academy of Audiology*, Annual Conference, Columbus, OH.
14. \*Dillard, B., Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2019). SSQ confirms self-reported hearing difficulties for listeners with normal audiograms. Poster presentation, *American Academy of Audiology*, Annual Conference, Columbus, OH.
15. Shehorn, J., Strelcyk, O., & **Zahorik, P.** (2019). Selective deficits in a clinical population with self-reported hearing difficulties but normal audiometric thresholds. Poster presentation, 177<sup>th</sup> Meeting of the Acoustical Society of America, Louisville, KY.
16. **Zahorik, P.** & Shehorn, J. (2019). Reverberation detection threshold estimates in normal-hearing listeners, Acoustical Society of America, Louisville, KY.
17. Morgan, S.D., AlMakadma, H., Kondaurava, M.V., Stilp, C.E., & **Zahorik, P.** (2019). Graduate training opportunities in the hearing sciences at the University of Louisville. Poster presentation, 177<sup>th</sup> Meeting of the Acoustical Society of America, Louisville, KY.
18. Strelcyk, O., **Zahorik, P.**, Patro, C., Kramer, M., & Derleth, R.P. (2018). Effects of binaurally-linked dynamic range compression on word identification by hearing-impaired listeners, *International Hearing Aid Research Conference (IHCON)*, Lake Tahoe, CA.
19. \*Ellis, G. & **Zahorik, P.** (2018). Binaural perceptual weighting of reverberation level in normal hearing listeners. Talk at 175<sup>th</sup> Meeting of the Acoustical Society of America, Minneapolis, MN.
20. \*Nunn, Haiden & **Zahorik, P.** (2018). Development of a test of speech understanding in reverberation. Poster presentation, AAA, Nashville, TN.
21. \*Anderson, P. W. & **Zahorik, P.** (2018). Differential use of absolute and relative distance information in auditory/visual distance perception. Poster presentation, 41<sup>st</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
22. \*Ellis, G. M. & **Zahorik, P.** (2018). Binaural aspects of perceived reverberation strength in normal-hearing and hearing-impaired listeners. Poster presentation, 41<sup>st</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
23. Strelcyk, O., **Zahorik, P.**, Patro, C., & Derleth, P. (2018). Variability of binaural-phase sensitivity measurements in hearing-impaired listeners with similar audiograms. Poster presentation, 41<sup>st</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
24. \*Reinhart, P., **Zahorik, P.**, & Souza, P. (2017). The interaction between reverberation and digital noise reduction in hearing aids: Acoustic and behavioral effects. Talk, 173<sup>rd</sup> Meeting of the Acoustical Society of America, Boston, MA.
25. \*Ellis, G. & **Zahorik, P.** (2017). Perceived amount of reverberation consistent with binaural summation model. Poster presentation, 173<sup>rd</sup> Meeting of the Acoustical Society of America, Boston, MA.
26. **Zahorik, P.**, Preminger, J. E., & Stilp, C. E. (2017). Graduate training opportunities in the hearing sciences at the University of Louisville. Poster presentation, 173<sup>rd</sup> Meeting of the Acoustical Society of America, Boston, MA.
27. **Zahorik, P.** & \*Ellis, G. M. (2016). An example of dissociation between speech intelligibility and perceived reverberation. Invited "hot-topics" talk, 171<sup>st</sup> Meeting of the Acoustical Society of America, Salt Lake City, UT.
28. Shore, A., Hartmann, W. M., Rakerd, B., Ellis, G. M., & **Zahorik, P.** (2016). Squelch of room effects in everyday conversation. Talk, 171<sup>st</sup> Meeting of the Acoustical Society of America, Salt Lake City, UT.
29. \*Ellis, G. M. & **Zahorik, P.** (2016). A situation in which the ipsilateral ear does not contribute to the amount of perceived reverberation. Poster presentation, 39<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
30. Luo, X., **Zahorik, P.**, & Chang, Y. (2016). Mandarin tone and vowel recognition in reverberation with cochlear implants. Poster presentation, 39<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.

31. \*Anderson, P. W. & **Zahorik, P.** (2016). Perceptual weighting of modulation depth during monaural distance judgments. Poster presentation, 39<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
32. **Zahorik, P.** & He, Z. J. (2015). Virtual auditory display validation using transaural techniques. Poster presentation, 169<sup>th</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA.
33. **Zahorik, P.** (2015). Auditory/visual distance perception. **Invited Talk**, 169<sup>th</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA.
34. \*Ellis, G. M, **Zahorik, P.** & Hartmann, W. M. (2015). Using multidimensional scaling techniques to quantify binaural squelch. Poster presentation, 169<sup>th</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA.
35. Srinivasan, N. K., **Zahorik, P.**, Kampel, S. D., Jakien, K. M., Gordon, S., Stansell, M., & Gallun, F. J. (2015). Effect of age and hearing loss on intelligibility enhancement in a loudspeaker-based simulated reverberant environment. Poster presentation, 169<sup>th</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA.
36. Stilp, C. E., **Zahorik, P.** Assgari, L., Anderson, P. W., Ellis, G. M. (2015). Reverberation increases perceptual calibration to reliable spectral peaks. Talk, 169<sup>th</sup> Meeting of the Acoustical Society of America, Pittsburgh, PA.
37. **Zahorik, P.** (2015). Hearing in reverberation. **Invited Talk**, Kentucky Speech-Language-Hearing Association (KSHA) Convention, Louisville, KY.
38. **Zahorik, P.**, Anderson, P. W., Brandewie, E., & Srinivasan, N. K. (2014). Improved speech understanding and amplitude modulation sensitivity in rooms: Wait a second! **Invited Talk**, 168<sup>st</sup> Meeting of the Acoustical Society of America, Indianapolis, IN.
39. **Zahorik, P.** (2014). Amplitude modulation sensitivity in rooms. **Invited Talk**, 167<sup>st</sup> Meeting of the Acoustical Society of America, Providence, RI.
40. **Zahorik, P.** & Rothpletz, A. M. (2014). Speech, Spatial, and Qualities of Hearing Scale (SSQ): Normative data from young, normal-hearing listeners. Poster presentation, 167<sup>st</sup> Meeting of the Acoustical Society of America, Providence, RI.
41. **Zahorik, P.** & \*Anderson, P. W. (2014). The role of amplitude modulation in auditory distance perception. Poster presentation, 167<sup>st</sup> Meeting of the Acoustical Society of America, Providence, RI.
42. **Zahorik, P.** & \*Anderson, P. W. (2014). Enhanced amplitude modulation sensitivity in reverberant soundfields: Effects of prior listening exposure, soundfield, and modulation frequency. 37<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
43. Srinivasan, N. K. & **Zahorik, P.** (2013). Speech intelligibility in reverberant listening environments using PRESTO. PRESTO Workshop. Indiana University.
44. **Zahorik, P.** & \*Anderson, P. W. (2013). Amplitude modulation detection by human listeners in reverberant sound fields: Effects of prior listening exposure. Poster presentation, International Congress of Acoustics (ICA), Montreal, Canada.
45. \*Brandewie, E. & **Zahorik, P.** (2013). Speech enhancement effects robust to changes in spatial position within a room. Poster presentation, 36<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
46. Kim, D.O., Kuwada, S., **Zahorik, P.**, & Bishop, B.B. (2013). Effect of reverberation on acoustic measures relevant for localization and recognition of sounds for various sound-source azimuth, distance and frequency: a study of humans and rabbits. Poster presentation, 36<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
47. Kim, D.O., Kuwada, S. Bishop, B. & **Zahorik, P.** (2012). Acoustic modulation transfer functions for human listeners in anechoic and reverberant environments. Poster presentation, 35<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
48. **Zahorik, P.**, \*Brandewie, E., & \*Srinivasan, N. K. (2012). Perceptual adaptation to room acoustics. **Invited Talk**, 35<sup>th</sup> Midwinter meeting of the Association for Research in Otolaryngology, San Diego, CA.
49. **Zahorik, P.**, Kim, D. O., Kuwada, S., \*Anderson, P. W., \*Brandewie, E., \*Collecchia, R. & \*Srinivasan, N. K. (2012). Amplitude modulation detection by human listeners in reverberant sound fields: carrier bandwidth

- effects and binaural versus monaural comparison. Poster presentation, 163<sup>rd</sup> Meeting of the Acoustical Society of America, Hong Kong.
50. **Zahorik, P.**, \*Brandewie, E., & \*Srinivasn, N. K. (2012). Perceptual adaptation to room acoustics. **Invited Talk**, 163<sup>rd</sup> Meeting of the Acoustical Society of America, Hong Kong.
  51. \*Anderson, P. W. & **Zahorik, P.** (2011). Auditory and visual distance estimation. Poster presentation, 161<sup>st</sup> Meeting of the Acoustical Society of America, Seattle, WA.
  52. \*Brandewie, E. & **Zahorik, P.** (2011). Adaptation to room acoustics using the modified rhyme test. Poster presentation, 161<sup>st</sup> Meeting of the Acoustical Society of America, Seattle, WA.
  53. \*Srinivasan, N. K. & **Zahorik, P.** (2011). The effect of semantic context on speech intelligibility in reverberant rooms. Poster presentation, 161<sup>st</sup> Meeting of the Acoustical Society of America, Seattle, WA.
  54. **Zahorik, P.**, Kim, D. O., Kuwada, S., \*Anderson, P. W., \*Brandewie, E., & \*Srinivasn, N. K. (2011). Amplitude modulation detection by human listeners in sound fields. Poster presentation, 161<sup>st</sup> Meeting of the Acoustical Society of America, Seattle, WA.
  55. **Zahorik, P.** & \*Brandewie, E. (2011). Perceptual adaptation to room acoustics and effects on speech intelligibility in hearing-impaired populations. **Invited Talk**, 2011 Forum Acusticum, Aalborg, Denmark.
  56. **Zahorik, P.** (2010). Perceptual adaptation to room acoustics and effect on speech intelligibility. **Invited Talk**, 2nd PanAmerican Iberian Meeting on Acoustics, sponsored by the Acoustical Society of America, Cancun, Mexico.
  57. \*Sivonen, V. & **Zahorik, P.** (2010). An order effect in monaural-to-binaural loudness judgments. Poster presentation, 33<sup>rd</sup> Midwinter meeting of the Association for Research in Otolaryngology, Anaheim, CA.
  58. **Zahorik, P.** & \*Brandewie, E. (2010). Breakdown of speech intelligibility enhancement in reverberant rooms. Poster presentation, 33<sup>rd</sup> Midwinter meeting of the Association for Research in Otolaryngology, Anaheim, CA.
  59. \*Sivonen, V. & **Zahorik, P.** (2009). Effect of reverberant energy on binaural loudness. Poster presentation, 32<sup>nd</sup> Midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
  60. **Zahorik, P.** & \*Brandewie, E. (2009). Room adaptation effects on speech intelligibility as a function of room reverberation time. Poster presentation, 32<sup>nd</sup> Midwinter meeting of the Association for Research in Otolaryngology, Baltimore, MD.
  61. **Zahorik, P.**, \*Brandewie, E., & \*Sivonen, V. P. (2009). Spatial hearing in reverberant rooms and effects of prior listening exposure. **Invited Talk**, 1<sup>st</sup> International Workshop on the Principles and Applications of Spatial Hearing (IWPASH), Sendai, Japan.
  62. \*Brandewie, E. & **Zahorik, P.** (2008). Adaptation to room acoustics and the effect on speech intelligibility. Poster presentation, 31<sup>st</sup> Midwinter meeting of the Association for Research in Otolaryngology, Phoenix, AZ.
  63. **Zahorik, P.** & \*Hauk, D. (2007). Precedence effect buildup in a simulated reverberant room. Poster presentation, 30<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology, Denver, CO.
  64. **Zahorik, P.**, \*Longworth-Reed, L., & \*Brandewie, E. (2007). Time-forward speech intelligibility in time-reversed rooms. Poster presentation, 30<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology, Denver, CO.
  65. **Zahorik, P.** (2007). Challenges in the auditory display of distance information. **Invited Talk**, 19<sup>th</sup> International Congress on Acoustics, Madrid, Spain.
  66. **Zahorik, P.** (2007). Loudness constancy with varying sound source distance. **Invited Panelist**, "Current issues in binaural loudness assessment" workshop, 122<sup>nd</sup> Audio Engineering Society (AES) Convention, Vienna, Austria.
  67. **Zahorik, P.** (2006). The role of monaural spectral cues in modeling the precedence effect. Poster presentation at the 151<sup>st</sup> Meeting of the Acoustical Society of America, Providence, Rhode Island.
  68. **Zahorik, P.** (2006). Use of virtual auditory display technology in the study of human spatial hearing. **Invited Talk**, Spring Meeting of the Kentucky Psychological Association, Louisville, KY.
  69. **Zahorik, P.** (2005). Measuring precedence effect buildup using subjective scaling methods. Poster presentation, 28<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology, New Orleans, LA.

70. **Zahorik, P.** (2004). Perceptual scaling of room reverberation. Poster presentation, 147<sup>st</sup> Meeting of the Acoustical Society of America, New York, NY.
71. **Zahorik, P.** (2003). Auditory and visual distance perception: The proximity-image effect revisited. Talk, 145<sup>th</sup> Meeting of the Acoustical Society of America, Nashville, TN. (Technical Session Chair).
72. **Zahorik, P.** (2003). Auditory distance perception: A summary of past and present research. **Invited Talk**, International Workshop on Spatial and Binaural Hearing. Utrecht, NL.
73. **Zahorik, P.,** Wightman, F. L., Ives, T., & Kistler, D. J. (2003). Precedence effects for varying source and echo locations. Poster presentation, 26<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology, Daytona Beach, FL.
74. **Zahorik, P.** (2002). Auditory display of sound source distance. **Invited Talk**, Eighth International Conference on Auditory Displays, Kyoto, Japan.
75. **Zahorik, P.,** Tam, C., Wang, K., Bangayan, P., & Sundareswaran, V. (2001). Effects of visual-feedback training in 3D sound displays. Talk, 141<sup>st</sup> Meeting of the Acoustical Society of America, Chicago, IL.
76. **Zahorik, P.** (2000). Visual capture effects for distance-varying sound sources. **Invited Talk**, the Low Vision Symposium, American Academy of Optometry, Orlando, FL.
77. **Zahorik, P.** (2000). Distance localization using non-individualized head-related transfer functions. Talk, 140<sup>st</sup> Meeting of the Acoustical Society of America, Newport Beach, CA.
78. **Zahorik, P.** (1997). Scaling perceived distance of virtual sound sources. Poster presentation, 133<sup>st</sup> Meeting of the Acoustical Society of America, State College, PA.
79. **Zahorik, P.,** Wightman, F. L., & Kistler, D. J. (1996). The fidelity of virtual auditory displays. Poster presentation, 131<sup>st</sup> Meeting of the Acoustical Society of America, Indianapolis, IN.
80. **Zahorik, P.,** Wightman, F. L., & Kistler, D. J. (1995). On the discriminability of virtual and real sound sources. Talk, 1995 IEEE ASSP Workshop on Applications of Signal Processing to Audio and Acoustics, New Paltz, NY.
81. **Zahorik, P.,** Kistler, D. J., & Wightman, F. L. (1994). Sound localization in varying virtual acoustic environments. Talk, 1994 International Conference on Auditory Displays, Santa Fe, NM.

**Seminar and Colloquium Presentations:**

82. **Zahorik, P.** (2021). New approaches to understanding human auditory perception and performance in reverberant sound fields. UCONN Kim Family Seminar in Neuroscience, January 21<sup>th</sup>, 2021 (invited).
83. **Zahorik, P.** (2021). Reverberation perception: Modeling threshold and suprathreshold data from normal-hearing listeners. Sonova, January 19<sup>th</sup>, 2021 (invited).
84. **Zahorik, P.** (2019). New insights into reverberation perception and performance. Hörzentrum, University of Oldenburg, September 17<sup>th</sup>, 2019 (invited).
85. **Zahorik, P.** (2018). Perceived reverberation and speech understanding: Are they related? Sonova, Switzerland, October 17<sup>th</sup>, 2018 (invited).
86. **Zahorik, P.** (2016). Room acoustics: perceptual effects and adaptation. Starkey Hearing Research Center, Berkeley, CA (invited).
87. He, Z. & **Zahorik, P.** (2014). Psychophysical research on auditory/visual space perception and navigation. OppNet Symposium. NIH-NEI. September 3<sup>rd</sup>, 2014 (invited).
88. **Zahorik, P.** (2014). Improved speech understanding and amplitude modulation sensitivity in rooms: Wait a second! Michigan State University, Department of Psychology / Department of Communicative Sciences and Disorders Colloquium, hosted by Drs. William Hartmann and Brad Rackard (invited).
89. **Zahorik, P.** (2012). Room acoustics, spatial hearing, and speech understanding. University of California – Berkeley, Department of Psychology, “Ear Club” Seminar (invited).
90. **Zahorik, P.** (2011). Listening experience in reverberant rooms improves speech intelligibility. Indiana University Speech Laboratory Colloquium (invited).
91. **Zahorik, P.** (2011). Listening experience in reverberant rooms improves speech intelligibility. 2011 Heuser Hearing Research Symposium: Spatial Hearing and Hearing Loss (invited).
92. **Zahorik, P.** (2010). Room Acoustics, Psychoacoustics, and Speech Understanding. Department of Surgery, Division of Communicative Disorders, University of Louisville. (invited grand-rounds).



93. **Zahorik, P.** (2010). Room Acoustics, Psychoacoustics, and Speech Understanding. Heuser Hearing Institute Grand Rounds (July). (invited).
94. **Zahorik, P.** (2009). Spatial hearing in reverberant rooms and effects of prior listening exposure, Dept. of Signal Processing and Acoustics, Helsinki University of Technology, Finland. (invited).
95. **Zahorik, P.** (2007). The near and far of human spatial hearing. Dept. of Neuroscience, UCONN Health Center. (invited).
96. **Zahorik, P.** (2007). Effects source/echo spatial configuration on human sound localization. Battlefield Acoustics Group, AFRL, Wright-Patterson Air Force Base. (invited).
97. **Zahorik, P.** (2007). Research topics in auditory perception. Psi Chi honor society, Department of Psychological and Brain Sciences, University of Louisville. (invited).
98. **Zahorik, P.** (2006). Virtual auditory space: Techniques and applications in human psychophysics. West Virginia University, Seminars in Neuroscience Series. (invited).
99. **Zahorik, P.** (2006). Effects of echoes on human sound localization. Department of Psychological and Brain Sciences, Experimental Brown Bag Series.
100. **Zahorik, P.** (2005). Sound localization, spatial hearing, and indirect sound. Department of Surgery, Division of Communicative Disorders, University of Louisville. (invited grand-rounds).
101. **Zahorik, P.** (2005). Multi-sensory integration in spatial hearing. Department of Psychology, North Dakota State University. (invited).
102. **Zahorik, P.** (2002). Distance perception in spatial hearing. Department of Psychological and Brain Sciences, University of Louisville. (invited).
103. **Zahorik, P.** (2002). Listener remapping of virtual auditory space. Hearing Research Seminar, University of Wisconsin - Madison.
104. **Zahorik, P.** (2001). Assessing auditory distance perception using virtual acoustics. Center for Neuroscience Seminar, University of California - Davis. (invited).
105. **Zahorik, P.** (2001). Loudness constancy with varying sound source distance. Hearing Research Seminar Series, Boston University. (invited).
106. **Zahorik, P.** (2000). Perception of sound source distance: errors, ecology, and acoustic cues. "Binaural Bash", Boston, MA.
107. **Zahorik, P.** (2000). Auditory distance perception and it's relationship to loudness. "Ear Club" Seminar, University of California - Berkeley. (invited).
108. **Zahorik, P.** (2000). Loudness constancy with varying sound source distance. Cognition and Perception Seminar, University of California - Santa Barbara. (invited).
109. **Zahorik, P.** (1998). Auditory distance perception: Listener weighting of acoustic cues. Hearing Research Seminar, University of Wisconsin - Madison.
110. **Zahorik, P.** (1997). Auditory distance perception: Listener weighting of acoustic cues. Experimental Psychology Proseminar, University of Wisconsin - Madison.
111. **Zahorik, P.** (1997). **Zahorik, P.** (Distance perception: Spatial hearing's neglected 3<sup>rd</sup> dimension? Hearing Research Seminar, University of Wisconsin - Madison.
112. **Zahorik, P.** (1995). On the discriminability of virtual and real sound sources. Hearing Research Seminar, University of Wisconsin - Madison.
113. **Zahorik, P.** (1994). Sound localization: The effect of a reflective ground. Department of Psychology Symposium, University of Wisconsin-Madison.
114. **Zahorik, P.** (1993). Sound localization in reverberant environments. Hearing Research Seminar, University of Wisconsin - Madison.

**Other Presentations:**

115. **Zahorik, P.** (2013). Room acoustics, psychoacoustics, and speech understanding. Invited Talk, Hearing Loss Association of America (HLA), Lexington Chapter.
116. **Zahorik, P.** (2012). Room acoustics, psychoacoustics, and speech understanding. Invited Talk, Hearing Loss Association of Kentuckiana (HLAK).

117. \*Williamson, C. & Zahorik, P. (2008). *Auditory distance perception: Effects of reverberant energy truncation*. Student presentation at the 2008 Kentucky "Posters-at-the-Capital" program.
118. \*Williamson, C. & Zahorik, P. (2008). *Auditory distance perception: Effects of reverberant energy truncation*. Student presentation at the 2008 University of Louisville Undergraduate Research Symposium.
119. \*Haulk, D. P. & Zahorik, P. (2007). *Directional sound localization adaptation in realistic acoustic environments*. Student presentation at the 2007 Kentucky "Posters-at-the-Capital" program.
120. \*Haulk, D. P. & Zahorik, P. (2007). *Directional sound localization adaptation in realistic acoustic environments*. Student presentation at the 2007 University of Louisville Undergraduate Research Symposium.
121. \*Longworth-Reed, L. & Zahorik, P. (2007). *Speech recognition in time-forward and time-reversed conditions*. Student presentation at the 2007 Kentucky "Posters-at-the-Capital" program.
122. \*Longworth-Reed, L. & Zahorik, P. (2007). *Speech recognition in time-forward and time-reversed conditions*. Student presentation at the 2007 University of Louisville Undergraduate Research Symposium.
123. \*Williamson, C. & Zahorik, P. (2007). *Auditory distance perception: Effects of reverberant energy truncation*. Student presentation at the 2007 Summer Research Opportunity Program (SROP) Symposium, University of Louisville.
124. \*Haulk, D. P. & Zahorik, P. (2006). *Directional sound localization adaptation in realistic acoustic environments*. Student presentation at the 2006 Summer Research Opportunity Program (SROP) Symposium, University of Louisville.

### III. TEACHING

#### Courses taught at the University of Louisville:

AUDI650	Research Methods	Fa14, Fa15, Sp18, Fa18, Fa19, Fa20, Fa21
AUDI652	Hearing Conservation	Sp15, Sp16
PSYC201	Introductory Psychology	Sp03, Sp04, Sp05, Fa05, Sp07, Fa08
PSYC202	Orientation to Psychology	Sp10
PSYC301	Quantitative Methods	Fa04, Fa05, Fa06
PSYC400	Honors Seminar	Fa06, Sp07
PSYC401	Independent Research	Su04, Fa04, Sp05, Sp07
PSYC404	Honors Speech & Hearing	Sp06
PSYC405	Independent Hon Research	Fa06, Fa07
PSYC406	Independent Hon Research	Sp07, Sp08
PSYC491	Undergraduate Psych. Research	Sp17, Fa17, Sp18
PSYC605	Independent Research	Fa03, Fa06, Fa07, Sp08
PSYC609	Multisensory Seminar	Sp06
PSYC609	Matlab Programming	Fa09 (guest lecture)
PSYC611	Advanced Statistics II	Fa07, Sp08, Sp09, Sp10, Sp11, Sp13, Sp14, Sp17, Sp18, Sp19, Sp20, Sp21, Sp22, Sp23
PSYC646/AUDI648	Hearing Science I	Sp11, Sp13, Sp14, Fa16, Fa22
PSYC609	Meth. in Vision & Hearing Sci.	Sp11 (guest lecture)
PSYC633	Visual Processes	Fa11 (guest lecture)

NOTE: Fa = Fall Semester, Sp = Spring Semester, Su = Summer Semester. Graduate courses indicated by course numbers > 600. Course descriptions available at:

<http://htmlaccess.louisville.edu/crseCatalog/searchCrseCatalog.cfm>

#### Undergraduate Honors Students Supervised:

Laricia Longworth-Reed (Undergraduate Honors Thesis, 2007)

Devan Haulk (Undergraduate Honors Thesis, 2007)

Crystal Williamson (Undergraduate Honors Thesis, 2008)

**Graduate Students Supervised:**

Eugene Brandewie (MS Feb, 2009; Ph.D. Dec, 2012)  
Amanda O'Bryan (Ph.D. Dec, 2012)  
Paul Anderson (MS July, 2012; Ph.D., August 2015)  
Greg Ellis (MS May, 2016; Ph.D. August 2018)  
Ann Holmes (Ph.D., Spring 2025, expected)

**Postdoctoral Scholars Supervised:**

Dr. Ville Sivonen, 2008-2009.  
Dr. Nirmal Srinivasan, 2010-2012.  
Dr. Chhayakant Patro (research audiologist), 2016-2017.  
Dr. James Shehorn (research audiologist), 2018-2020.  
Dr. Matthew Neal, 2019-2022.  
Dr. So Eun Park (research audiologist), 2022-present.

**AuD Research Projects Supervised:**

Haiden Nunn (AuD, Spring 2019)  
Souraya Lorenz (AuD, Spring 2020)  
Rebecca Vajda (AuD, Spring 2020)  
Brooke Dillard (AuD, Spring 2020)  
Caroline Nuss (AuD, Spring 2023)

**Independent Study Students Supervised:**

Kate Frederick (Undergraduate): Fall 21 – Spring 22  
Greg Ellis (Graduate): Sum 14 – Sum 18  
Paul Anderson (Graduate): Sum 10 – Sum 2015  
Dawn Amaismeier (Graduate): Fall 03  
Eugene Brandewie (Graduate): Fall 06 – Fall 12  
Christopher Brady (Undergraduate): Sum 04, Fall, 04, Spring 05  
Devan Haulk (Undergraduate): Sum 06, Fall 06, Spring 07  
Laricia Longworth-Reed (Undergraduate): Fall 06, Spring 07  
Jeremy Schepers (Undergraduate): Spring 07  
Crystal Williamson (Undergraduate): Sum 07, Fall 07, Spring 08

**Student Committee Service (other than major Professor):**

Jun Wu (Ph.D. Prelim., Experimental Psychology, UofL, 2004)  
Scott Stauble (Ph.D. Prelim., Neuroscience Program, UofL, 2006)  
Jia Wu (Ph.D. Prelim., Experimental Psychology, UofL, 2006)  
Eric Brian (Ph.D. Prelim., Experimental Psychology, UofL, 2008)  
Christopher Warren (Ph.D. Prelim., Experimental Psychology, UofL, 2010)  
April Schweinhart (Ph.D. Prelim, Experimental Psychology, UofL, 2012)  
Wenhao Dang (Ph.D. Prelim, Experimental Psychology, UofL, 2013)  
Godwin, Kate (Ph.D. Prelim, Experimental Psychology, UofL, Summer 2013)  
Williams, Hillary (Ph.D. Prelim, Experimental Psychology, UofL, Fall 2013)  
O'Keefe, Elenor (Ph.D. Prelim, Experimental Psychology, UofL, Spring 2014)  
Assgari, Lily (Ph.D. Prelim, Experimental Psychology, UofL, Fall 2016)  
Anya Shorey (Ph.D. Prelim, Experimental Psychology, UofL, 2022)

Bing Wu (Ph.D. Dissertation, Experimental Psychology, UofL, 2004)  
Jun Wu (Ph.D. Dissertation, Experimental Psychology, UofL, 2005)  
Nikki Pratt (Ph.D. Dissertation, Experimental Psychology, UofL, 2008)  
Jia Wu (Ph.D. Dissertation, Experimental Psychology, UofL, 2009)  
Sampo Vesa (Ph.D. Dissertation, TKK, Finland, 2009) (served as opponent)  
Gina Ralston (Ph.D. Dissertation, Experimental Psychology, UofL, 2010)  
Eric Brian (Ph.D. Dissertation, Experimental Psychology, UofL, 2011)  
Farah Naaz (Ph.D. Dissertation, Experimental Psychology, UofL, 2012)  
Jong Su (Ph.D. Dissertation, Experimental Psychology, UofL, 2014)  
Kathryn Heath (Ph.D. Dissertation, Experimental Psychology, UofL, 2014)  
Adam Westermann (Ph.D. Dissertation, Macquarie Univ., Australia, 2014)  
Renita Sudirga (Ph.D. Dissertation, University of Western Ontario, 2014)  
Chelsey Franz (Ph.D. Dissertation, Public Health Sciences-Health Promotion Specialization, UofL, Summer 2015)  
Tobias Weller (Ph.D. Dissertation, Macquarie Univ., Australia, 2015)  
Wenhao Dang (Ph.D. Dissertation, Experimental Psychology, UofL, Summer 2015)  
Kate Godwin (Ph.D. Dissertation, Experimental Psychology, UofL, Summer 2016)  
Antti Kuusinen (Ph.D. Dissertation, Department of Computer Science, Aalto University, Finland, 2016) (served as pre-examiner)  
Elenor O'Keefe (Ph.D. Dissertation, Experimental Psychology, UofL, Spring 2017)  
Paul Reinhart (Ph.D. Dissertation, Communication Sciences and Disorders, Northwestern University, Summer, 2017)  
Jens Cubic (Ph.D. Dissertation, Danish Technical University, Summer 2017)  
Lily Assgari (Ph.D. Dissertation, Experimental Psychology, UofL, Spring 2018)  
Adam Weisser (Ph.D. Dissertation, Macquarie Univ., Australia, Fall 2018)  
Axel Ahrens (Ph.D. Dissertation, Danish Technical University, Summer 2019)  
Naim Mansour (Ph.D. Dissertation, Danish Technical University, Spring 2021)  
Vincent Grimaldi (Ph.D. Dissertation, Ecole polytechnique fédérale de Lausanne [EPFL], Spring 2022)  
Jacinta Dickens (Ph.D. Dissertation, Clinical Psychology, UofL, Summer 2022)  
Elena Altobelli (Ph.D. Dissertation, Anglia Ruskin University, UK, Spring 2023)  
Cassie Gonzalez (Ph.D. Dissertation, Clinical Psychology, UofL, expected Spring 2024)

Navid Taghvaei (MS Thesis, Experimental Psychology, UofL, 2006)  
Donald Ladwig (MS Portfolio, Experimental Psychology, UofL, 2006)  
Natalie Claudio Elpek (MS Portfolio, Experimental Psychology, UofL, 2007)  
Christopher Warren (MS Portfolio, Experimental Psychology, UofL, 2007)  
Elizabeth Lush (MS Portfolio, Experimental Psychology, UofL, 2008)  
Emily Eismann (MS Portfolio, Experimental Psychology, UofL, 2010)  
April Schweinhart (MS Portfolio, Experimental Psychology, UofL, 2012)  
Kate Godwin (MS Portfolio, Experimental Psychology, UofL, 2013)  
Hillary Williams (MS Portfolio, Experimental Psychology, UofL, 2013)  
Molly Silva (MS Portfolio, Experimental Psychology, UofL, 2015)  
Tim Bausch (MS Thesis, Music, UofL, 2018)  
Anya Shorey (MS Portfolio, Experimental Psychology, UofL, 2022)

Adrienne Roman (Undergraduate Honors Thesis, UofL, 2006)  
Eric VanBogaert (Undergraduate Honors Thesis, UofL, 2007)  
Daniel Bright (Undergraduate Honors Thesis, UofL, 2007)  
Jennifer Brodfuehrer (Undergraduate Honors Thesis, UofL, 2007)

Tyler Houglan (Undergraduate Honors Thesis, UofL, 2007)  
Laura LaPradd (Undergraduate Honors Thesis, UofL, 2007)  
Carrie Leigh Smith (Undergraduate Honors Thesis, UofL, 2007)  
Stephanie Vernon (Undergraduate Honors Thesis, UofL, 2007)  
Heather Bustanoby (Undergraduate Honors Thesis, UofL, 2010)

#### IV. SERVICE

##### Professional Service:

- Meeting Chair: 2019 Spring Meeting of the Acoustical Society of America, Louisville, KY.
- Associate Editor: Journal of the Acoustical Society of America (2022 – present)  
ACM Transactions on Applied Perception (2004 – 2014, 2020 – present)
- Program Committees: First Symposium on Applied Perception in Graphics and Visualization, sponsored by ACM SIGGRAPH, August 7-8, 2004, Los Angeles, CA.  
Second Symposium on Applied Perception in Graphics and Visualization, sponsored by ACM SIGGRAPH, August 26-28, 2005, A Coruna, Spain.  
Third Symposium on Applied Perception in Graphics and Visualization, sponsored by ACM SIGGRAPH, July 25-27, 2006, Tübingen, Germany.  
International Conference on Auditory Display (ICAD), June 20-23, 2006, London, UK. (papers committee).  
International Conference on Auditory Display (ICAD), June 26-29, 2007, Montréal, Canada (papers committee).  
123rd Audio Engineering Society Convention, October 5-8, 2007, New York (papers committee).  
International Conference on Auditory Display (ICAD), June 24-27, 2008, Paris (papers committee).  
125th Audio Engineering Society Convention, October 2-5, 2008, San Francisco (papers committee).
- Ad Hoc Reviewer: Journals: Acta Acustica; Acta Oto-Laryngologica; Acta Psychologica; Applied Acoustics; Archives of Acoustics; Attention, Perception, & Psychophysics; Ear and Hearing; European Journal of Neuroscience; Experimental Brain Research; Hearing Research; IEEE - Journal of Selected Topics in Signal Processing; IEEE - Systems, Man and Cybernetics; IEEE – Transactions on Audio, Speech and Language Processing; International Journal of Audiology; International Journal of Thermal Science; Journal of Experimental Psychology: Applied; Journal of Neurophysiology; Journal of Neuroscience; Journal of Speech, Language and Hearing Research; Journal of the Acoustical Society of America; Journal of the Association for Research in Otolaryngology; Journal of the Audio Engineering Society; Journal on Multimodal User Interfaces; NeuroImage; Perception; PLoS ONE; Presence; Proceedings of the National Academy of Sciences (PNAS); Trends in Hearing.
- Funding Agencies: National Science Foundation; United States Air Force - Office of Scientific Research; California Digital Media Initiative (DiMI); U.S. Civilian Research & Development Foundation; Austrian Science Fund; Hong Kong Institute of Education; Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek -

Vlaanderen, FWO); Medical Research Council (MRC), United Kingdom.

Conferences: Audio Engineering Society; International Community for Auditory Display (ICAD); International IEEE/ACM Symposium on Mixed and Augmented Reality, ACM SIGGRAPH.

Publishers: Sinauer Associates; Thomson-Wadsworth; Pearson Merrill Prentice Hall.

Study Section Member: National Institutes of Health ZRG1 BDCN-L 50 R, Feb. 28, 2006  
National Institutes of Health, AUD, June 14-15, 2018  
National Institutes of Health, ZRG1 ETTN-G 12, Nov. 14-15, 2019  
National Institutes of Health, ZRG1 IFCN-E 02, Nov. 15, 2019  
National Institutes of Health, ZRG1 ETTN-M 12, Nov. 12-13, 2020  
National Institutes of Health, ZRG1 ETTN-M 12, Mar. 11-12, 2021  
National Institutes of Health, ZRG1 ETTN-M 12, June 24-25, 2021  
National Institutes of Health, AUD, Oct. 21-22, 2021  
National Institutes of Health, ZRG1 ETTN-M 12, March 11-12, 2022

Site Review Panelist: AIBS review of Acoustics Branch of USAARL, Ft. Rucker. June 11-13, 2007.

Member: Psychological and Physiological Acoustics Technical Committee, Acoustical Society of America, elected 2013.  
Meetings Committee, Acoustical Society of America, 2014 - 2020.

Organizing Chair: Heuser Hearing Research Symposium: "Spatial Hearing and Hearing Loss".  
Louisville, KY. March 15-16, 2011.

Heuser Hearing Research Symposium: "Vestibular Issues in Children and Adults: From Theory to Practice". Louisville, KY. September 21, 2013.

Audio/Visual Speech Perception, Special Session at the 2019 International Congress of Acoustics (ICA) meeting, Aachen, Germany.

Invited Participant: NSF: Personalizing Adaptive Virtual and Augmented Reality Systems: the VR/AR Visioning Workshop. July 17-18, 2017, National Science Foundation (NSF), Arlington, VA.

### **Service to the Department of Psychological and Brain Sciences (University of Louisville):**

Director of Undergraduate Studies (2009-2013)  
Undergraduate Curriculum Committee member (2005-2013)  
Reunion Committee member (2004-2005)  
Faculty Search Committee member (2007)  
Psychology Honors Program Director (2006-2007)  
Ad Hoc Graduate Statistics Committee member (2007-present)  
Grawemeyer Committee member (2008-2010)  
Lab Coordinator Search Committee chair (2009)  
Personnel Committee member (2010-2012)  
Lab Coordinator Search Committee chair (August, 2010)  
Lab Coordinator Search Committee chair (October, 2010)  
Faculty Search Committee member (2010/2011)  
Faculty Search Committee member (2011/2012)  
Faculty Search Committee member (2012/2013)  
Faculty Search Committee member (2013/2014)  
Faculty Search Committee member (2014/2015)

### **Service to the Department of Surgery (University of Louisville):**

Faculty Search Committee member, Division director of Communicative Disorders (2013/2014)  
Faculty Search Committee member, Division of Communicative Disorders (2014/2015)  
Research!Louisville 2013 judge.  
Submission (12/2013) of proposal for new joint AuD/PhD degree program in Hearing Science.

**Service to the Department of Otolaryngology and Communicative Disorders (University of Louisville):**

Faculty Search Committee member, (2016/2017)  
Continued development of joint AuD/PhD degree program in Hearing Science (2014 – present)  
Faculty Search Committee member, (2021/2022)

**Service to the University of Louisville:**

Member, campus-wide committee on statistics instruction, 2014 – present  
Review committee member, SIGS iRFP program (<https://louisville.edu/graduate/irfp-proposal>)

**Service to the Louisville Community:**

duPont Manual Science Fair project mentor (2008): C. Wheeler.

- 2nd place in Physics & Astronomy category
- Invited to enter state-wide science fair competition (2009).

Kentucky Science Fair project mentor (2009): C. Wheeler.

- received special award from US Army at state competition.

duPont Manual Science Fair project mentor (2009): C. Wheeler.

Heuser Hearing Institute (2010 – present): Chair of IRB

2011 Heuser Hearing Institute Research Symposium Organizing Chair (see above under “Professional Service”)

2013 Heuser Hearing Institute Research Symposium Organizing Chair (see above under “Professional Service”)