

# Braxton B. Boren

Associate Professor, Audio Technology (2023-present)  
Phone: (718) 704-6247  
Email: boren@american.edu

American University  
Department of Performing Arts  
Washington, DC 20016

## Education

Ph.D. Music Technology, **New York University**, 2014.

M.Phil. Physics, **University of Cambridge**, 2010.

B.A. *Summa Cum Laude*. Music Technology, **Northwestern University**, 2008.

## Work Experience

Assistant Professor, Audio Technology, **American University**, Washington, DC, 2017-2023.

Math Teacher, **Uncommon Collegiate Charter High School**, Brooklyn, NY, 2016-2017.

Postdoctoral Research Associate, **Princeton University** 3D Audio and Applied Acoustics Laboratory, 2014-2016.

Adjunct Faculty, **New York University** Music Technology Program, 2012-2016.

## Grants and Fellowships

### *External Grants*

Co-PI, Emergent Ventures India (2023-2025) "Acoustics of Hindu Temples," American University, \$21,000.

Affiliated Researcher, Templeton Religion Trust, (2022-2025) "Sound, Space, and the Aesthetics of the Sublime," Stanford University, \$1,000,000.

Co-PI, National Science Foundation MRI Award (2021-2023) - Acquisition of Volumetric Capture System for the Institute for IDEAS, American University, \$1,000,000.

PI, National Endowment for the Humanities Digital Humanities Startup Grant (2018-2022) - "Hearing Bach's Music as Bach Heard It," American University, \$50,000.

### *Internal University Grants*

PI, American University Mellon Research Support Grant (2021) "Acoustic Measurement and Simulation of the Jesuit Chapel at St. Mary's City," \$ 2,500.

PI, American University Faculty Research Support Grant (2019) - "Hearing Bach's Music as Bach Heard It (Supplemental)," \$6,900.

PI, American University Mellon Research Support Grant (2018) - "Development of Distortion-Free Equalization for Headphone Transfer Functions," \$2,000.

NYU Steinhardt Doctoral Fellowship (2010-2014).

Gates Cambridge Scholarship (2009-2010), Gates Cambridge Trust, University of Cambridge, \$56,000.

Northwestern University Undergraduate Research Grant (2007) - \$3,000.

## Publications

### *Refereed Journal Articles*

**Boren, B.** (2021). Acoustic Simulation of J.S. Bach's Thomaskirche in 1723 and 1539. *Acta Acustica* 5(14).

**Boren, B.** (2021). Word and Mystery: the Acoustics of Cultural Transmission During the Protestant Reformation. *Frontiers in Psychology* 12:564542. Special Issue, Songs and Signs: Interdisciplinary Perspectives on Cultural Transmission and Inheritance in Human and Nonhuman Animals.

**Boren, B.** (2020). The Soundscape of Quarantine: The Role of Sound During a Public Health Crisis. *Journal of Sonic Studies* (20).

**Boren, B.** (2019). Computational Acoustic Musicology. *Digital Scholarship in the Humanities* 34/4, December 2019, pp. 707-715.

**Boren, B.** (2018). Acoustic Simulation of Julius Caesar's Battlefield Speeches. *Acoustics* 1(1), pp. 3-13; (Special Issue) Historical Acoustics: Relationships between Man and Sound over Time.

Tylka, J., **Boren, B.** & Choueiri, E. (2017). A Generalized Method for Fractional-Octave Smoothing of Transfer Functions that Preserves Log-Frequency Symmetry. *Journal of the Audio Engineering Society*. 65(3), pp. 239-245.

**Boren, B.**, Longair, M., & Orłowski, R. (2013). Acoustic Simulation of Renaissance Venetian Churches. *Acoustics in Practice*, 1(2), pp. 17-28.

Bonsi, D., **Boren, B.**, Howard, D., Longair, M., Moretti, L., & Orłowski, R. (2013). Acoustic and Audience Response Analyses of Eleven Venetian Churches. *Acoustics in Practice*, 1(1), pp. 39-52.

**Boren, B.** (2013). Sounds of the City: The Colonial Era. *The Encyclopedia of Greater Philadelphia*.

**Boren, B.** (2011). Motion Simulation in the Environment for Auditory Research. *Army Research Lab Publication ARL-TM-2011* 1, pp. 41-51.

### *Refereed Book Chapters*

**Boren, B.** (2024 - in progress). History of Immersive Sound Experiences. In *The Immersive Sound Experience: Design Concepts and Applied Technologies*, A. Roginska & P. Geluso, eds. Routledge.

**Boren, B.**, Abraham, D., Naressi, R., & Connaughton, M. (2024 - accepted). Recording in a Virtual Eighteenth-Century Church. In *Archaeoacoustics*, M. Kolar & D. Lubman, eds. Acoustical Society of America Press Springer.

**Boren, B.** (2024 - accepted). Estimation of Speech Intelligibility in the Past. In *Exploring Ancient Sounds and Places*, M. Diaz-Andreu & N. Santos Da Rosa, eds. Oxbow Press.

- Boren, B.** (2023 - submitted). Contextualization in Worship Space Acoustics. In *Listening in the Past*, J. Berger, ed. Lever Press.
- Boren, B.** (2023 - submitted). Acoustics of Protestant Churches. In *Listening in the Past*, J. Berger, ed. Lever Press.
- Boren, B.** (2017). History of 3D Sound. In *Immersive Sound*, A. Roginska & P. Geluso, eds. Routledge, pp. 40–62.
- Boren, B.** (2016). Whitefield's Voice. In *George Whitefield: Life, Context and Legacy*. D. Jones & G. Hammond, eds. Oxford University Press, pp. 167–189.

### *Refereed Conference Proceedings*

- Deetz, N. & **Boren, B.** (2023). Improving Auto-calibration of GA-based Simulations Through a Statistical Absorption Database. *Forum Acusticum*, Torino, Italy.
- Boren, B.** & Geronazzo, M. (2021). Comparison of Distortion Products in Headphone Equalization Algorithms for Binaural Synthesis. *150th Audio Engineering Society Convention*, Online.
- Boren, B.** (2021). Teaching Acoustics to Audio Students: A Middle Path. *AES Conference on Audio Education*, Online.
- Boren, B.** (2019). Acoustic Simulation of Elizabeth I at Tilbury. *International Congress on Acoustics (ICA-2019)*, Aachen, Germany.
- Boren, B.**, Genovese, A. (2018). Acoustics of Virtually Coupled Performance Spaces. *International Conference for Auditory Display (ICAD-2018)*, Houghton, MI.
- Boren, B.**, Musick, M. (2018). Spatial Organization in Musical Form. *Proceedings of the International Computer Music Conference*, Daegu, South Korea.
- Boren, B.**, Caro, G., Calixto, D., Gonzalez, J., Mendoza, V., Salazar, F., Padilla, P., Perez, G., Ramos, A., Rivera, A., Tapia, R., Paz, C., & Zamudio, J. (2016). Mexico City's cathedral: An archaeoacoustical and musicological analysis. *International Congress on Acoustics (ICA-2016)*, Buenos Aires, Argentina.
- Boren, B.**, Geronazzo, M., Brinkmann, F., & Choueiri, E. (2015). Coloration Metrics for Headphone Equalization. *International Conference for Auditory Display (ICAD-2015)*, Graz, Austria.
- Boren, B.**, Musick, M., Grossman, J., & Roginska, A. (2014). I Hear NY4D: Hybrid Acoustic and Augmented Auditory Display for Urban Soundscapes. *International Conference for Auditory Display (ICAD-2014)*, New York, NY.
- Boren, B.**, Roginska, A., & Gill, B. (2013). Maximum Averaged and Peak Levels of Vocal Sound Pressure. *135th Audio Engineering Society Convention*, New York, NY.
- Boren, B.**, Andreopoulou, A., Musick, M., Mohanraj, H., & Roginska, A. (2013). I Hear NY3D: Ambisonic Capture and Reproduction of an Urban Sound Environment. *135th Audio Engineering Society Convention*, New York, NY.
- Forsyth, J., **Boren, B.**, Feynburg, R., & Park, T. (2013). NYU Music Technology Studio Report. *Proceedings of the 2013 International Computer Music Conference*, Perth, Australia.
- Boren, B.** & Roginska, A. (2013). Sound radiation of trained vocalizers. *Proceedings of Meetings on Acoustics: 21st International Congress on Acoustics*, Montreal, Canada.

**Boren, B.** & Longair, M. (2012). Acoustic simulation of the church of San Francesco della Vigna. *Proceedings of Meetings on Acoustics: 164th Conference of the Acoustical Society of America*, Kansas City, MO.

**Boren, B.** (2007). Music in Real-Time Interactive Video Games. *College of Arts and Sciences Research Conference*, Indiana University Northwest, Gary, IN.

### Invited Papers

**Boren, B.** (2022). Acoustics of the Jesuit Chapel at St. Mary's City. *International Congress on Acoustics (ICA-2022)*, Gyeongju, Korea.

**Boren, B.** (2022). Estimation of Speech Intelligibility in the Past. *Past sounds: new perspectives in the field of archaeoacoustics*, ERC Artsoundscapes Project, Universitat de Barcelona, Barcelona, Spain.

**Boren, B.** (2022). Reconstruction of the Acoustics of J.S. Bach's Thomaskirche. White Paper, *National Endowment for the Humanities Digital Humanities Advancement Program*.

**Boren, B.** (2016). Word and Mystery: Religion and Acoustic Space. *Religiosity, Relationality, and Musicality in the Twenty-First Century*, Yale Institute of Sacred Music, New Haven, CT.

**Boren, B.** (2016). Space as the Missing Link in Historical Performance Practice. *Sounding Spaces: A Workshop on Music, Urban Space, Landscape, and Architecture*, Northwestern University, Evanston, IL.

### Conference Proceedings Based on Précis or Abstract Review

Deetz, N. & **Boren, B.** (2022). Algorithmic Methods for Calibrating Material Absorption Within Geometric Acoustic Modeling. *153rd Audio Engineering Society Convention*, New York, NY.

Judy, P., Morgan, A. & **Boren, B.** (2022). Simulation-Based Acoustic Design for a Modern Urban Church Sanctuary. *152nd Audio Engineering Society Convention*, The Hague, Netherlands.

**Boren, B.**, Abraham, D., Naressi, R., Grzyb, E., Lane, B., & Merceruio, D. (2019). Acoustic Simulation of Bach's Performing Forces in the Thomaskirche. *1st EAA Spatial Audio Signal Processing Symposium*, Paris, France.

**Boren, B.** (2016). Technology and Incarnational Tension. *The Wonder and Fear of Technology Conference*, New York, NY.

**Boren, B.**, Geronazzo, M., Majdak, P., & Choueiri, E. (2014). PHOnA: A Public Dataset of Measured Headphone Transfer Functions. *137th Audio Engineering Society Convention*, Los Angeles, CA.

Tylka, J., Sridhar, R., **Boren, B.**, & Choueiri, E. (2014). A New Approach to Impulse Response Measurements at High Sampling Rates. *137th Audio Engineering Society Convention*, Los Angeles, CA.

**Boren, B.** (2014). George Whitefield's Voice. *George Whitefield at 300*, Oxford, UK.

Musick, M., Andreopoulou, A., **Boren, B.**, Mohanraj, H., & Roginska, A. (2013). I Hear NY3D: an ambisonic installation reproducing NYC soundscapes. *135th Audio Engineering Society Convention*, New York, NY.

**Boren, B.** & Roginska, A. (2012). Analysis of noise sources in colonial Philadelphia. *Internoise 2012*, New York, NY.

**Boren, B.** & Longair, M. (2011). A Method for Acoustic Modeling of Past Soundscapes. *The Conference on the Acoustics of Ancient Theatres*, Patras, Greece.

**Boren, B.** & Roginska, A. (2011). Multichannel Impulse Response Measurement in Matlab. *131st Audio Engineering Society Convention*, New York, NY.

**Boren, B.** & Roginska, A. (2011). The Effects of Headphones on Listener HRTF Preference. *131st Audio Engineering Society Convention*, New York, NY.

Madden, A., Blumenthal, P., Andreopoulou, A., **Boren, B.**, Hu, S., Shi, Z., & Roginska, A. (2011). Multi-Touch Room Expansion Controller for Real-Time Acoustic Gestures. *131st Audio Engineering Society Convention*, New York, NY.

### *Invited Conference Talks and Presentations*

**Boren, B.** (2024). Future and Past of “Spatial Music.” Keynote Lecture, *International Conference for Auditory Display (ICAD-2024)*, Troy, NY.

**Boren, B.** (2022). A Game Theory Model of the Lombard Effect in Public Spaces. *183rd Meeting of the Acoustical Society of America*, Nashville, TN.

**Boren, B.** (2022). Contextualization in Worship Space Acoustics. *Sound, Space, and the Aesthetics of the Sublime*, Center for Computer Research in Music and Acoustics, Stanford University, Palo Alto, CA.

**Boren, B.** (2020). Teaching Acoustics to Audio Students: A Middle Path. *AES Conference on Audio Education*, Online Event.

**Boren, B.** & Anthony, J. (2019). Acoustical and Architectural History of the Thomaskirche in Leipzig. *International Congress on Acoustics*, Aachen, Germany.

**Boren, B.** (2019). Applications of Acoustic Propagation Simulation for Historical Research. *Music Informatics, Cognition and Acoustics Seminars*, School of Music, University of Edinburgh, Edinburgh, UK.

**Boren, B.** & Allen, J. (2019). Mystery and Clarity: Liturgical Space in Counter-Reformation Italy. *Sounding (Out) Italy Seminar*, Faculties of Architecture, Italian Studies, and Music, University of Cambridge, Cambridge, UK.

**Boren, B.** (2019). Computer Simulation of Past Soundscapes. *Computer Science Department Colloquium*, American University, Washington, DC.

**Boren, B.** (2018). Acoustic Simulation of Soundscapes from History. *Physics Department Symposium*, United States Naval Academy, Annapolis, MD.

**Boren, B.** (2018). Breaking Out: How to Explore the Wider World. *Early Identification Program Opening Dinner*, Office of Merit Awards, American University, Washington, DC.

**Boren, B.** (2018). Julius Caesar’s Speech at the Battle of Pharsalus. *Euronoise 2018*, Hersonissos, Greece.

**Boren, B.** (2017). A generalized version of the Lubman-Kiser theory of historical acoustics and worship spaces. *Acoustics '17: 3rd Joint Meeting: Acoustical Society of America and European Acoustics Association*, Boston, MA.

Ramos-Amezquita, A., Padilla, P., Jaramillo, A., **Boren, B.**, Caro, G., Gonzalez, J., Mendoza, V., Salazar, F., Perez, G., Rivera, A., Tapia, R., Paz, C., & Zamudio, J. (2017). Archaeoacoustics of Mexico City’s Cathedral. *Acoustics '17*, Boston, MA.

**Boren, B.** (2016). Hearing the Past. Faculty of Music, National Autonomous University of Mexico (UNAM), Mexico City, Mexico.

**Boren, B.** (2015). Outdoor Oratory and Performance Space. *169th Meeting of the Acoustical Society of America*, Pittsburgh, PA.

**Boren, B.** (2014). Acoustic reconstruction of architectural and musical space. *Pallas and the Muses Conference: Dialogues Between Science and Art*, Guanajuato, Mexico.

**Boren, B.** (2014). Acoustic Simulation of George Whitefield's Open-Air Oratory. NYU Steinhardt Scholarship Day, New York, NY.

**Boren, B.** (2013). Using Acoustic Archaeology to Simulate George Whitefield's Voice. McNeil Center for Early American Studies Seminar, University of Pennsylvania, Philadelphia, PA.

Longair, M. & **Boren, B.** (2011). Music, Architecture, and Acoustics in Renaissance Venice: Recreating Lost Soundscapes. The Royal Society, London, UK.

### *Contributed Conference Presentations*

**Boren, B.** (2023). Archaeoacoustic Measurement and Simulation of the Jesuit Chapel at St. Mary's City, Maryland. *184th Meeting of the Acoustical Society of America*, Chicago, IL.

**Boren, B.** (2021). The Soundscape of Quarantine. *Acoustics in Focus*, 180th Meeting of the Acoustical Society of America, Online.

**Boren, B.** (2015). Computational Acoustic Musicology. *2015 Joint Congress of the International Association of Music Libraries and the International Musicological Society: Music Research in the Digital Age*, New York, NY.

**Boren, B.** (2013). The maximum intelligible range of the unamplified human voice. *166th Meeting of the Acoustical Society of America*, San Francisco, CA.

**Boren, B.** (2013). Archaeoacoustics of Outdoor Oratory. NYU Music and Audio Research Laboratory Seminar Series, New York, NY.

**Boren, B., & Roginska, A.** (2012). Computer simulation of Benjamin Franklin's acoustic experiment on George Whitefield's oratory. *164th Meeting of the Acoustical Society of America*, Kansas City, MO.

**Boren, B.** (2012). Benjamin Franklin's Estimate of George Whitefield's Audible Range. *44th Conference of the Pioneer America Society*, Philadelphia, PA.

**Boren, B. & Longair, M.** (2011). Acoustic Simulation of Renaissance Venetian Churches. *162nd Meeting of the Acoustical Society of America*, San Diego, CA.

**Boren, B. & Ericson, M.** (2011). Motion Simulation in the Environment for Auditory Research. *162nd Meeting of the Acoustical Society of America*, San Diego, CA.

**Boren, B.** (2011). Motion Simulation in the Environment for Auditory Research. Army Research Lab Summer Symposium, Aberdeen Proving Ground, MD.

Longair, M. & **Boren, B.** (2010). Music, Architecture, and Acoustics in Renaissance Venice: Recreating Lost Soundscapes. Cavendish Physical Society Lecture, Cambridge, UK.

**Boren, B.** (2010). Listening to the Festival of the Redentore 400 Years Later. Gates Scholars' Society Internal Symposium, Cambridge, UK.

Longair, M. & **Boren, B.** (2009). Sound and Space in the Ospedaletto. Cavendish Astrophysics Seminar, Cambridge, UK.

**Boren, B. & Kendall, G.** (2008). Real-Time Multichannel Spatial Reverberation. *Northwestern University Acoustic Space Seminar*, Evanston, IL.

## Patents, Standards, and Software

Choueiri, E., Tylka, J., Sridhar, R., & **Boren, B.** (2018). METHOD AND SYSTEM FOR PRODUCING LOW-NOISE ACOUSTICAL IMPULSE RESPONSES AT HIGH SAMPLING RATE. US Patent No. 20170098454 A1. Allowed January 19, 2018.

**Boren, B.**, Geronazzo, M., & Majdak, P. Developed protocol within the Spatially Oriented Format for Acoustics (SOFA) for Headphone Transfer Function (HpTF) data storage and access. 2014.

**Boren, B.** & Roginska, A. Developed ScanIR, a free Matlab-based software tool for laboratory measurement of acoustic impulse responses for musical instrument and 3D Audio research. 2010.

## Selected Press Coverage

'Why is data center noise so disruptive?' *CBS-WUSA*, April 8 (2023).

'Pickleball is booming in Colorado. One city isn't so sure it likes the sound.' *Denver Chronicle*, March 3 (2023).

'Shhhh . . . Speaking More Quietly in Restaurants Means Everyone Can Be Heard,' *News Wise*, November 22 (2022).

'Pandemic quarantine acoustically contributes to mental, physical health degradation,' *American Association for the Advancement of Science (AAAS)*, June 9 (2021).

'Operation Bach: Musicians Go Virtual in a Labor of Love,' *Monterey Herald*, July 22 (2020).

'What Did Bach Sound Like to Bach?' *HUMANITIES*, Spring, Volume 41, Number 2 (2020).

'The best bookshelf speakers for home audio, according to experts,' *NBC News*, March 26 (2020).

'How to restore the legendary acoustics of Notre Dame,' *Science News*, January 12 (2020).

'How audio researchers preserved Notre Dame's treasured acoustics before the fire,' *Los Angeles Times*, April 21 (2019).

'Listen Critically! Part 3: Monitors and Mixing,' *Recording Magazine*, March Issue (2019).

'The Physics Behind Daredevil's Sense of Hearing,' *The Scholar Magazine*, Vol. 16, Gates Scholar Alumni Association (2019).

'This American University Professor Won a Grant to Bring Bach's Acoustics to Life,' *Washingtonian Magazine* (2018).

'The Science of Sound,' *Faculty Research Profile*, American University (2017).

'Recreating the acoustics of historical speeches,' *Science Magazine Podcast* (2015).

'Ben Franklin: Sonic Explorer,' *Science Friday*, Public Radio International (2014).

'Legendäre Stimme auf dem digitalen Prüfstand,' *Neue Zürcher Zeitung* (2013).

'How many people heard the Sermon on the Mount? Or the Gettysburg Address?,' *Fox News Science* (2013).

'Venetian Acoustics Rediscovered,' *Science Now* (2011).

'Der Doge genoss in Stereo', *Frankfurter Allgemeine Zeitung* (2011).

'Chock-Full Church Made Choral Clarity', *Scientific American Podcast* (2011).

'Was "Stereo" Born 400 Years Ago in Venice?', *National Geographic News* (2011).

'Acoustic Archaeology', *The Naked Scientists*, BBC Radio (2009).

## Academic Honors

Audio Engineering Society Certificate of Appreciation for Service to the AES (2015, 2017, 2018, 2019, 2020, 2021).

Best Student Paper Award for "I Hear NY4D: Hybrid Acoustic and Augmented Auditory Display for Urban Soundscapes," International Conference on Auditory Display (2014).

3rd place, Army Research Lab Summer Symposium, Graduate Research Division (2011).

National Science Foundation Graduate Research Fellowship, Honorable Mention (2011).

Valedictorian, Northwestern University Bienen School of Music (2008).

Outstanding Student Paper Award for "Music in Real-Time Interactive Video Games," College of Arts and Sciences Research Conference, Indiana University Northwest (2007).

National Merit Scholar (2004).

## Teaching Experience

### *Courses*

#### **Taught**

#### **Computer Sound Simulation**, American University (2021)

Designed and taught course on the state of the art in acoustic simulation techniques for instrument synthesis, acoustic propagation simulation, and procedural audio algorithms.

#### **Digital Signal Theory**, American University (Fall 2019-present)

Designed and taught course on the scientific and engineering side of audio, from the basics of computer representation of sound through Fourier Transforms and Filter Theory, including significant programming components in Matlab.

#### **Audio Technology Seminar**, American University (Spring 2019-present)

Designed and taught hybrid in-person and online research methods course to Audio Technology graduate students. Covered qualitative and quantitative research approaches in the field of audio.

#### **3D Audio**, American University (Spring 2018-present)

Designed and taught graduate-level course on spatial auditory perception and 3D audio technologies for creating spatial effects in music, film, and gaming environments.

#### **Sound Synthesis I**, American University (Spring 2018, Fall 2018, Spring 2019)

Taught intro to digital audio, basic signal processing and sound synthesis/sequencing, and programming in PureData, an open-source audio coding language, and Max/MSP.



**Acoustics: Physics of Sound**, American University (Fall 2017-present)

Designed and taught graduate-level acoustics course from a calculus-based perspective. Similar to *Advanced Musical Acoustics* at NYU, but with a greater focus on hands-on experiments.

**Honors Geometry**, Uncommon Collegiate Charter High School (2016-2017)

Used Common Core-aligned Geometry curriculum to create daily lectures, group work, and exploration-based learning for two sections of 9th and 10th graders learning Euclidian Geometry.

**Music Theory**, Uncommon Collegiate Charter High School (Fall 2016)

Designed and taught UCC's first music course offering, a one-semester introduction for students with no prior background in Music Theory. Incorporated performance, pop music analysis, freestyle hip-hop, and vocal percussion into a new rendition of the school song that was performed at the end of the semester.

**Musical Acoustics**, New York University (Summer 2013)

Designed and taught required Bachelor's level course in Music Technology program. Covered fundamentals of physics of sound, room acoustics, and acoustics of musical instruments from an algebra-based perspective.

**Advanced Musical Acoustics**, New York University (Summer 2012, 2014, 2015; Spring 2016; Summer 2016)

Designed and taught required Master's level course in Music Technology program. Covered fundamentals of physics of sound, room acoustics, and acoustics of musical instruments from a calculus-based perspective.

**Assisted or Co-Taught****AP Calculus (co-taught)**, Uncommon Collegiate Charter High School (2016-2017)

Supported senior AP Calculus teacher by helping students with example problems and holding after school office hours in preparation for AP Exam.

**3D Audio**, New York University (Spring 2014, Spring 2016)

Teaching assistant for advanced Master's course in Music Technology program. Gave lectures, hosted office hours, and graded student assignments and exams.

**Digital Signal Theory**, New York University (2011-2015)

Tutor graduate students in Digital Signal Theory I and II with conceptual understanding, problem sets, and programming assignments. Give guest lectures on signal processing.

*Academic Supervision*

Postdoctoral Supervisor: **Shashank Aswathanarayana**, "Acoustics of Hindu Temples." American University (2023-2025).

PhD Co-coordinator: **Miguel Reis Vasco**, "Influence of Polyphonic Musical Composition on Portuguese Religious Architecture of the Modern Period and vice versa." Universidade de Lisboa, Lisbon, Portugal (2023-present).

Undergraduate Research Supervisor: **Noah Deetz**, "Automated Calibration of Geometric Acoustic Simulations Based on Impulse Response Measurements." NASA DC Space Grant Consortium STEM Research Fellowship (2022-2023)

External Dissertation Reader: **Andrea Genovese**, "Acoustics, Music, and Mixed Reality. Towards immersive and effective remote musical collaborations." New York University (2022).

Undergraduate Research Supervisor: **Patrick Judy**, “Acoustic Simulation of an Asymmetric Church Sanctuary.” American University Rafferty Summer Undergraduate Research Grant (2021)

Graduate Research Supervisor: **Michael Connaughton**, “Acoustic Analysis of a Local Restaurant.” American University (2020)

Undergraduate Research Supervisor: **Elizabeth Grzyb**, “Acoustic Measurement and Modeling of the Katzen Performing Arts Center.” American University (2019)

External Dissertation Reader: **Joseph Tylka**, “Virtual Navigation of Higher-Order Ambisonics Sound Fields Containing Near-Field Sources,” (Mechanical and Aerospace Engineering), Princeton University (2018-2019).

Graduate Research Supervisor: **Jackson Anthony**, “Computer Simulation of Bach’s Thomaskirche,” American University (2018).

Member, PhD Dissertation Committee: **Shashank Aswathanarayana** (Media Arts and Technology), University of California, Santa Barbara (2017-2022).

Graduate Research Supervisor: **Rebeca Lindenfeld**, “Robust Binaural Reproduction Over Headphones,” American University (2017-2018).

## Academic Service

### *International Committees*

**Member** Audio Education Committee, Audio Engineering Society (July 2020-present)

**Member**, “Acoustics and Soundscape” Task Force, Notre-Dame Cathedral Restoration Committee, Paris, France (June 2019-present)

### *Domestic Committees*

**Member** Acoustical Society of America, Committee on Archives and History, 2022-2025 term.

**Member** Acoustical Society of America, Technical Committee on Signal Processing in Acoustics (2022-present).

**Member** Acoustical Society of America, Technical Committee on Computational Acoustics (2022-present).

### *Academic Chairperson*

**Papers Chair**, Audio Engineering Society 157th Convention, 2024

**Papers Chair**, Audio Engineering Society 155th Convention, 2023

**Papers Chair**, Audio Engineering Society 153rd Convention, 2022

**Member, Scientific Committee**, MEDyREN: Early Music, Architectural Spaces and New Technologies, Morella, Spain, 2022.

**Papers Chair**, Audio Engineering Society Fall Show (online), 2021

**Papers Chair**, Audio Engineering Society Fall Show (online), 2020

**Session Organizer**, *Archaeoacoustics*, International Congress on Acoustics, Aachen, Germany, 2019.

**Papers Chair**, Audio Engineering Society 147th Convention, 2019

**Papers Chair**, Audio Engineering Society 145th Convention, 2018

**Papers Chair**, Audio Engineering Society 143rd Convention, 2017

**Papers Chair**, Audio Engineering Society 139th Convention, 2015

**Sponsorship Chair**, International Conference on Auditory Display (ICAD-2014), 2013-2014

**Open House Chair**, NYU Music Technology Program, 2013

### *Peer Reviewer*

#### **Journals**

**Peer Reviewer**, *Buildings*, 2023

**Peer Reviewer**, *Open Archaeology*, 2023

**Peer Reviewer**, *Studies in History and Philosophy of Science*, 2022

**Peer Reviewer**, *Journal of Cultural Heritage*, 2022

**Peer Reviewer**, *IEEE Transactions on Audio, Speech and Language Processing*, 2021-present

**Peer Reviewer**, *Applied Sciences*, 2021-present

**Peer Reviewer**, *Notices of the American Mathematical Society*, 2020

**Peer Reviewer**, *Wireless Communications and Mobile Computing*, 2019

**Peer Reviewer**, *Journal of the Acoustical Society of America*, 2018-present

**Peer Reviewer**, *Acoustics*, 2018-present

**Peer Reviewer**, *Bulletin of the American Schools of Oriental Research*, 2018

**Peer Reviewer**, *Ergonomics in Design*, 2018

#### **Grants**

**Arts Grant Review Panelist**, Louisiana State Board of Regents Support Fund, 2023

**Level II and III Grant Review Panelist**, National Endowment for the Humanities Digital Humanities Grants, 2019

## Conferences

- Peer Reviewer**, Immersive and 3D Audio Conference (I3DA), 2023
- Peer Reviewer**, Digital Audio Effects (DAFx) Conference, 2020
- Peer Reviewer**, AES International Conference on Audio Education, 2020
- Peer Reviewer**, AES International Conference on Audio for Virtual and Augmented Reality, 2020
- Peer Reviewer**, International Computer Music Conference, 2018-present
- Peer Reviewer**, AES International Conference on Audio for Virtual and Augmented Reality, 2018
- Peer Reviewer** IEEE 2nd VR Workshop on Sonic Interactions for Virtual Environments (SIVE), 2015
- Peer Reviewer**, Audio Engineering Society Convention, 2015-present
- Peer Reviewer** International Conference on Auditory Display (ICAD), 2015-present

## Books

- Chapter Reviewer**, "The Technology of Binaural Understanding" (Springer), 2019  
Review academic press book chapter on room acoustics and spatial hearing.
- Open Textbook Initiative Reviewer: University Physics, Volume I**, American University Center for Teaching, Research, and Learning (CTRL), 2017  
Review calculus-based physics textbook for online open textbook resource.

## Academic Committees

- DPA Bylaws Revision Working Group**, 2022.  
Working group to update language in Department bylaws related to faculty promotion and election of department chair.
- DPA Working Group on Social Justice in the Performing Arts**, 2022.  
Working group across Department of Performing Arts to establish either a certificate or minor in Social Justice in Performing Arts.
- Merit Committee**, American University Department of Performing Arts, 2019, 2022.  
Read and rate faculty reports and narratives for all DPA faculty as part of American University's merit pay raise system.
- Spatial Audio Building Committee**, American University Audio Technology Program, 2019-present.  
Interface between program and department representatives and Dolby corporation to assist in the acquisition and installation of a Dolby Atmos spatial audio system at American University.
- British Fellowships Faculty Advisor**, American University Office of Merit Awards, 2017-present.  
Help select and prepare outstanding undergraduates for the application and interview process for the Rhodes and Marshall Scholarships for graduate study in the United Kingdom. Prepare feedback and serve on mock interview panels for Marshall and Rhodes Scholarship finalists.
- Graduate Admission Committee**, American University Audio Technology Program, 2017-2018.  
Read and rate graduate applicants based on portfolio and academic work.
- Dean Search Committee Member**, New York University, 2013-2014  
Served on search committee to select the new Dean of the Steinhardt School at New York University.

## Professional Affiliations

Full Member, Audio Engineering Society

Full Member, Acoustical Society of America