Andrea F. Genovese, PhD.

Curriculum Vitae

Contact Information

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Linkedin: https://www.linkedin.com/in/afgenovese/

Education

2023 — NYU, Music and Audio Research Lab, Ph.D.

50 West 4th St., New York, NY 10012, USA

Acoustics and Music Technology, Degree Conferred: in May 2023, GPA: 3.8

Dissertation: "Acoustics and Copresence: Towards effective virtual acoustic environments in distributed music networks"

Pursued doctorate at the Music and Audio Research Lab (MARL) focusing on immersive audio. Research interests include psychoacoustics research, audio development for virtual reality and immersive distributed music, machine learning for room acoustics modeling and 3D audio customization.

2021 — NYU, Music and Audio Research Lab, Master of Philosophy

50 West 4th St., New York, NY 10012, USA

Music Technology, Degree Conferred: in May 2021, GPA: 3.8

2014 — University of York, Master of Engineering.

Heslington, York YO10 5DD, UK

Electronic Engineering with Music Technology Systems

Degree Conferred: July 2014, First-class Honours

MEng degree, including placement year in industry, with focus on audio engineering and spatial audio. *Thesis: "Individualisation and Reverberation Factors in the Subjective Assessment of Plausibility in a Binaural Auditory Display".*

2009 — Ecole Europeenne Bruxelles II.

Av. Oscar Jespers 75, 1200 Brussels, Belgium

European Baccalaureat. Conferred: June 2009.

Industry Employment

2022- — Qualcomm Inc., Senior Research Engineer

5775 Morehouse Drive, San Diego, CA 92121 USA.

Dates: 08/22/2022 to *present*

Applied research in efficient spatial audio algorithms and audio effects for mobile and XR applications. Participant in 3GPP and MPEG standards development.

2021 — Qualcomm Inc., Interim Research Engineer

5775 Morehouse Drive, San Diego, CA 92121 USA.

Dates: 06/01/2021 to 08/28/2021

Applied research on prototypes of artificial reverberation pipelines for mobile 3D audio systems. Developed a real-time auditioning simulation tool.

2018 **Microsoft Research**, Research Intern.

One Microsoft Way, Redmond, WA 98052-6399, USA

Dates: 06/04/2018 to 09/07/2018

Research project in the Audio & Acoustics Research Group. Blind room parameter extraction from noisy speech using a machine-learning based approach. Work submitted to the *International Conference on Acoustics, Speech and Signal Processing* (ICASSP).

2017 **THX Ltd.**, Research Contractor.

201 3rd St, Suite 909, San Francisco, CA 94103, USA

Dates: 06/05/2017 to 09/15/2017

Research and development of in-game binaural audio evaluation using VR headsets. Developed API to provide game developers with 3D audio perception tracking tools.

2012-13 **Fraunhofer IIS**, Research Intern.

Am Wolfsmantel 33, Erlangen 91058, Germany

Dates: 09/03/2012 to 05/31/2013

Research work on binaural conversion algorithms. Coded efficient late reverberation transition detection in BRIRs and hybrid multichannel conversion to binaural format. Focus on signal processing and formal audio quality testing.

Academic Employment

2017-22 **New York University (NYU)**, Adjunct Professor.

35 West 4th St., New York, NY 10012, USA

Dates: 09/05/2017 to 05/20/2020

Adjunct instructor and course-developer in the Music Technology Program for graduate-level classes: *3D-Audio* based on immersive audio theory and implementation & *Fundamentals of Digital Signal Processing* (lab and lecture) based on audio-relevant math and programming fundamentals in Python and MATLAB.

2020-21 **New York University (NYU)**, Project Research Assistant.

35 West 4th St., New York, NY 10012, USA

Dates: 09/01/2020 to 05/31/2021

Research assistant for the NSF-funded *S3D* and *HoloDeck* projects with roles in data collection and curation for learning-based algorithms on sound classification, direction of arrival, and source movement.

2015 **University of Salford**, Graduate Teaching Student.

Maxwell Building, The Crescent, Salford M5 4WT, UK

Dates: 01/2015 to 04/2015

Teaching assistantship at the *Acoustics Research Centre* for undergraduate classes in digital audio processing.

2011 **São Paulo State University (UNESP)**, Exchange Intern.

Avenida Brasil, 56 - Centro, Ilha Solteira, SP 15385-000, Brazil

Dates: 06/2011 to 08/2011

Implementation of Simulated Annealing and Tabu Search algorithms in C++ for automated puzzle solving.

2011 **Wizard by Pearson**, Italian Language Teacher.

Pso - R. Corumbá, 107, Ilha Solteira, SP 15385-000, Brazil

Dates: 06/2011 to 08/2011

Teacher of Italian Language to a class of Portuguese speakers

Publications

Conference proceedings

2024 Multrus M., Brühn S., Torres J., Fotopolou E., Toftgård T., Norvell E., Döhla S., Gao Y., Su H., Laaksonen L., Vasilache A., Moriya T., Ragot S., Emerit, M., Ehara H., Szczerba M., **Genovese A.**, Schevciw A., Eskler V., & Malenovsky V. (2024, October). Immersive Voice and Audio Services (IVAS) codec-The new 3GPP standard for immersive communication. *Audio Engineering Society Convention 157. New York NY, U.S.*

Genovese A., Nguyen Z., Gospodarek M., Pahle R., Brenner C., & Roginska A. (2024, September). Holodeck: A Research Framework for Distributed Multimedia Concert Performances. *IEEE 5th International Symposium on the Internet of Sounds (IS^2), Erlangen, Germany*

Genovese A., Gospodarek M., Nguyen Z., Pahle R., & Roginska A. (2024, September). Locally Adapted Immersive Environments for Distributed Music Performances in Mixed Reality. *IEEE 5th International Symposium on the Internet of Sounds (IS^2), Erlangen, Germany*

Tung A., Davis G., **Genovese A.**, & Schevciw A. (2024, August). Motion to Sound Latency Measurement for Black-Box Spatial Audio Renderers. *AES Conference: Audio for Virtual and Augmented Reality, Redmond WA, U.S.*

2023 **Genovese A.** (2023, May). Acoustics and Copresence: towards effective auditory virtual environments for distributed music performances. *Doctoral Dissertation, New York NY, U.S.*

2020 Bui C., **Genovese A.**, Bradley T. & Roginska A. (2020, October). Multimodal Immersive Motion Capture (MIMiC): A workflow for musical performance. *Audio Engineering Society Convention 149. Audio Engineering Society, online conference.*

Hupke R., **Genovese A.**, Sridar S., Peissig J., & Roginska A. (2020, September). Impact of Source Panning on a Global Metronome in Rhythmic Networked Music Performance. *1st International Workshop on the Internet of Sounds, at the 2020 27th Conference of Open Innovations Association (FRUCT), Trento, Italy.*
***Received Best Student Paper Award**.

2019 Gospodarek M., **Genovese A.**, Dembeck D., Brenner C., Roginska A. & Perlin K. (2019, October). Sound design and reproduction techniques for co-located narrative VR experiences. *Audio Engineering Society Convention 147, New York NY, U.S.*

Hupke R., Sridhar S., **Genovese A.**, Nohput M., Peihs S., Beyer T., Roginska A. & Peissig J. (2019, October). A Latency Measurement Method for Networked Music Performances. *Audio Engineering Society Convention 147, New York NY, U.S.*

2019 **Genovese A.**, Gospodarek M. & Roginska A., (2019, September). Mixed Realities: a live collaborative musical performance. *5th International Conference on Spatial Audio (ICSA), Ilmenau, Germany.*

Genovese A., Gamper H., Pulkki V., Raghuvanshi N. & Tashev I. (2019, May). Blind Room Volume Estimation from Single-channel Noisy Speech. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, U.K.*

Genovese A. & Roginska, A. (2019, April). HMDiR: An HRTF Dataset Measured on a Mannequin Wearing XR Devices. *Audio Engineering Society Conference: 2019 AES International Conference on Immersive and Interactive Audio, York, U.K.*

Vanasse, J., **Genovese, A.** & Roginska, A. (2019, March). Multichannel Impulse Response Measurements in MATLAB: An Update on ScanIR. *Audio Engineering Society Conference: 2019 AES International Conference on Immersive and Interactive Audio, York, U.K.*

Roginska A., Lee H., Mendez Mendez A. E., Murakami S. & **Genovese, A.** (2019, March). CityTones: A Repository of Crowdsourced Annotated Soundfield Soundscapes. *In Audio Engineering Society Convention 146. Audio Engineering Society, Dublin, Ireland.*

2018 **Genovese A.**, Zalles G., Reardon G., & Roginska A. (2018, August). Acoustic Perturbations in HRTF measured on Mixed-Reality Headsets. *AES Conference: Audio for Virtual and Augmented Reality, Redmond WA, U.S.*

Reardon G., **Genovese A.**, Zalles G., Flanagan P., & Roginska A. (2018, August). Evaluation of Binaural Renderers: Sound Quality Assessment. *AES Conference: Audio for Virtual and Augmented Reality, Redmond WA, U.S.*

Boren B. & **Genovese A.** (2018, June). Acoustics of Virtually Coupled Performance Spaces. *ICAD 2018, Hancock MI, U.S.*

Reardon G., **Genovese A.**, Zalles G., Flanagan P. & Roginska A. (2018, May). Evaluation of Binaural Renderers: Externalization. *AES 144th Convention, Milan, Italy.*

Reardon G., **Genovese A.**, Zalles G., Flanagan P. & Roginska A. (2018, May). Evaluation of Binaural Renderers: Localization. *AES 144th Convention, Milan, Italy.*

2017 Reardon G., Calle J.S., **Genovese A.**, Zalles G., Olko M., Jerez C., Flanagan P. & Roginska A. (2017, October). Evaluation of Binaural Renderers: A Methodology. In *AES 143rd Convention, New York, U.S.*

Olko M., Dembeck D., Wu Y., **Genovese A.** & Roginska A. (2017, October). Identification of Perceived Sound Quality Attributes of 360^{o} Audiovisual Recordings in VR Using a Free Verbalization Method. In *AES 143rd Convention, New York NY, U.S.*

2016 **Genovese A.**, Juras J., Miller C. & Roginska A. (2016, June). Investigation of ITD symmetry in measured HRIRs. In *ICAD 2016, Canberra, Australia.*

Genovese A., Juras J., Miller C. & Roginska A. (2016, July). The Effect of Elevation on ITD Symmetry. In *AES: Headphone Technology Conference. Aalborg, Denmark.*

2016 Miller C., Juras J., **Genovese A.** & Roginska A. (2016, July). Interaural Distances in Existing HRIR Repositories. In *AES: Headphone Technology Conference. Aalborg, Denmark.*

2012 Manola F., **Genovese A.** & Farina A. (2012, March). A comparison of different surround sound recording and reproduction techniques based on the use of a 32 capsules microphone array, including the influence of panoramic video. In *AES UK 25th Conference: Spatial Audio in Today's 3D World. York, U.K.*

Presentations & Talks

Conference Presentations & Panels

2024 Workshop panelist for "Immersive Voice and Audio Services (IVAS) Codec – A deeper look into the new 3GPP Standard for Immersive Communication". *Audio Engineering Society Convention 157. New York NY, U.S..*

"Holodeck: A Research Framework for Distributed Multimedia Concert Performances". *IEEE 5th International Symposium on the Internet of Sounds (IS^2), Erlangen, Germany.*

Workshop panelist for "The new MPEG-I immersive audio standard for realistic rendering of audio for Virtual, Augmented and Mixed Reality". *AES Conference: Audio for Virtual and Augmented Reality, Redmond WA, U.S..*

2023 Invited panelist for "Networked Immersive Audio, challenges and opportunities", at the IS^2 2023 Symposium. *International Symposium on the Internet of Sounds.*

2019 "Sound design and reproduction techniques for co-located narrative VR experiences." *Audio Engineering Society Convention 147 (2019, October), New York NY, U.S.*

"Blind Room Volume Estimation from Single-channel Noisy Speech." *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (2019, May), Brighton, U.K.*

"HMDiR: An HRTF Dataset Measured on a Mannequin Wearing XR Devices." *Audio Engineering Society Conference: 2019 AES International Conference on Immersive and Interactive Audio (2019, March), York, U.K.*

"Multichannel Impulse Response Measurements in MATLAB: An Update on ScanIR." *Audio Engineering Society Conference: 2019 AES International Conference on Immersive and Interactive Audio (2019, March), York, U.K.*

2018 "Acoustic Perturbations in HRTF measured on Mixed-Reality Headsets." *AES Conference: Audio for Virtual and Augmented Reality (2018, August), Redmond WA, U.S.*

2018 "Evaluation of Binaural Renderers: Externalization." *AES 144th Convention (2018, May), Milan, Italy.*

"Evaluation of Binaural Renderers: Localization." *AES 144th Convention (2018, May), Milan, Italy.*

2016 "Investigation of ITD symmetry in measured HRIRs". In *ICAD 2016, (2016, June), Canberra, Australia.*

"The Effect of Elevation on ITD Symmetry." In *AES: Headphone Technology Conference (2016, July). Aalborg, Denmark.*

2016 "Interaural Distances in Existing HRIR Repositories." In *AES: Headphone Technology Conference (2016, July). Aalborg, Denmark.*

Talks & Interviews

2019 "Immersive Listening". Sounds of New York City (SONYC), Summer Workshop on Immersive Sound. *NYU Tandon School of Engineering, New York, U.S.*

2018 "Blind Room Volume Estimation from Single-channel Noisy Speech.", Microsoft Research, *Redmond WA, U.S.*

"The Holodeck Concert", ICAD Student Think Tank, *Hancock MI, U.S.*

2016 "Morphological symmetry and spatial listening", ICAD Student Think Tank, *Canberra, Australia*

"3D Audio will change how we hear virtual reality", interview at Uptown Radio, *New York, U.S.*

Grants & Awards

2020 IWIS 2020 Best Student Paper Award for "Impact of Source Panning on a Global Metronome in Rhythmic Networked Music Performance".
1st International Workshop on the Internet of Sounds.

2018 & 2019 Twice awarded the AES Educational Grant for Graduate Studies in Audio Engineering.
Audio Engineering Society.

2018 Steinhardt Doctoral Research and Travel Grant.
New York University.

2016 & 2018 Twice awarded the ICAD Think Tank conference travel award.
International Conference on Auditory Displays.

2015 Steinhardt Doctoral Scholarship.
New York University.

2014 The York Award.
University of York.

Conference Organization & Review work

Track Chair

2024 Co-chair of the "Workshop on Networked Immersive Audio". *IEEE 5th International Symposium on the Internet of Sounds (IS^2), Erlangen, Germany.*

Grant Review Committee Member

2024 Qualcomm Innovation Fellowship. *Qualcomm Technologies Inc.*

Program Committee Member

2024 IEEE 5th International Symposium on the Internet of Sounds (IS^2). *IEEE ComSoc, Erlangen, Germany.*

2024 157th AES Show Convention. *Audio Engineering Society, New York NY, U.S.*

2023 4th International Symposium on the Internet of Sounds (IS^2). *IoS-RN, Pisa, Italy.*

2017 143rd AES Convention. *Audio Engineering Society, New York NY, U.S.*

Conference Subreviewer

2024 AES Conference on Audio for Virtual and Augmented Reality. *Audio Engineering Society, Redmond WA, U.S.*

2020 AES Conference on Audio for Virtual and Augmented Reality. *Audio Engineering Society, Redmond WA, U.S.*

2019 AES Conference on Headphone Technology. *Audio Engineering Society, San Francisco CA, U.S.*

2018 AES Conference on Audio for Virtual and Augmented Reality. *Audio Engineering Society, Redmond WA, U.S.*

Volunteering Co-ordinator

2016 International Society on Music Information Retrieval. *ISMIR, New York NY, U.S.*

Professional Memberships

2023- INCITS
Delegate of the Multimedia Coding and MPEG task groups to ISO/IEC JTC1/SC29. Expert participant in WG6: "MPEG Audio Coding".

2023- ETSI / 3GPP
Technical contributor to the public collaboration concerning the Immersive Voice and Audio Services codec (IVAS).

2023- IEEE ComSoc member.
Communications Society.

2015- AES Member.
Audio Engineering Society.

2018-21 IEEE SPS Student member.
Signal Processing Society.

Selected Academic Projects

2016-20 **Immersive Audio Group**
Project supervisor, event organizer, and group administrator for the NYU Immersive Audio Interest Group. Projects centered on 3D audio applications for virtual and augmented reality. Organized speaker events, hackathons, and field recording educational exercises.
https://wp.nyu.edu/immersiveaudiogroup/

2020-21 **S3D - Spatial sound scene description**
NSF Award number: 1955357
Data collection specialist for three-dimensional machine listening description algorithms. Collected and curated multimedia soundfield field-recordings, developed synthetic data repositories, consulted on data usage and discovery, and led laboratory sessions for capturing motion-captured audio sources for development sets in a professional studio.
https://www.nsf.gov/awardsearch/showAward?AWD_ID=1955357&HistoricalAwards=false

2018-22 **HoloDeck - Development of Experiential Supercomputing**
NSF Award number: 1626098
Designed and supervised infrastructure installations aimed at researching mixed-reality audio applications for a multi-room multimedia connection. Led experiments and exhibitions investigating augmented music performance over distributed networks, acoustic and psychoacoustic properties, and the use of motion-capture for musical performance.
https://www.nsf.gov/awardsearch/showAward?AWD_ID=1626098

2018-22 **CoreLink**
Assisted in the implementation of an audio encoding and decoding tool for an internal multimedia transmission network, to assist the Holodeck project. A subscriber-based protocol was built for multi-room streaming of multimedia data and usage of custom JavaScript audio plugins.
https://corelink.hpc.nyu.edu/

2018 **HMDiR Dataset**
Collected an open-source database of Head-Related Impulse Responses on a mannequin wearing virtual and augmented reality headsets to study the acoustic perturbations created by the physical obstructions. Each case contains 1200 locations around the head.
https://zenodo.org/record/2558629#.X9Ql15NKgUE

2018-20 **ScanIR, version 2**
Lead programmer for the new version of a MATLAB tool for conducting and analyzing room-acoustic measurements. The tool can be used for room impulse responses, directivity measurements, and binaural filter recordings. Available on GitHub as open-source software.
https://github.com/NYU-ImmersiveAudio/ScanIR

Software & Programming Skills

Programming Languages:	Python, C#, C, JavaScript, LUA, Assembly
Research Tools:	MATLAB, LaTeX, R
Professional Software:	Git, Reaper, Unity, SPAT, MaxMSP, Adobe Audition, Visual Studio, ProTools, Sibelius, MS Visio, Office Suite.

Courses Taught & Developed

Adjunct Professor

2019-22	3D Audio (Graduate) *New York University*
2017-20	Fundamentals of Digital Signal Theory - Lab (Graduate, two sections) *New York University*
2017-18	Fundamentals of Digital Signal Theory - Lecture (Graduate) *New York University*

Academic Services & Activities

2015-20	Co-administrator and Project Manager of the Immersive Audio Interest Group at NYU Steinhardt. Took lead on roles such as project manager, academic tutor, web developer, and event organizer.
2020	Official Reader on two committees for Master Thesis evaluations.
2018	Laboratory contact for the NSF HoloDeck project. Implementation of audio protocols, and transmission and rendering systems. Coordinated the acoustic measurement of participating labs.
2018	Contributed to the organization and research effort for the concert event *Ozark Henry on the Holodeck: Maps to the Stars*.
2018	Contributed to the organization relating to the concert event *Concert on the Holodeck: Connecting Artists*.
2017	Organizer of the NYU Tech Tour Event for the AES 143rd Convention.
2016-17	Organizer of the Open House student showcase event for the Music Technology program at NYU Steinhardt.

Languages

Italian:	Native speaker
English:	Advanced Professional Proficiency
Spanish:	Advanced Proficiency
French:	Intermediate Proficiency
German:	Colloquial level
Portuguese	Colloquial level

Extra-curricular achievements

2010-12	President of the Italian Society. *University of York.*
2011	Judo Club Team Captain. *University of York.*
2011-12	Media manager of the Free Culture Society. *University of York.*
2007	ABRSM Level 5 Music Theory Certification. *Scuola Europea di Varese.*

References

Academic Supervisor (NYU):
Dr. Agnieszka Roginska *BMus, MMus, Ph.D*
roginska@nyu.edu
Tel: +1(212)998-5141

Research Manager (Qualcomm):
Andre Schevciw *MSc, MBA, J.D*
ashevci@qti.qualcomm.com
Tel: +1(619)261-5743

Academic Advisor (NYU):
Dr. Morwaread Farbood *BA, MSc, Ph.D*
mfarbood@nyu.edu
Tel: +1(212)992-7680

Other references available on request.