Andrea F. Genovese, PhD.
Curriculum Vitae

Contact Information

Address: 50 Plaza St. E., Apt. 12B, Brooklyn, NY, United States
Phone: +1 (973) 580-1380
E-mail: afgenovese500@gmail.com
Website http://andreagenovese.com

Education

2023   **NYU Music and Audio Research Lab, Ph.D.**
50 West 4th St., New York, NY 10012, USA
Acoustics and Music Technology, GPA: 3.8

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

Pursued doctorate in Music Technology 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   **New York University (NYU), 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
Thesis: "Individualisation and Reverberation Factors in the Subjective Assessment of Plausibility in a Binaural Auditory Display".
Degree Conferred: July 2014, First-class Honours
MEng degree with year in industry

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	NYU STEINHARDT, Adjunct Professor.

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

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

Adjunct instructor and course-developer 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	NYU STEINHARDT, 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 on data collection and curation for learning-based algorithms on sound classification, direction of arrival, and 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

ACADEMIC SERVICES AND ACTIVITIES

2015-20   Co-administrator and Project Manager of the Immersive Audio Interest Group at NYU Steinhardt. Took roles 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, transmission and rendering systems. Acoustic measurements 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 for 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

2016   Co-leader of the volunteering effort for the *ISMIR* conference in New York City.

PUBLICATIONS

CONFERENCE PROCEEDINGS

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.*

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 360º 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

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

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

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.

Review work

Program Committee Member

2023   PC Member at the IS^2 2023 Symposium. *International Symposium on the Internet of Sounds.*

2017   PC Member and subreviewer at the 143 AES Convention. *Audio Engineering Society.*

2020   Subreviewer at the AES Conference on Audio for Virtual and Augmented Reality. *Audio Engineering Society.*

2019   Subreviewer at the AES Conference on Headphone Technology. *Audio Engineering Society.*

2018   Subreviewer at the AES Conference on Audio for Virtual and Augmented Reality. *Audio Engineering Society.*

Memberships

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

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

2015-   AES Member.
Audio Engineering Society.

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

2023-   IEEE ComSoc member.
Communications Society.

Software & Programming Skills

Programming Languages:	Python, C#, C, JavaScript, LUA, Assembly
Research Tools:	MATLAB, LaTex, R
Professional Software:	Git, Reaper, Unity, SPAT, MaxMSP, Adobe Photoshop, ProTools, Sibelius, Office Suite

Courses Taught and 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

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- **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- **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- **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 in order 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

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.