Gabriel Zalles

Audio technology master

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Education

2012–2016 **BA**, *UC San Diego*, La Jolla, *Bachelors*.
Interdisciplinary Computing in the Arts Major

2016–2018 **MA**, *NYU*, New York, *Masters*.
Music Technology

2018–2023 **PhD**, *UC San Diego*, La Jolla, *Doctorate*.
Computer Music

Master thesis

Title *Design of a highly coincident microphone array for stereo and surround sound.*

Supervisors Agnieszka Roginska

Description Evaluated the effects of increased capsule coincidence in FOA recordings using state-of-the-art MEMS capsules. Objective measurements were obtained using a custom, Arduino powered, motorized microphone platform. Subjective assessments of the first order ambisonic array with extreme capsule coincidence were also conducted using a DIY head-tracker. The experiment sought to determine if improvements towards spatial aliasing can outweigh the SNR deficits of MEMS systems in FOA arrays. Statistical methods such as ANOVA were used to analyze results. The full thesis can be found at this link

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Experience

Professional

2019–2020 **Production Assistant**, *UCSD*, La Jolla, California.
Experimental theatre production assistant at UCSD's Conrad Preby's Music Center. As a production assistant I provide support to composers who want add computer music elements to their piece. In particular I advice on spatial audio solutions.

2018–2019 **Teaching Assistant**, *UCSD*, La Jolla, California.
Teaching assistant for three computer music undergraduate courses including: Musical Acoustics, Computer Music I and Computer Music II.

2017–2018 **Research Assistant**, *NYU*, New York City, New York.
Assisted with a THX research collaboration which evaluated binaural renderers used for spatial audio reproduction. Updated and maintained a GUI written in MATLAB which was used for a subjective study. Along with my other peers, wrote and submitted peer-reviewed papers to AES written in LaTeX.

2017–2018 **Teaching Assistant (DSP)**, *NYU*, New York City, New York.
Helped students understand the programming environment MATLAB as well as core concepts of digital signal processing. Created teaching material used to help students accomplish assignments. Provided one-on-one tutoring and graded both assignments and exams.

2016/2018 **AV Technician**, *UCSD*, San Diego, California.
Currently working at audio visual technician setting up and stricking audio and lighting equipment used for concerts, conferences and other events. Live mixing, signal flow, and lighting are daily tasks. As an AV tech I operate sound boards personally for duration of events which include wireless mics and multiple bands.

Awards

2019 **Norman Design Fund Grant**, *UCSD Media Lab*, Site.

2018 **Convergence for Innovation and Entrepreneurship (CIE) Institute Grant**, *NYU Leslie eLab JTerm Startup Sprint*.

2018 **Best Graduate Student Project**, *Steinhardt Music Technology Open House*.

2017 **Bronze Medal - AES Student Design Competition**, *AES 143*.

Papers

Author

2019 **Audio Engineering Society 147**, Effects of Capsule Coincidence in FOA using MEMS: Objective Experiment, UCSD.
Zalles PDF

2018 **Master Thesis**, The Design of a Highly Coincident Microphone Array for Stereo and Surround Sound , NYU.
Zalles PDF

2017 **Audio Engineering Society 143**, A Low-Cost, High-Quality MEMS Ambisonic Microphone, NYU.
Zalles et al. PDF

Co-author

2017 **Audio Engineering Society 143**, Evaluation of Binaural Renderers: A Methodology, NYU.
Reardon et al. PDF

2018 **Audio Engineering Society 144**, Evaluation of Binaural Renderers: Externalization, Front/Back and Up/Down Confusions, NYU.
Reardon et al. PDF

2018 **Audio Engineering Society 144**, Evaluation of Binaural Renderers: Localization, NYU.
Reardon et al. PDF

2018 **Audio Engineering Society AVAR**, Evaluation of Binaural Renderers: Multidimensional Sound Quality Assessment, NYU.
Reardon et al. PDF

2018 **Audio Engineering Society AVAR**, Acoustic perturbations in HRTFs measured on Mixed Reality Headsets, NYU.
Genovese et al. PDF

Workshops

2019 **Linux Audio Conference**, Making Ambisonic Plug-ins in JUCE, Stanford University.
Zalles Site

Hackathons

2019 **SD Hacks 2019**, Leap Motion + MAX/MSP: Spectral|Spatial Audio Project, UCSD.
Zalles

Code

Proficient	MATLAB, MAX/MSP, C++
Fluent	Puredata, Git(hub)
Familiar	Arduino

Job Specific Experience

- Experience using the JUCE framework for audio software development in C++
- Experience using MATLAB to create DSP routines
- Experience using DAWs, Github and prototyping tools (soldering station, 3D printing, laser cutters).

Current Projects

Synthesthesia	VR Music Project for HTC Vive. As the project leader I provide the vision for the project and fill in any gaps that need to be filled. This project is part of UCSD's VR Club: TritonXR.
Ambisonic Microphone	Ongoing project currently in the engineering phase. Currently working on a psycho-acoustic experiment for a first order ambisonic mic while building a second order ambisonic mic.
SElectOr	Creative director of this musical project which tries to bring computer music students closer to composers and performers in collaborative experiments. My focus as creative director is spatial audio.

Spoken Languages

Spanish	**Native**
English	**Fluent**
French	**Proficient**

References

- Shahrokh Yadegari — syadegari@ucsd.edu
- Miller Puckette — msp@ucsd.edu
- Agnieszka Roginska — roginska@nyu.edu