

# PREM S SEETHARAMAN

## ADDRESS

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## CONTACT

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## EDUCATION

Northwestern University, Evanston, IL  
PhD Candidate, Computer Science - in progress  
MS, Computer Science - 2015  
BS, Computer Science, Music Composition - 2013

## RESEARCH INTERESTS

audio source separation, human computer interaction, creativity support tools, multimedia information retrieval, music structure and theory, machine learning

## WORK

### **Northwestern University, Evanston, IL**

Doctoral Student in Interactive Audio Lab

2013 - Present

Working with Professor Bryan Pardo on problems in audio source separation, music information retrieval, semantic audio processing, and human computer interaction.

### **Northwestern University, Evanston, IL**

Teaching Assistant

2014 - Present

### **Mitsubishi Electric Research Labs, Cambridge, MA**

Research Intern

2018

Developed cutting-edge machine learning and signal processing algorithms for audio source separation and computational auditory scene analysis.

### **Adobe Research, San Francisco, CA**

Research Intern

2017-2018

Worked on speech enhancement, creativity support tools for podcast production, and audio quality prediction.

### **Gracenote, Emeryville, CA**

Applied Research - Intern

2016

Worked on problems in media recognition and retrieval, specifically cover song identification.

### **Northwestern University, Evanston, IL**

Researcher

2011 - 2012

Worked with Professor Peter Dinda, and Stephen Tarzia on problems in acoustics. Developed this acoustics research as a mobile application for Android and iOS.

## PROJECTS

### **Audealize** 2015

Developed and evaluated a novel interface for controlling an audio production tool such as an equalizer (which controls the strengths of frequencies in audio) or a reverberator (which adds echo effects to audio). We found that novice users preferred Audealize (<http://audealize.appspot.com>) over traditional audio production interfaces for audio production tasks.

### **SocialReverb and Reverbalyze** 2014

Developed a crowdsourcing methodology to collect words that describe the effect of reverberation. Leveraged this data to create a novel reverberation controller: Reverbalyze (<http://reverbalyze.appspot.com>), which is controlled through simply describing the effect (make it sound like it's in a "church").

### **ClapIR** 2011 - 2012

Developing automated acoustics software, based on the recording of an impulse in a room (a clap or balloon pop). The recording of a clap is used to compute reverberation time, frequency decay, and frequency response of any given room. Available for iPhone and Android.

## GRANTS

### **CIRA grant** 2016-2017

*Center for Interdisciplinary Research in the Arts at Northwestern University.*

"Deep learning, artificial intelligence, and the composition and performance of new vocal music". Amount: \$4000

## HONORS

Todd M. and Ruth Warren Fellowship

## PAPERS

Manilow, Ethan, **Prem Seetharaman**, and Bryan Pardo. "The Northwestern University Source Separation Library" *Proc. of the 19th International Society for Music Information Retrieval Conference (ISMIR)*. Paris, France, 2018

Wilkins, Julia, **Prem Seetharaman**, Alison Wahl and Bryan Pardo. "VocalSet: A Singing Voice Dataset" *Proc. of the 19th International Society for Music Information Retrieval Conference (ISMIR)*. Paris, France, 2018

**Seetharaman, Prem**, Gautham Mysore, Paris Smaragdis, and Bryan Pardo. "Blind Estimation of the Speech Transmission Index for Speech Quality Prediction." *43rd International Conference on Acoustics, Speech, and Signal Processing*, Calgary, Alberta, Canada, 2018

Manilow, Ethan, **Prem Seetharaman**, Fatemeh Pishdadian, and Bryan Pardo. "Predicting Algorithm Efficacy for Adaptive Multi-Cue Source Separation." *Applications of Signal Processing to Audio and Acoustics, 2017. WASPAA '17. IEEE Workshop on*. IEEE 2017

**Seetharaman, Prem**, Fatemeh Pishdadian, and Bryan Pardo. "Music/voice separation using the 2D Fourier Transform." *Applications of Signal Processing to Audio and Acoustics, 2017. WASPAA '17. IEEE Workshop on*. IEEE 2017

Donovan, Michael, **Prem Seetharaman**, and Bryan Pardo. “A Web Audio Node for the Fast Creation of Natural Language Interfaces for Audio Production.” *3rd Web Audio Conference*, London, UK, August 21-23, 2017.

**Seetharaman, Prem**, and Zafar Rafii. “Cover Song Identification with 2D Fourier Transform Sequences.” *42nd International Conference on Acoustics, Speech, and Signal Processing*, New Orleans, USA, March 5 - 9, 2017.

Zheng, Taylor, **Prem Seetharaman**, and Bryan Pardo. “SocialFX: Studying a Crowdsourced Folksonomy of Audio Effects Terms.” *Proceedings of the ACM International Conference on Multimedia*. ACM, 2016.

**Seetharaman, Prem**, and Bryan Pardo. “Simultaneous separation and segmentation in layered music” *Proc. of the 17th International Society for Music Information Retrieval Conference (ISMIR)*. New York City, NY, USA, 2016

**Seetharaman, Prem**, and Bryan Pardo. “Audealize: Crowdsourcing Audio Production Tools” *Journal of the Audio Engineering Society*. 2016

**Seetharaman, Prem**, and Bryan Pardo. “Reverbalize: a crowdsourced reverb controller.” *Proceedings of the ACM International Conference on Multimedia*. ACM, 2014. (Technical Demo Abstract)

**Seetharaman, Prem**, and Bryan Pardo. “Crowdsourcing a reverb descriptor map.” *Proceedings of the ACM International Conference on Multimedia*. ACM, 2014.

**Seetharaman, Prem**, and Stephen P. Tarzia. “The Hand Clap as an Impulse Source for Measuring Room Acoustics.” *Audio Engineering Society Convention 132*. Audio Engineering Society, 2012.

**EXTERNAL  
SERVICE**

**Conference Reviewer**  
ACM Multimedia 2016

**Conference Reviewer**  
ISMIR 2016

**Conference Reviewer**  
ICASSP 2016

**Conference Reviewer**  
ISMIR 2015

**Conference Reviewer**  
WASPAA 2015

**Journal Reviewer**

IEEE Transactions on Multimedia

2015

**References**

Bryan Pardo

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Gautham Mysore

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Zafar Rafi

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Jonathan Le Roux

leroux@merl.com