PREM S SEETHARAMAN

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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, 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 machine learning and creativity support tools for podcast production and audio quality prediction.

Gracenote, Emeryville, CA
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.

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

Seetharaman, Prem, Gordon Wichern, Shrikant Venkataramani, and Jonathan Le Roux. "Class-Conditional Embeddings for Music Source Separation". *Acoustics, Speech and Signal Processing (ICASSP), 2019 IEEE International Conference on. IEEE. 2019.*

Seetharaman, Prem, Gordon Wichern, Jonathan Le Roux, and Bryan Pardo. "Bootstrapping Single-Channel Source Separation via Unsupervised Spatial Clustering on Stereo Mixtures". *Acoustics, Speech and Signal Processing (ICASSP), 2019 IEEE International Conference on. IEEE. 2019*

Humphrey, Eric J, Sravana Reddy, **Prem Seetharaman**, Aparna Kumar, Rachel M Bittner, Andrew Demetriou, Sankalp Gulati, Andreas Jansson, Tristan Jehan, Bernhard Lehner, et al. "An Introduction to Signal Processing for Singing-Voice Analysis: High Notes in the Effort to Automate the Understanding of Vocals in Music". *IEEE Signal Processing Magazine 36.1 (2019), pp. 8294.*

Seetharaman, Prem, Gautham Mysore, Bryan Pardo, Paris Smaragdis, and Celso Gomes. "VoiceAssist: Guiding Users to High-Quality Voice Recordings". *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. ACM.* 2019.

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 reverberation controller." *Proceedings of the ACM International Conference on Multimedia.* ACM, 2014. (Technical Demo Abstract)

Seetharaman, Prem, and Bryan Pardo. "Crowdsourcing a reverberation 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.

PATENTS

Markus K Cremer, Zafar Rafii, Robert Coover, and **Prem Seetharaman**. *Automated Cover Song Identification.* US Patent App. 15/698,557. July 2018.

Zafar Rafii and **Prem Seetharaman**. *Audio Identification Based on Data Structure.* US Patent App. 15/698,532. Mar. 2018.

SERVICE

I regularly review papers for ICASSP, ACM Multimedia, WASPAA, IEEE Transactions on Multimedia, IEEE/ACM Transactions on Audio, Speech, and Language Processing, ISMIR, among other conferences and journals. I helped organize the Midwest Music and Audio Day (MMAD), a workshop for research in my field at Northwestern University, in 2015 and 2017.

AI Journal Club
Founder and current officer — 2016 - Present
AIJC was established to create a venue for open discussion for all topics regarding AI, fostering a sense of community among like-minded researchers at Northwestern.

CS Phd Advisory Council
Founder — 2017 - Present
I helped establish CSPAC, an organization that gives PhD students a voice in decisions made in the department, a sense of ownership and responsibility for the department. CSPAC plans events and fund clubs that foster community and build a department culture.

References

Bryan Pardo	pardo@northwestern.edu
Gautham Mysore	gmysore@adobe.com
Zafar Rafii	zrafii@gracenote.com
Paris Smaragdis	paris@illinois.edu
Jonathan Le Roux	leroux@merl.com