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EDUCATION

4/05	Ph.D., Computer Science and Engineering The University of Michigan, Ann Arbor, MI, USA
12/01	M. Mus., Jazz and Improvisation The University of Michigan, Ann Arbor, MI, USA
12/93	M.S., Computer Science The Ohio State University, Columbus, OH, USA
6/90	B.Mus., Jazz Composition The Ohio State University, Columbus, OH, USA

PROFESSIONAL EMPLOYMENT

9/19 – now	Professor Department of Computer Science Department of Radio Television and Film Center for Human-Computer Interaction + Design Master's program in Sound Arts and Industries Segal Design Institute Northwestern University, Evanston, IL
9/10 – 8/19	Associate Professor Department of Electrical Engineering and Computer Science Department of Music Theory and Cognition Master's program in Sound Arts and Industries Segal Design Institute Northwestern University, Evanston, IL
9/04 – 8/10	Assistant Professor Department of Electrical Engineering and Computer Science Department of Music Theory and Cognition Northwestern University, Evanston, IL
1/03 – 5/04	Adjunct Professor Department of Music Madonna University, Livonia, MI
5/96 – 8/98	Systems Developer Department of Speech and Hearing Science Ohio State University, Columbus, OH
1/94 – 4/96	Software Engineer SPSS Inc., Chicago, IL

RESEARCH FUNDING

Title	Funding Source	Amount	Dates	Role
CHS: Medium: Next Generation Content Production Tools for People with Vision Impairments	**NSF**	$307,247 (to date)	10/19-9/23	Co-PI
III: Small: Collaborative Research: Algorithms for Query by Example of Audio Databases	**NSF**	$212,596	9/16-8/20	PI
Research Gift	**Adobe**	$72,500	6/15-12/20	PI
CHS: Small: Robust Interactive Audio Source Separation	**NSF**	$514,261	10/14-9/18	PI
HCC: Small: Building Audio Interfaces with Crowdsourced Concept Maps and Active Transfer Learning	**NSF**	$499,804	9/11 – 8/16	PI
Making Music Documents Accessible in Musical Terms	**NSF CAREER**	$506,669	1/07 – 12/12	PI
Personalized Tools to Enhance Musical Creativity	**NSF Creative IT**	$166,000	6/08 – 5/12	PI
Bootstrapping Adaptive Personalized Music Search with Game-based Collaborative Tagging	**NSF IIS**	$476,171	9/08 – 8/12	PI

PUBLICATIONS (total citations 4100, h-index 33, i-10 index 88)

PATENTS

1. Mark Cartwright, Bryan Pardo, "Systems, Methods, and Apparatus to Search Audio Synthesizers using Vocal Imitation," U.S. Patent No. 9,390,695
2. Zafar Rafii, Bryan Pardo, "Acoustic Separation System and Method, "U.S. Patent No. 9,093,056
3. Andrew Todd Sabin, Bryan Pardo, "Systems, Methods, and Apparatus for Equalization Preference Learning," U.S. Patent No. 8,565,908

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1. V. Tang, P. Seetharaman, K. Chao, B. Pardo, and S van der Lee, Automating the Detection of Dynamically Triggered Earthquakes via a Deep Metric Learning Algorithm, Seismological Research Letters, January 2020.
2. B. Pardo, M. Cartwright, P. Seetharaman, and B. Kim, "Learning to Build Natural Audio Production Interfaces," Arts, Arts 2019, vol. 8(3), 110; https://doi.org/10.3390/arts8030110
3. F. Pishdadian, and **B. Pardo**, "Multi-resolution Common Fate Transform," ACM/IEEE Transactions on Audio, Speech and Language Processing, vol. 27 (2), February 2019, DOI: 10.1109/TASLP.2018.2878616
4. M. Mueller, B. Pardo, G. Mysore, and V. Valimaki, "Recent Advances in Music Signal Processing," IEEE Signal Processing Magazine, vol. 36 (1), January 2019, DOI: 10.1109/MSP.2018.2876190
5. Y. Zhang, Z. Duan, and **B. Pardo**, "Siamese Style Convolutional Neural Networks for Sound Search

by Vocal Imitation," ACM/IEEE Transactions on Audio, Speech and Language Processing, September 2018, DOI: 10.1109/TASLP.2018.2868428

6. Z. Rafii, A. Liutkus, F. Stoter, S. Mimilakis, D. FitzGerald, and **B. Pardo**, "An Overview of Lead and Accompaniment Separation in Music," ACM/IEEE Transactions on Audio, Speech and Language Processing, vol. 26 (8), August 2018, DOI: 10.1109/TASLP.2018.2825440
7. B. Kim and **B. Pardo**, "A Human-in-the-loop System for Sound Event Detection and Annotation," ACM Transactions on Interactive Intelligent Systems, vol. 8 (2), July 2018 Article No. 13, DOI: 10.1145/3214366
8. P. Seetharaman and **B. Pardo**, "Audealize: Crowdsourced Audio Production Tools," Journal of the Audio Engineering Society, pp. 419-430, vol. 64 (9), September 2016, DOI: http://dx.doi.org/10.17743/jaes.2016.0037
9. F. J. Rodriguez-Serrano, Z. Duan, P. Vera-Candeas, **B. Pardo**, J. Carabias-Orti, "Online score-informed source separation with adaptive instrument models," Journal of New Music Research, vol. 4(22), 2015, DOI 10.1080/09298215.2014.989174
10. Z. Rafii, Z. Duan, **B. Pardo**, "Combining Rhythm-based and Pitch-based Methods for Background and Melody Separation," ACM/IEEE Transactions on Audio, Speech and Language Processing, pp. 1884-1893, vol. 22(12), December 2014, DOI: 10.1109/TASLP.2014.2354242
11. Liutkus, D. Fitzgerald, Z.Rafii, **B. Pardo**, L. Daudet, "Kernel additive models for source separation," IEEE Transactions on Signal Processing, pp. 4298-4310, vol. 62(16), 2014, DOI: 10.1109/TSP.2014.2332434
12. S. Ewert, **B. Pardo**, M. Muller, and M. Plumbley, "Score-Informed Source Separation for Musical Audio Recordings: An overview," IEEE Signal Processing Magazine – Special Issue on Source Separation and Applications, pp. 116-124, vol. 31(3), May 2014, DOI 10.1109/MSP.2013.2296076
13. Z. Duan, J. Han, **B. Pardo**, "Multi Pitch Streaming of Harmonic Sound Mixtures," IEEE Transactions on Audio, Speech and Language Processing, pp. 138-150, vol. 22(1), 2014
14. Z. Rafii, **B. Pardo**, "REpeating Pattern Extraction Technique (REPET): A Simple Method for Music/Voice Separation," IEEE Transactions on Audio, Speech and Language Processing, pp. 71-82, vol. 21(1), 2013, DOI: 10.1109/TASL.2012.2213249
15. Z. Duan, **B. Pardo**, "Soundprism: An Online System for Score-informed Source Separation of Music Audio," Journal of Selected Topics in Signal Processing, pp. 1205-1215, vol. 5(6), 2011
16. Sabin, Z. Rafii, **B. Pardo**, "Weighting function-based rapid mapping of descriptors to audio processing parameters," Journal of the Audio Engineering Society, pp. 419-430, vol. 59(6), 2011
17. Z. Duan, **B. Pardo** and C. Zhang, "Multiple Fundamental Frequency Estimation by Modeling Spectral Peaks and Non-peak Areas," IEEE Transactions on Audio, Speech and Language Processing, vol. 18(8), pp. 2121 – 2133, 2010, DOI: 10.1109/TASL.2010.2042119
18. J. Woodruff and **B. Pardo**, "Using Pitch, Amplitude Modulation and Spatial Cues for Separation of Harmonic Instruments from Stereo Music Recordings," EURASIP Journal on Advances in Signal Processing, vol. 2007, Article ID 86369, 2007
19. R. Dannenberg, W. Birmingham, **B. Pardo**, N. Hu, C. Meek, G. Tzanetakis, "A Comparative Evaluation of Search Techniques for Query-by-Humming Using the MUSART Testbed," Journal of the American Society for Information Science and Technology, vol. 58 (3), 2007
20. **B. Pardo**, "Music Information Retrieval," Communications of the ACM, vol. 49 (8), pp. 29-31, 2006
21. W. Birmingham, R. Dannenberg, **B. Pardo**, "An Introduction to Query by Humming with the VocalSearch System," Communications of the ACM, vol. 49 (8), pp. 49-52, 2006
22. **B. Pardo**, "Finding Structure in Audio for Music Information Retrieval," IEEE Signal Processing Magazine, vol. 23(3), pp. 126-132, 2006

23. R. Dannenberg, W. Birmingham, G. Tzanetakis, C. Meek, N. Hu, and **B. Pardo**, "The MUSART Testbed for Query-By-Humming Evaluation, " Computer Music Journal, vol. 28 (2), pp. 34-48, 2004
24. **B. Pardo**, W. Birmingham, and J. Shifrin, "Name that Tune: A Pilot Study in Finding a Melody from a Sung Query," Journal of the American Society for Information Science and Technology, vol. 55 (4), pp. 283-300, 2004
25. C. Menezes**, B. Pardo**, D. Erickson, and O. Fujimura, "Changes in Syllable Magnitude and Timing due to Repeated Correction," Speech Communication, vol. 40, issue 1-2, pp. 71-85, 2003
26. **B. Pardo** and W. Birmingham, "Algorithms for Chordal Analysis," Computer Music Journal, vol. 26 (2), pp. 27-49, 2002
27. D. Erickson, O. Fujimura, and B. Pardo, "Articulatory Correlates of Prosodic Control: Emotion and Emphasis," Language and Speech, vol. 41 (3-4), pp. 395-413, 1998

CONFERENCES AND WORKSHOPS REVIEWED ON FULL PAPER SUBMISSIONS

1. Alisa Liu, Prem Seetharaman, Bryan Pardo, "Model Selection for Deep Audio Source Separation via Clustering Analysis," Proceedings of the 2020 Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE 2020), Tokyo, Japan, Nov 2-3, 2020 (Best Student Paper Award)
2. Prem Seetharaman, Gordan Wichern, Bryan Pardo, Jonathan Le Roux, "Autoclip: Adaptive Gradient Clipping for Source Separation Networks," IEEE International Workshop on Machine Learning for Signal Processing (MLSP), September 21–24, 2020 Aalto University, Espoo, Finland
3. Prem Seetharaman, Gordon Wichern, Jonathan Le Roux, and Bryan Pardo, "Bootstrapping Unsupervised Deep Music Separation from Primitive Auditory Grouping Principles," Workshop on Self-supervision in Audio and Speech at the 37th International Conference on Machine Learning, Vienna, Austria, July 13-18, 2020
4. Alisa Liu, Alexander Fang, Gaetan Hadjeres, Prem Seetharaman, and Bryan Pardo, "Incorporating Music Knowledge in Continual Dataset Augmentation for Music Generation," Workshop on Machine Learning for Media Discovery at the 37th International Conference on Machine Learning, Vienna, Austria, July 13-18, 2020
5. Alexander Fang, Alisa Liu, Prem Seetharaman, and Bryan Pardo, "Bach or Mock? A Grading Function for Chorales in the Style of J.S. Bach," Workshop on Machine Learning for Media Discovery at the 37th International Conference on Machine Learning, Vienna, Austria, July 13-18, 2020
6. Ethan Manilow, Prem Seetharaman, and Bryan Pardo, "Simultaneous Separation and Transcription of Mixtures with Multiple Polyphonic and Percussive Instruments," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Barcelona, Spain, May 4-8, 2020
7. Yichi Zhang, Junbo Hu, Yiting Zhang, Bryan Pardo and Zhiyao Duan, "Vroom!: A Search Engine for Sounds by Vocal Imitation Queries," Proceedings of the fifth ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR), Vancouver, BC, Canada, March 14-18, 2020
8. M. Morrison, B. Pardo, "OtoMechanic: Auditory Automobile Diagnostics via Query-by-Example," Proceedings of the 2019 Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE 2019), New York, NY, USA, Oct 25-26, 2019
9. F. Pishdadian, B. Kim, P. Seetharaman, B. Pardo, "Classifying non-speech vocals: Deep vs Signal Processing Representations," Proceedings of the 2019 Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE 2019), New York, NY, USA, Oct 25-26, 2019
10. B. Kim and B. Pardo, "Sound Event Detection Using Point-labeled Data," IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA 2019), New Paltz, NY, USA, October 20-23, 2019
11. B. Kim and **B. Pardo**, "Improving content-based audio retrieval by vocal imitation feedback," Proceedings of the 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, UK, May 12-17, 2019

12. P. Seetharaman, G. Wichern, J. Le Roux, **B. Pardo**, "Bootstrapping single-channel source separation via unsupervised spatial clustering on stereo mixtures," Proceedings of the 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, UK, May 12-17, 2019
13. P. Seetharaman, G. Mysore, **B. Pardo**, P. Smaragdis, C. Gomes, "VoiceAssist: Guiding Users to High-Quality Voice Recordings," Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI 2019), 4-9 May 2019, Glasgow, UK
14. B. Margolis, M. Ghei, **B. Pardo**, "Applying Triplet Loss to Siamese-style Networks for Audio Similarity Rankings," Proceedings of the 2018 Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE 2018), 19-20 November 2018, Surrey, UK
15. B. Kim, M. Ghei, **B. Pardo**, "Vocal Imitation Set: a dataset of vocally imitated sound events using the AudioSet ontology," Proceedings of the 2018 Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE 2018), 19-20 November 2018, Surrey, UK
16. J. Wilkins, P. Seetharaman, A. Wahl, and **B. Pardo**, "VocalSet: A Singing Voice Dataset," Proceedings of the 19th International Society of Music Information Retrieval Conference (ISMIR 2018), Paris, France, September 23-27, 2018
17. E. Manilow, P. Seetharaman, and **B. Pardo**, "The Northwestern University Source Separation Library," Proceedings of the 19th International Society of Music Information Retrieval Conference (ISMIR 2018), Paris, France, September 23-27, 2018
18. M. Cartwright, **B. Pardo,** and G. Mysore, "Crowdsourced Pairwise Comparison for Source Separation Evaluation," Proceedings of the 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Calgary, Alberta, Canada, April 15-20, 2018
19. P. Seetharaman, G. Mysore, P. Smaragdis, and **B. Pardo**, "Blind Estimation of the Speech Transmission Index for Speech Quality Prediction," Proceedings of the 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Calgary, Alberta, Canada, April 15-20, 2018
20. P. Seetharaman, F. Pishdadian, and **B. Pardo**, "Music/Voice Separation using the 2D Fourier Transform," IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA 2017), New Paltz, NY, USA, October 15-18, 2017
21. E. Manilow and **B. Pardo**, "Leveraging Repetition to Do Audio Imputation," IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA 2017), New Paltz, NY, USA, October 15-18, 2017
22. E. Manilow, P. Seetharaman, F. Pishdadian, and **B. Pardo**, "Predicting Algorithm Efficacy for Adaptive Multi-Cue Source Separation," IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA 2017), New Paltz, NY, USA, October 15-18, 2017
23. A. Karp and **B. Pardo**, "HaptEQ: A Collaborative Tool for Visually Impaired Audio Producers," Audio Mostly Conference, London, UK, August 23-26, 2017
24. M. Donovan, P. Seetharaman, and **B. Pardo**, "A Web Audio Node for the Fast Creation of Natural Language Interfaces for Audio Production," Proceedings of the 3rd Web Audio Conference, London, UK, August 21-23, 2017
25. Kim, B. and **B. Pardo**, "I-Sed: An Interactive Sound Event Detector," Proceedings of the 22nd International Conference on Intelligent User Interfaces (IUI 2017), Limassol, Cyprus, March 13 - 16, 2017, pp. 553-557, DOI 10.1145/3025171.3025231
26. Pishdadian, F. and **B. Pardo**, "A multi-resolution approach to common fate-based audio separation," Proceedings of the 2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, LA, USA, March 5-9, 2017, DOI 10.1109/ICASSP.2017.7952219
27. R. Brewer, M. Cartwright, A. Karp, **B. Pardo**, A.M. Piper, "An Approach to Audio-Only Editing for Visually Impaired Seniors," Proceedings of the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), Reno, Nevada, USA, October 24-26, 2016

28. T. Zheng, P. Seetharaman and **B. Pardo**, "SocialFX: Studying a Crowdsourced Folksonomy of Audio Effects Terms," ACM Multimedia 2016, October 15-19, 2016, Amsterdam, Netherlands
29. P. Seetharaman and **B. Pardo**, "Simultaneous Separation and Segmentation in Layered Music," Proceedings of the 17th International Society of Music Information Retrieval Conference (ISMIR 2016), New York, NY, USA, August 7-11, 2016
30. M. Cartwright and **B. Pardo**, "The Moving Target in Creative Interactive Machine Learning," Proceedings of the Workshop on Human Centered Machine Learning (HCML) at the ACM Conference on Human Factors in Computing Systems (CHI 2016), San Jose, California, USA, May 7, 2016
31. M. Cartwright, **B. Pardo**, G. Mysore and M. Hoffman, "Fast and Easy Crowdsourced Perceptual Audio Evaluation," Proceedings of the 2016 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, March 20-25, 2016, DOI: 10.1109/ICASSP.2016.7471749
32. J. Ford, M. Cartwright and **B. Pardo**, "MixViz: A Tool to Visualize Masking in Audio Mixes," The 139th International Audio Engineering Society Convention (AES). New York, NY, USA, Oct 29 – Nov 1, 2015
33. Z. Rafii and **B. Pardo**, "A simple user interface system for recovering patterns repeating in time and frequency in mixtures of sounds," Proceedings of the 2015 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brisbane, Australia, April 19-24, 2015
34. M. Cartwright and **B. Pardo**,"Vocal Sketch: Vocally Imitating Audio Concepts," ACM Computer Human Interaction Conference (CHI 2015), Seoul, Korea, April 18-23, 2015 **BEST PAPER HONORARY MENTION**
35. B. Kim and **B. Pardo**, "Speeding Learning of Personalized Audio Equalization," International Conference on Machine Learning and Applications (ICMLA), Detroit, Michigan, December 3-5, 2014
36. B. Kim and **B. Pardo**, "Adapting Collaborative Filtering to Personalized Audio Production," AAAI Conference on Human Computation and Crowdsourcing (HCOMP), Pittsburgh, Pennsylvania, November 2-4, 2014
37. P. Seetharaman and **B. Pardo**, "Crowdsourcing a Reverberation Descriptor Map", ACM Multimedia 2014, Orlando, Florida, November 3-7, 2014
38. M. Cartwright and **B. Pardo**, "SynthAssist: Querying an Audio Synthesizer by Vocal Imitation," 14th International Conference on New Interfaces for Musical Expression (NIME), London, UK, June 30-July 4, 2014
39. M. Cartwright and **B. Pardo,** "Translating Sound Adjectives by Collectively Teaching Abstract Representations," Collective Intelligence 2014 Conference, Boston MA, June 10-12, 2014
40. A. Liutkus, Z. Rafii, **B. Pardo**, D. Fitzgerald, L. Daudet, "Kernel spectrogram models for source separation," 4th Joint Workshop on Hands-free Speech Communication and Microphone Arrays (HSCMA), Nancy, France, May 12-14, 2014
41. Z. Duan, **B. Pardo**, L. Daudet, "A Novel Cepstral Representation for Timbre Modeling of Sound Sources in Polyphonic Mixtures," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Florence, Italy, May 4-9, 2014
42. M. Cartwright, **B. Pardo**, J. Reiss, "MIXPLORATION: Rethinking the Audio Mixer Interface," International Conference on Intelligent User Interfaces (IUI 2014), Haifa, Israel, 24-27 February, 2014
43. M. Cartwright and **B. Pardo**, "SocialEQ: Crowdsourcing an Equalization Descriptor Map," Proceedings of the International Society of Music Information Retrieval Conference (ISMIR 2013), Curitiba, PR, Brazil, 4-8 November, 2013
44. Z. Rafii and **B. Pardo**, "Online RPET-SIM for Real-time Speech Enhancement**,"** Proceedings of the 2013 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Vancouver, B.C. Canada, May 26-31, 2013

45. **B. Pardo**, D. Little and D. Gergle, "Building a Personalized Audio Equalizer Interface with Transfer Learning and Active Learning," 2nd International ACM Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM), Nara, Japan November 2, 2012

46. M. Cartwright and **B. Pardo**, "Novelty Measures as Cues for Temporal Salience in Audio Similarity," 2nd International ACM Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM), Nara, Japan November 2, 2012

47. Z. Rafii and **B. Pardo**, "Music/Voice Separation Using the Similarity Matrix," Proceedings of the International Society of Music Information Retrieval Conference (ISMIR 2012), Porto, Portugal, October 8-12, 2012

48. J. Han, G. Mysore and **B. Pardo**, "Language Informed Bandwidth Expansion," Proceedings of the IEEE International Workshop on Machine Learning for Signal Processing (MLSP 2012), Santander, Spain, September 23-26, 2012

49. M. Cartwright and **B. Pardo**, "Building a Music Search Database Using Human Computation," Proceedings of the 9th Sound and Music Computing Conference (SMC 2012), Copenhagen, Denmark, July 12-14, 2012

50. **B. Pardo**, D. Little and D. Gergle, "Towards Speeding Audio EQ Interface Building with Transfer Learning," Proceedings of New Interfaces for Musical Expression (NIME) 2012, Ann Arbor, MI, USA, May 21-23, 2012

51. A. Liutkus, Z. Rafii, R. Badeau, **B. Pardo** and G. Richard, "Adaptive Filtering for Music/Voice Separation Exploiting the Repeating Musical Structure," Proceedings of the 2012 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Kyoto, Japan, March 25-30, 2012

52. J. Han, G. Mysore and **B. Pardo**, "Audio Imputation using the Non-negative Hidden Markov Model," LVA ICA 2012, The 10th International Conference on Latent Variable Analysis and Signal Separation, Tel-Aviv Israel, March 12-15, 2012

53. Cartwright, M. and **B. Pardo**, "Interactive Learning for Creativity Support in Music Production," Proceedings of the Semi-Automated Creativity Workshop at ACM Creativity and Cognition, Atlanta, GA, USA, November 3-6, 2011

54. Z. Duan and **B. Pardo,** "Aligning Semi-improvised Music Audio with its Lead Sheet," Proceedings of the International Society of Music Information Retrieval Conference (ISMIR 2011), Miami, FL, USA, October 24-28, 2011

55. M. Cartwright, Z. Rafii, J. Han, and **B. Pardo**. "Making Searchable Melodies: Human vs. Machine," Proceedings of the 2011 AAAI Workshop on Human Computation, San Francisco, USA. August 8, 2011

56. D. Little, **B. Pardo**, B. Wright, "A Computational Model of Auditory Perceptual Learning: Predicting Learning Interference Across Multiple Tasks," Proceedings of CogSci 2011, Boston, MA, USA, July 20 - 23, 2011

57. Z. Duan and **B. Pardo**, "A State Space Model for Online Polyphonic Audio-Score Alignment," Proceedings of the 2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Prague, Czech Republic, May 22-27, 2011

58. J. Han and **B. Pardo**, "Reconstructing Completely Overlapped Notes from Musical Mixtures," Proceedings of the 2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Prague, Czech Republic, May 22-27, 2011

59. Z. Rafii and **B. Pardo**, "A Simple Music/Voice Separation Method Based on the Extraction of the Repeating Musical Structure," Proceedings of the 2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Prague, Czech Republic, May 22-27, 2011

60. Z. Rafii and **B. Pardo**, "Degenerate Unmixing Estimation Technique Using the Constant Q Transform," Proceedings of the 2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Prague, Czech Republic, May 22-27, 2011

61. E. Scott, P. M. Silva, **B. Pardo**, and T. N. Pappas, "Adaptive user interfaces for relating high-level concepts to low-level photographic parameters," in Human Vision and Electronic Imaging XVI Proc. SPIE vol. 7865, San Francisco, CA, pp. 786510-1-12, January, 2011.

62. D. Little and **B. Pardo**, "Computational Models of Perceptual Learning Across Multiple Auditory Tasks: Modeling Daily Learning Limits as Memory Decay," Proceedings of the 10th International Conference on Cognitive Modeling (ICCM), Philadelphia, PA, Aug 5, 2010

63. A. Huq, M. Cartwright and **B. Pardo**, "Crowdsourcing a Real-world On-line Query by Humming System," Proceedings of the 7th Sound and Music Computing Conference (SMC 2010), Barcelona, Spain, July 21-24, 2010

64. Z. Duan, J. Han and **B. Pardo**, "Song Level Multi-pitch Tracking by Heavily Constrained Clustering," Proceedings of the 2010 IEEE International Conference on Acoustics, Speech and Signal Processing, Dallas, TX, March 14-19, 2010

65. Z. Rafii and **B. Pardo**, " Learning to Control A Reverberator Using Subjective Perceptual Descriptors," Proceedings of the 10th International Society of Music Information Retrieval Conference (ISMIR 2009), Kobe, Japan, October 26-30, 2009

66. Z. Duan, J. Han and **B. Pardo**, "Harmonically Informed Multi-pitch Tracking," Proceedings of the 10th International Society of Music Information Retrieval Conference (ISMIR 2009), Kobe, Japan October 26-30, 2009

67. A. Sabin and **B. Pardo**, "2DEQ: An Intuitive Audio Equalizer," Proceedings of ACM Creativity and Cognition 2009, Berkeley, CA, October 27-29, 2009

68. A. Sabin and **B. Pardo**, "'A method for rapid personalization of audio equalization parameters," Proceedings of ACM Multimedia 2009, Beijing, China, October 19 - 24, 2009

69. J. Han and **B. Pardo**, "Improving Separation of Harmonic Sources with Iterative Estimation of Spatial Cues," 2009 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, New Paltz, NY, USA, October 18-21, 2009

70. J. Zujovic, L. Gandy, S. Friedman, **B. Pardo,** and T. Pappas, "Classifying Paintings by Artistic Genre: An Analysis of Features & Classifiers," International Workshop on Multimedia Signal Processing - MMSP'09, Rio de Janeiro, Brazil, October 5-7, 2009

71. B. Duane and **B. Pardo**, "Streaming from MIDI using constraint satisfaction optimization and sequence alignment," Proceedings of the 2009 International Computer Music Conference (ICMC 2009), Montreal, CA, August 16-21, 2009

72. J. Liu, L. Birnbaum and **B. Pardo**, "Spectrum: Retrieving Different Points of View from the Blogosphere ," Proceedings of the 3rd International AAAI Conference on Weblogs and Social Media(ICWSM 2009), San Jose, California, May 17 - 20, 2009

73. J. Liu, L. Birnbaum and **B. Pardo**, "Categorizing Bloggers' Interests: Methods and Applications," Proceedings of the ACM 17th Conference on Information and Knowledge Management (CIKM 2008), Napa Valley, CA, USA, October 26-30, 2008

74. M. Skalak, J. Han**, B. Pardo**, "Speeding Melody Search with Vantage Point Trees", Proceedings of the International Society of Music Information Retrieval Conference(ISMIR 2008), Philadelphia, PA, USA, September 14-18, 2008

75. D. Little and **B. Pardo**, "Learning Musical Instruments from Polyphonic Audio with Weak Labels", Proceedings of the International Society of Music Information Retrieval Conference (ISMIR 2008), Philadelphia, USA, September 14-18, 2008

76. Y. Gao, M. Yang, X. Zhao, **B. Pardo**, Y. Wu, T. Pappas, A. Choudhary, "Image Spam Hunter," Proceedings of the 2008 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2008), Las Vegas, Nevada, USA, March 30 – April 4, 2008

77. N. Nichols, J. Liu, **B. Pardo**, K. Hammond and L. Birnbaum, "Learning to Gesture: Applying Appropriate Animations to Spoken Text," in Proceedings of ACM Multimedia 2007, Augsburg,

Germany, September 24 – 29, 2007

78. D. Little, D. Raffensperger, **B. Pardo**, "A Query by Humming System that Learns from Experience," Proceedings of the 8th International Society of Music Information Retrieval Conference (ISMIR 2007), Vienna, Austria, September 23-27, 2007

79. B. Fox, A. Sabin, **B. Pardo**, A. Zopf, "Modeling Perceptual Similarity of Audio Signals for Blind Source Separation Evaluation," Proceedings of the 7th International Conference on Independent Component Analysis and Signal Separation, London, England, September 9-12, 2007

80. B. Fox and **B. Pardo**, "Towards a Model of Perceived Quality of Blind Audio Source Separation," in Proceedings of the 2007 IEEE International Conference on Multimedia and Expo (ICME 2007), Beijing, China, July 2-5, 2007

81. D. Little, D. Raffensperger, and **B. Pardo**. "User specific training of a music search engine," Machine Learning and Multimodal Interaction: Fourth International Workshop, MLMI 2007, Brno, CZ, June 28-30, 2007, Lecture Notes in Computer Science. Springer, 2007

82. **B. Pardo**, "Design considerations for technology to support music improvisation ," in Proceedings of 6th Creativity and Cognition Conference Workshop on Supporting Creative Acts Beyond Dissemination, Washington DC, USA, June 13-15, 2007

83. **B. Pardo** and D. Shamma, "Teaching a Music Search Engine Through Play," in Proceedings of CHI 2007 Workshop on Vocal Interaction in Assistive Technologies and Games (CHI 2007), San Jose, CA, USA, April 29 – May 3, 2007

84. D. Shamma and **B. Pardo**, " Karaoke Callout: using social and collaborative cell phone networking for new entertainment modalities and data collection," in Proceedings of ACM Multimedia Workshop on Audio and Music Computing for Multimedia (AMCMM 2006), Santa Barbara, CA, USA, October 23-27, 2006

85. J. Woodruff, **B. Pardo** and R. Dannenberg, "Remixing Stereo Music with Score-informed Source Separation," in Proceedings of the 7th International Society of Music Information Retrieval Conference (ISMIR 2006), Victoria, Canada, October 8-12, 2006

86. A. Shamma, **B. Pardo**, and K. Hammond, "MusicStory: a Personalized Music Video Creator," in Proceedings of ACM Multimedia 2005, Singapore, November 6-11, 2005

87. **B. Pardo** and M. Sanghi, "Polyphonic Musical Sequence Alignment for Database Search," in Proceedings of the 6th International Conference on Music Information Retrieval, London, England, September 11-15, 2005

88. **B. Pardo** and W. and Birmingham, "Modeling Form for On-line Following of Musical Performances," in Proceedings of the Twentieth National Conference on Artificial Intelligence (AAAI), Pittsburgh, Pennsylvania, July 9-13, 2005

89. **B. Pardo**, "Tempo Tracking with a Single Oscillator," in Proceedings of the 5th International Society of Music Information Retrieval Conference (ISMIR 2004), Barcelona, October 10-14, 2004

90. R. Dannenberg, W. Birmingham, G. Tzanetakis, C. Meek, N. Hu, and **B. Pardo**, "The MUSART testbed for query-by-humming evaluation," in Proceedings of the 4th International Society of Music Information Retrieval Conference (ISMIR 2003), Baltimore, Maryland, October 26-30, 2003

91. **B. Pardo** and W. Birmingham, "Query by Humming: How good can it get?," Workshop on Music Information Retrieval, SIGIR 2003, Toronto, Canada, July 28 - August 1, 2003

92. **B. Pardo** and W. Birmingham, "Encoding Timing Information for Musical Query Matching," in Proceedings of the 3th International Society of Music Information Retrieval Conference (ISMIR 2002), Paris, France, October 13-17, 2002

93. **B. Pardo** and W. Birmingham, "Improved Score Following for Acoustic Performances," in Proceedings of the International Computer Music Conference, Gothenburg, Sweden, September 16-20, 2002

94. J. Shifrin**, B. Pardo**, C. Meek, and W. Birmingham, "HMM-Based Musical Query Retrieval," in Proceedings of the 3rd ACM/IEEE Joint Conference on Digital Libraries, Portland, Oregon, USA, July 14-18, 2002

95. **B. Pardo**, C. Meek, and W. Birmingham, "Comparing Aural Music-Information Retrieval Systems," Workshop on the Creation of Standardized Test Collections, Tasks, and Metrics for Music Information Retrieval (MIR) and Music Digital Library (MDL) Evaluation. Joint Conference on Digital Libraries, Portland, Oregon, USA, July 14-18, 2002

96. **B. Pardo** and W. Birmingham, "Following a Musical Performance from a Partially Specified Score," in Proceedings of the 2001 Multimedia Technology and Applications Conference, Irvine, California, November, 2001

97. C. Mitchell, C. Menezes, J. Williams, **B. Pardo**, D. Erickson, and O. Fujumura, "Changes in Syllable and Boundary Strengths due to Irritation," ISCA Workshop on Speech and Emotion, Belfast, September 2000

98. **B. Pardo** and W. Birmingham, "On the computational properties of harmonic analysis," Workshop on Artificial Intelligence and Music, AAAI 2000, Austin, TX, July 2000

99. **B. Pardo** and W. Birmingham, "Automated Partitioning of Tonal Music," in Proceedings of the 13th International FLAIRS Conference, Orlando, Florida, May 2000

100. O. Fujimura, **B. Pardo**, D. Erickson, "Effect of Emphasis and Irritation on Jaw Opening," in Proceedings of ESCA 98, Aix en Provence, France, September, 1998

BOOK CHAPTERS

1. **B. Pardo**, Z. Rafii, and Z. Duan, "Audio source separation in a musical context," in Springer Handbook of Systematic Musicology, Springer-Verlag Berlin Heidelberg, 2017.

2. **B. Pardo**, A. Liutkus, Z. Duan, G. Richard, "Applying source separation to music," in Audio Source Separation and Speech Enhancement, eds. E. Vincent, T. Virtanen, S. Gannot. Wiley, 2017.

3. Zafar Rafii, Antoine Liutkus, **Bryan Pardo,** "REPET for Background/Foreground Separation in Audio," in Blind Source Separation Signals and Communication Technology, 2014, pp 395-411

4. D. Shamma, **B. Pardo** and J. Woodruff, " MusicStory: An Autonomous, Personalized Music Video Creator," in Intelligent Music Information Systems-Tools and Methodologies, Idea Group Reference, ISBN-13: 978-1599046631, August, 2007

PAPERS REVIEWED ON EXTENDED ABSTRACTS

1. M. Cartwright and B. Pardo, "Audio Production with Intelligent Machines," Collaborating with Intelligent Machines: Interfaces for Creative Sound Workshop at CHI 2015, April 18, 2015

2. M. Cartwright and **B. Pardo**, "SynthAssist: An Audio Synthesizer Programmed With Vocal Imitation," ACM Multimedia 2014, Orlando, Florida, November 3-7, 2014

3. P. Seetharaman and **B. Pardo**, "Reverbalize: A crowdsourced reverberation controller," ACM Multimedia 2014, Orlando, Florida, November 3-7, 2014

4. J. Spring, Z. Duan, and **B. Pardo**, "Approaches to Multiple Concurrent Species Birdsong Recognition," The 2nd International Workshop on Machine Listening in Multisource Environments (CHIME), Vancouver, Canada, June 1, 2013

5. M. Greenberg, K. Hariharan, E. Gerber, and **B. Pardo**, "Crowdfunding Support Tools: Predicting Success & Failure," Works-in-progress, Computer Human Interaction Conference (CHI 2013), Paris, France, April 2013

6. A. Sabin and **B. Pardo**, " Rapid learning of Subjective Preference in Equalization," 125th meeting of the Audio Engineering Society, San Francisco, CA, October 2-5

7. C. Menezes, D. Erickson, J. McGory, **B. Pardo**, and O. Fujimura, "An Articulatory and Perceptual

Study of Phrasing," ISCA Workshop on Speech Perception, Aix-en-Provence, France, April 8-10, 2002

8. **B. Pardo**, and J. Josephson, "A study of the Patterson and Holdsworth auditory model and its utility in automated recognition of the plosive consonants," Journal of the Acoustical Society of America, Vol. 95, No. 5, Pt. 2, May 1994

TECHNICAL REPORTS

1. D. Little and **B. Pardo**, "Online Training of a Music Search Engine," Northwestern University, EECS Department Technical Report NWU-EECS-07-03, 2007
2. J. Woodruff and **B. Pardo**, "Active Source Estimation for Improved Source Separation," Northwestern University, EECS Department Technical Report NWU-EECS-06-01, 2006
3. **B. Pardo** and W. Birmingham, "The Chordal Analysis of Tonal Music," University of Michigan, EECS Department Technical Report CSE-TR-439-01, 2001

UNREFEREED MAGAZINE ARTICLES

1. W. Birmingham, C. Meek, K. O'Malley, **B. Pardo**, and J. Shifrin, "Music Information Retrieval Systems," Dr. Dobbs Journal, September 2003, pp. 50-53
2. W. Birmingham, **B. Pardo**, C. Meek, and J. Shifrin, "The MusArt Music-Retrieval System: An Overview," D-lib Magazine, February 2002, 8 (2)

INVITED LECTURES AND SEMINARS

INVITED COLLOQUIA AT UNIVERSITIES, ACADEMIC INSTITUTIONS & CONFERENCES

1. October 20, 2020, AIPLA Partnering in Patents Conference, "AI, HCI and Machine Learning in the Creative Arts"
2. September 29, 2020, Audio Engineering Society Symposium: Applications of Machine Learning in Audio, "Using machine learning to improve voice recording, remix music and transcribe melodies"
3. August 27, 2020, Reunion Internacional de Inteligencia Artificial y sus Aplicaciones RIIAA Conference, "HCAI to empower musical creativity"
4. March 6, 2020, Stanford University CCRMA, "Two recent projects: Voice assist and Cerberus"
5. March 6, 2019, University of Chicago, "Audio source separation models that learn without ground truth and are open to user correction"
6. September 7, 2017, IRCAM, Paris, France, "Leveraging the Two-dimensional Fourier Transform for Audio Source Separation"
7. September 6, 2017, IRCAM, Paris, France, "Crowdsourcing Audio Production Interfaces"
8. August 28, 2017, Fraunhofer Institute, Erlangen, Germany, "Deep Learning for Audio Applications"
9. October 27, 2016, University of Illinois, Chicago, "How I think about Intelligent Production Tools"
10. April 13, 2016, University of Rochester, ECE, "Crowdsourcing Audio Production Interfaces"
11. February 16, 2016, University of Michigan, Performing Arts and Technologies, "Crowdsourcing Audio Production Interfaces"
12. August 25, 2014, Stanford University CCRMA, "Crowdsourcing Audio Production Interfaces"
13. June 18, 2013, City University of London, "Computer Audition - Analyzing Complex Auditory Scenes"
14. June 13, 2013, Telecom Paris Tech, "Computer Audition - Analyzing Complex Auditory Scenes"
15. May 20, 2013, Imperial College, Electrical Engineering, "Leveraging Repetition to Parse the Audio

Scene”

16. May 11, 2013, University of Chicago Tedx Talk, “Teaching Machines to Listen”
17. May 1, 2013, Queen Mary University of London, Electric Engineering and Computer Science, “Leveraging Repetition to Parse the Audio Scene”
18. November 13, 2012, University of Illinois at Urbana-Champaign, Computer Science, “Teaching Machines to Listen”
19. November 8, 2012, Georgia Institute of Technology, School of Music, “Teaching Machines to Listen”
20. March 19, 2012, University of Michigan, Electrical Engineering and Computer Science, “Recent work in Audio Source Separation and Adaptive Audio Interfaces”
21. January 11, 2012, University of Central Florida, Electrical Engineering and Computer Science, “Tunebot and iQ: Music Software that Listens”
22. November 12, 2011, Eastman School of Music, “ Tunebot and Soundlearner: How teaching machines music makes musicians’ lives better”
23. March 23, 2011, New York University, School of Music, “Reconstructing Completely Overlapped Notes from Musical Mixtures”
24. May 27, 2010, Union College, Computer Science “Tunebot and Karaoke Callout”
25. March 27, 2009, Princeton, Computer Science, “Teaching Machines to Listen”
26. March 23, 2009, New York University, School of Music, “Teaching Machines to Listen”
27. October 20, 2008, University of Texas at Austin, Computer Science, “Teaching Machines to Listen”
28. October 10, 2008, Arizona State University, Arts, Media and Engineering, “Teaching Machines to Listen”
29. October 3, 2008, Indiana University, School of Informatics, “Separation of Harmonic Instruments from Stereo Music Recordings”
30. April 29, 2008, The Ohio State University, Computer Science and Engineering “Teaching Machines to Listen”
31. March 25, 2008, Georgia Institute of Technology, Literature Communication and Culture, “Teaching Machines to Listen”
32. March 21, 2008, University of Miami, Electrical and Computer Engineering, “Teaching Machines to Listen”
33. March 20, 2008, University of Miami, Music Engineering Technology Colloquium, “Separation of Harmonic Instruments from Stereo Music Recordings”
34. September 13, 2007, University of Edinburgh, Music, Informatics and Cognition Seminar Series, “Separation of Harmonic Instruments from Stereo Music Recordings”
35. October 20, 2006, Stanford University, Center for Computer Research in Music and Acoustics, Hearing Seminar, “Harmonic source separation using pitch, amplitude, and spatial cues”
36. November 13, 2005, University Putra Malaysia, Faculty of Computer Science and Information Technology Seminar Series, “Audio Presence: new tools for musical information retrieval and interaction”
37. November 3, 2005, University of Southern California, Integrated Media Systems Center Seminar Series, “Audio Presence: new tools for musical information retrieval and interaction”
38. March 4, 2004 Ohio State University, Computer Science and Engineering Colloquium Series, “Name That Tune: Finding a Song from a Sung Query”
39. February 10, 2004, Johns Hopkins University, Center for Language and Speech Seminar Series,

"Name That Tune: Finding a Song from a Sung Query"

40. January 29, 2004, Indiana University, School of Informatics Colloquium, "Name That Tune: Finding a Song from a Sung Query"

INVITED COLLOQUIA AT INDUSTRY RESEARCH LABS

1. February 7, 2020, Pandora, "Recent work in automated transcription and separation of music recordings"
2. January 7, 2016, Microsoft Research, Redmond, WA, "Crowdsourcing Audio Production Interfaces"
3. July 29, 2015, Shure, Niles, IL, "Crowdsourcing Audio Production Interfaces"
4. July 2, 2015, Starkey, Minneapolis, MI, "Crowdsourcing Audio Production Interfaces"
5. September 5, 2014, Gracenote, Emeryville, CA, "Crowdsourcing Audio Production Interfaces"
6. September 4, 2014, Adobe, San Francisco, CA, "Crowdsourcing Audio Production Interfaces"
7. March 18, 2014, Izotope, Boston MA, "Crowdsourcing Audio Production Interfaces"
8. September 11, 2013, Microsoft Research New England, "Crowdsourcing Audio Production Interfaces"
9. June 28, 2013, Google London, "Computer Audition - Analyzing Complex Auditory Scenes"
10. August 14, 2008, Yahoo! Research, Santa Clara, CA, "Adaptive Interfaces for Musical Expression"
11. August 12, 2008, Sony Gracenote, Emeryville, CA, "Teaching Machines to Listen"
12. October 20, 2006, Yahoo! Research, Berkeley, CA, "Harmonic source separation and query-by-humming: new tools for music information retrieval and interaction"
13. October 19, 2006, Gracenote, Emeryville, CA, "Harmonic source separation and query-by-humming: new tools for music information retrieval and interaction"
14. October 18, 2006, Dolby Labs, San Francisco, CA, "Harmonic source separation using spatial cues"
15. October 13, 2006, Microsoft Research, Redmond, WA, "Music Information Retrieval: Query-By-Humming and Source Estimation"
16. August 30, 2005, Motorola Labs Center for Applications, Content and Services Research, Schaumburg, IL, "Overview of Current Research"

OTHER INVITED COLLOQUIA

1. September 13, 2016, Keynote speech: AES Intelligent Music Production Workshop, London, UK, "How I think about Intelligent Production Tools"
2. March 21, 2014, Music Tech Fest, Boston, MA, "Crowdsourcing Audio Production Interfaces"
3. June 26, 2013, Workshop on Software and Data for Audio and Music Research, "Tunebot: Software development, data sharing and data protection in an academic environment"
4. June 10, 2013, ACM Multimedia Program Committee Workshop, "SocialEQ: learning an audio production interface from the user"
5. January 16, 2009, National Science Foundation Sponsored CreativeIT Program PI Meeting, Arlington, VA, "Adaptive Interfaces for Musical Expression"
6. September 27, 2006, Chicago Chapter of the ACM, DePaul University, Chicago, IL, "Music Information Retrieval"

EXTERNAL SERVICE

JOURNAL EDITOR

2019-now Associate Editor, Transactions of the International Society of Music Information Retrieval
2017 Guest Editor, Special Issue on Music Signal Processing, IEEE Signal Processing Magazine

2009-13 Associate Editor, IEEE Transactions on Audio, Speech and Language Processing
2006 Guest Editor, Special Issue on Music and Computing, Communications of the ACM

CONFERENCE CHAIR

2017 General Chair, Midwest Music and Audio Day (MMAD)
2015 Technical Chair, WASSPA
2014-19 Area Chair, Music Information Retrieval, ICASSP 2014, 2015, 2016, 2017, 2018, 2019
2013,16 Area Chair, Audio and Music, ACM Multimedia Conference
2011 Demo Session Chair - ISMIR International Conference on Music Information Retrieval

PROFESSIONAL SOCIETY

2016-20 Vice-chair, Audio Engineering Society Technical Committee on Semantic Audio Analysis
2013-19 IEEE SPS Technical Committee on Audio and Acoustic Signal Processing

JOURNAL REVIEWER

2017 Journal of the Acoustic Society of America
2006-20 IEEE Transactions on Audio, Speech and Language Processing
2014 ACM Transactions on Multimedia Computing Communications and Applications
2011 IEEE Journal of Selected topics in Signal Processing
2010 Journal of New Music Research
2009 Music Perception
2008-9 Journal of Intelligent Information Systems
2008 Journal of Mathematics and Music
2007 Communications of the ACM
2006-13 EURASIP Journal on Applied Signal Processing
2005 Musicae Scientiae
2004-06 Computer Music Journal

CONFERENCE PROGRAM COMMITTEE / REVIEWER

2019-20 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
2012-14 NIME New Interfaces for Musical Expression
2011-15 ACM CHI
2011 ACM Creativity and Cognition
2008-14 ISMIR International Conference on Music Information Retrieval
2009 World Wide Web: UI and Mobility Track
2009 Mathematics and Computation in Music
2008 Joint Conference on Digital Libraries
2008 IEEE International Symposium on Circuits and Systems
2008 International Symposium on Methodologies for Intelligent Systems
2008-10 ICMC International Computer Music Conference
2006-7 ACM Multimedia Conference, Interactive Arts Program

OTHER SERVICE

2005-2017 Referee and panelist, National Science Foundation
2009 Referee, Austrian Academy of Sciences

ORGANIZATIONAL LEADERSHIP

2016-19 Vice-chair, Audio Engineering Society Technical Committee on Semantic Audio Analysis
2013-19 IEEE SPS Technical Committee on Audio and Acoustic Signal Processing

UNIVERSITY SERVICE

2020 Co-director: Human-computer Interaction + Design Institute
2020 Cognitive Science Program Steering Committee
2019-20 Organizer of Computer Science Guest Lecture Series
2019-20 Chair: Computer Science Diversity Committee
2019-20 Computer Science Strategic Planning Committee
2016-20 Steering Committee for the MA in Sound Arts and Industries

2011-20 Research Steering Committee for the Segal Institute of Design
2017-18 Director of Graduate Studies, Electrical Engineering & Computer Science
2014-17 Director of Graduate Studies, Computer Science
2011,17 EECS Faculty Search Committee
2006-15 EECS Undergraduate Recruiting Committee
2005-15 Cognitive Science Program Committee
2004-15 EECS Graduate Committee
2011-14 Segal Design Faculty Search Committee
2006-14 Committee, Technology and Social Behavior Ph.D. program
2012-13 Acting Division Chair, Cognitive Systems, EECS
2009 Music Technology Faculty Search Committee
2008 EECS Cognitive Systems Faculty Search Committee
2004-8 EECS Computer Science Undergraduate Curriculum Committee
2005 Northwestern Summer Research Opportunity Program

TEACHING

DOCTORAL THESIS SUPERVISOR

Fatemeh Pishdadian, Computer Science, (graduation December 2020). Title: Auditory-inspired Approaches to Audio Representation and Analysis for Machine Hearing

Bonjun Kim, Computer Science (graduation June 2020). Title: Sound Event Annotation and Detection with Less Human Effort

Prem Seetharaman, Computer Science (graduation December 2019). Title: Bootstrapping the Learning Process for Computer Audition

Mark Cartwright, Computer Science (graduation December 2016). Title: Supporting Novice Communication of Audio Concepts for Audio Production Tools

Zafar Rafii, Computer Science (graduation August 2014). Title: Source Separation by Repetition

Zhiyao Duan, Computer Science (graduation June 2013) Title: Computational Music Audio Scene Analysis

Jinyu Han, Computer Science (graduation August 2012). Title: Computational Auditory Scene Induction

DOCTORAL THESIS READER

Scott Cambo, Doctoral Dissertation, Technology and Social Behavior (Graduation December 2020)

Noah Liebman, Doctoral Dissertation, Technology and Social Behavior (Graduation December 2020)

Matt McClure, Doctoral Dissertation, Computer Science (Graduation March 2019)

James Symons, Doctoral Dissertation, Music Theory (Graduation August 2017)

Pubudu Silva, Doctoral Dissertation, Electrical Engineering (Graduation August 2014)

Benjamin Duane, Doctoral Dissertation, Music Theory (Graduation June 2012)

Scott Friedman, Doctoral Dissertation, Computer Science (Graduation June 2012)

Nathan Nichols, Doctoral Dissertation, Computer Science (Graduation June 2010)

Yan Gao, Doctoral Dissertation, Computer Science. (Graduation June 2010)

Morteza Dehghani, Doctoral Dissertation, Computer Science (Graduation December 2009)

Kate Lockwood, Doctoral Dissertation, Computer Science (Graduation June 2009)

Jiahui Liu, Doctoral Dissertation, Computer Science (Graduation June 2009)

Sanjay Sood, Doctoral Dissertation, Computer Science (Graduation June 2007)

Holger Winnemoeller, Doctoral Dissertation, Computer Science (Graduation September 2006)

Vidya Setlur, Doctoral Dissertation, Computer Science (Graduation June 2005)

MASTERS THESIS READER

Edward Scott, Electrical Engineering (Graduated December 2010)

Chi Yin Cheung, Computer Science (Graduated December 2007)

COURSES

Fall 2020, COMP SCI 396 **Deep Learning**, Northwestern University, Enrollment: 42 Designed: yes, CTEC student overall instruction rating: TBD

Fall 2019, COMP SCI 397 **Computational Creativity**, Northwestern University, Enrollment: 20 Designed: yes, CTEC student overall instruction rating: 6 out of 6

Spring 2019, EECS 349 **Machine Learning**, Northwestern University, Enrollment: 108 Designed: yes, CTEC student overall instruction rating: 5.1 out of 6 (Taught previously: Fall 2017, Fall 2016, 2015, Fall 2014, Fall 2013, Fall 2012, Fall 2011, Fall 2009, Fall 2007, Winter 2007)

Winter 2019, EECS 352 **Machine Perception of Music**, Northwestern University, Enrollment: 73, Designed: yes, CTEC student overall instruction rating: 5.3 out of 6 (Taught previously: Winter 2017, Winter 2014, Winter 2010, Winter 2008, Winter 2006, Winter 2005)

Fall 2018, EECS 395/495 **Computational Auditory Scene Analysis,** Northwestern University, Enrollment: 13, Designed: yes, CTEC student overall instruction rating: 6 out of 6 (Taught previously: Spring 2014, Winter 2009)

Spring 2018, EECS 395/ SAI 402 **Digital Luthier**, Northwestern University, Enrollment: 18 Designed: yes, CTEC student overall instruction rating: 5.3 out of 6

Spring 2017, EECS 495 **Deep Learning**, Northwestern University, Enrollment: 11, Designed: yes, CTEC student overall instruction rating: 5.5 out of 6 (Taught previously Spring 2016)

Spring 2011, EECS 348 **Introduction to Artificial Intelligence**, Northwestern University, Enrollment: 50 Designed: yes, CTEC student overall instruction rating: 4.4 out of 6 (Taught previously: Spring 2009, Spring 2008, Spring 2007, Spring 2006, Spring 2005)

Spring 2010, EECS 395/495 **Active Learning and Crowdsourcing**, Northwestern University, Enrollment: 10, Designed: yes, CTEC student overall instruction rating: 5.2 out of 6

Winter 2004, MUS 1800 **Introduction to Music Technology**, Madonna University, Enrollment: 5, Designed: yes (Taught previously: Winter 2003)

SELECTED MUSICAL PERFORMANCES

December 4, 2019, with The East Loop, Old Town School of Folk Music, Chicago, IL

June 27, 2016, with Ecos Del Pacifico, Pritzker Pavilion, Chicago, IL

September 21, 2014, with Wanees Zarour, Chicago World Music Festival, Chicago, IL

September 27, 2013, with Balkano, Old Town School of Folk Music, Chicago, IL

September 25, 2012, with Ecos del Pacifico, Chicago World Music Festival, Chicago, IL

September 22, 2012, with Balkano, Chicago World Music Festival, Chicago, IL

March 21, 2012, with Swing Hakim, broadcast/interview on 848 radio program, WBEZ, Chicago, IL

March 19, 2012, with Balkano, Gottlieb Music Festival, Berman Center, West Bloomfield, MI

November 18, 2011, with Swing Hakim, Chicago Cultural Center, Chicago, IL

April 1, 2011, with Balkano, Chicago Cultural Center, Chicago, IL

September 27, 2010, with Balkano, Chicago World Music Festival, Chicago, IL

July 3, 2009, with Mucca Pazza, Detroit Museum of Contemporary Art, Detroit, MI

June 14, 2009, with Balkano, Petty Auditorium, Skokie, IL

January 30, 2009, with Balkano, Chicago Cultural Center, Chicago, IL

October 17, 2008, with Mucca Pazza, Modern Art Museum, Fort Worth, TX

October 12, 2008, with Mucca Pazza, Rialto Theatre, Tucson, AZ

October 11, 2008, with Mucca Pazza, Tour de Fat, Tempe Town Lake, Tempe, AZ

October 3, 2008, with Mucca Pazza, Lotus World Music Festival, Bloomington, IN

June 30, 2008, with Balkano, Taste of Chicago Festival, Grant Park, Chicago, IL

January 11, 2008, with Balkano, Chicago Cultural Center, Chicago, IL

SELECTED ART INSTALLATIONS AND EXHIBITS

June 22, 2005, “Music Story,” Wired: Next Music Festival, Vic Theater, Chicago, IL

October 4-27, 2000, “Tree Tracks: Branching Beyond the Disciplinary," Media Union Theater, University of Michigan, Ann Arbor, MI

DISCOGRAPHY

“Awayland”, with Urbana, 2014

“Swing Hakim,” with Swing Hakim, 2011

“Balkano,” with Balkano, 2009

“Presences,” with Spider Trio, 2007

“This and That,” with Gabriel Bolkosky, 2005

“The Shape of Klez to Come,” with Into the Freylakh, 2004

“Original Flavor,” with Pardonato, 2004

“Into the Freylakh,” with Into the Freylakh, 2003

HONORS AND AWARDS

Northwestern Associated Student Government Honor Roll for Teaching Excellence, 2012

Northwestern EECS Department Teacher of the Year, 2010-2011

National Science Foundation Career Award, 2007