

Bryan A. Pardo
EECS Department, Northwestern University
Ford Engineering Design Center, Room 3-323
2133 Sheridan Road, Evanston, IL, 60208, USA
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EDUCATION

- 4/05 Ph.D., Computer Science and Engineering
Thesis: Probabilistic Sequence Alignment Methods for On-line Score Following of Musical Performances
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
Thesis: A Study of the Suitability of the Patterson and Holdsworth Model of Human Audition as a Front End for Automated Speech Recognition
The Ohio State University, Columbus, OH, USA
- 6/90 B.Mus., Jazz Composition
The Ohio State University, Columbus, OH, USA

PROFESSIONAL EMPLOYMENT

- 9/10 – now Associate Professor
Department of Electrical Engineering and Computer Science
Department of Music Theory and Cognition
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

<u>Title</u>	<u>Funding Source</u>	<u>Amount</u>	<u>Dates</u>	<u>Role</u>
HCC: Small: Building Audio Interfaces with Crowdsourced Concept Maps and Active Transfer Learning	NSF IIS	\$499,804	9/11 – 8/14	PI
Making Music Documents Accessible in Musical Terms	NSF CAREER	\$490,669	1/07 – 12/11	PI
Personalized Tools to Enhance Musical	NSF Creative IT	\$150,000	6/08 – 5/12	PI

Creativity

Bootstrapping Adaptive Personalized Music Search with Game-based Collaborative Tagging	NSF IIS	\$444,171	9/08 – 8/12	PI
REU Supplement: Bootstrapping Adaptive Personalized Music Search with Game-based Collaborative Tagging	NSF IIS	\$16,000	5/11	PI
REU Supplement: Bootstrapping Adaptive Personalized Music Search with Game-based Collaborative Tagging	NSF IIS	\$16,000	4/09	PI
REU Supplement: Personalized Tools to Enhance Musical Creativity	NSF Creative IT	\$16,000	5/09	PI
REU Supplement: Making Music Documents Accessible in Musical Terms	NSF IIS	\$8,000	6/09	PI

PUBLICATIONS

PATENTS

Andrew Todd Sabin, Bryan Pardo, "SYSTEMS, METHODS, AND APPARATUS FOR EQUALIZATION PREFERENCE LEARNING," Re: U.S. Provisional Patent Application Serial No. 61/229,558

Zafar Rafii, Bryan Pardo, "Acoustic Separation System and Method," Re: U.S. Provisional Patent Application Serial No. 61/534,280

REFEREED JOURNALS

1. 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
2. A. 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
3. 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
4. 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
5. 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
6. **B. Pardo**, "Music Information Retrieval," *Communications of the ACM*, vol. 49 (8), pp. 29-31, 2006
7. 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
8. **B. Pardo**, "Finding Structure in Audio for Music Information Retrieval," *IEEE Signal Processing Magazine*, vol. 23(3), pp. 126-132, 2006
9. 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
10. **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

11. 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
12. **B. Pardo** and W. Birmingham, "Algorithms for Chordal Analysis," *Computer Music Journal*, vol. 26 (2), pp. 27-49, 2002
13. 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

REFEREED CONFERENCE PROCEEDINGS

1. 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
2. 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
3. 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
4. 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
5. 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
6. 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
7. 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
8. 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
9. 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, Jan. 2011.
10. 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
11. 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
12. 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
13. 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
14. 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

15. A. Sabin and **B. Pardo**, "2DEQ: An Intuitive Audio Equalizer," *Proceedings of ACM Creativity and Cognition 2009*, Berkeley, CA, October 27-29, 2009
16. 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
17. 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
18. 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
19. 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
20. 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
21. 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
22. 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
23. 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
24. 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
25. 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
26. 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
27. 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
28. A. Shamma, **B. Pardo**, and K. Hammond, "MusicStory: a Personalized Music Video Creator," in *Proceedings of ACM Multimedia 2005*, Singapore, November 6-11, 2005
29. **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
30. **B. Pardo** and W. 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
31. **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
32. 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

33. **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
34. **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
35. 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
36. **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
37. **B. Pardo** and W. Birmingham, "Automated Partitioning of Tonal Music," in *Proceedings of the 13th International FLAIRS Conference*, Orlando, Florida, May 2000
38. 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

REFEREED WORKSHOPS

1. 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
2. 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
3. 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
4. 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.
5. **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
6. **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
7. 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
8. **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
9. **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
10. 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
11. **B. Pardo** and W. Birmingham, "On the computational properties of harmonic analysis," *Workshop on Artificial Intelligence and Music*, AAAI 2000, Austin, TX, July 2000

BOOK CHAPTERS

1. 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. 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, 2008
2. 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
3. **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

1. November 12, 2011, Eastman School of Music, "Tunebot and Soundlearner: How teaching machines music makes musicians' lives better"
2. March 23, 2011, New York University, School of Music, "Reconstructing Completely Overlapped Notes from Musical Mixtures"
3. May 27, 2010, Union College, Computer Science "Tunebot and Karaoke Callout"
4. March 27, 2009, Princeton, Computer Science, "Teaching Machines to Listen"
5. March 23, 2009, New York University, School of Music, "Teaching Machines to Listen"
6. October 20, 2008, University of Texas at Austin, Computer Science, "Teaching Machines to Listen"
7. October 10, 2008, Arizona State University, Arts, Media and Engineering, "Teaching Machines to Listen"
8. October 3, 2008, Indiana University, School of Informatics, "Separation of Harmonic Instruments from Stereo Music Recordings"
9. April 29, 2008, The Ohio State University, Computer Science and Engineering "Teaching Machines to Listen"
10. March 25, 2008, Georgia Institute of Technology, Literature Communication and Culture, "Teaching Machines to Listen"

11. March 21, 2008, University of Miami, Electrical and Computer Engineering, "Teaching Machines to Listen"
12. March 20, 2008, University of Miami, Music Engineering Technology Colloquium, "Separation of Harmonic Instruments from Stereo Music Recordings"
13. September 13, 2007, University of Edinburgh, Music, Informatics and Cognition Seminar Series, "Separation of Harmonic Instruments from Stereo Music Recordings"
14. October 20, 2006, Stanford University, Center for Computer Research in Music and Acoustics, Hearing Seminar, "Harmonic source separation using pitch, amplitude, and spatial cues"
15. 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"
16. November 3, 2005, University of Southern California, Integrated Media Systems Center Seminar Series, "Audio Presence: new tools for musical information retrieval and interaction"
17. March 4, 2004 Ohio State University, Computer Science and Engineering Colloquium Series, "Name That Tune: Finding a Song from a Sung Query"
18. February 10, 2004, Johns Hopkins University, Center for Language and Speech Seminar Series, "Name That Tune: Finding a Song from a Sung Query"
19. 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. August 14, 2008, Yahoo! Research, Santa Clara, CA, "Adaptive Interfaces for Musical Expression"
2. August 12, 2008, Sony Gracenote, Emeryville, CA, "Teaching Machines to Listen"
3. October 20, 2006, Yahoo! Research, Berkeley, CA, "Harmonic source separation and query-by-humming: new tools for music information retrieval and interaction"
4. October 19, 2006, Gracenote, Emeryville, CA, "Harmonic source separation and query-by-humming: new tools for music information retrieval and interaction"
5. October 18, 2006, Dolby Labs, San Francisco, CA, "Harmonic source separation using spatial cues"
6. October 13, 2006, Microsoft Research, Redmond, WA, "Music Information Retrieval: Query-By-Humming and Source Estimation"
7. August 30, 2005, Motorola Labs Center for Applications, Content and Services Research, Schaumburg, IL, "Overview of Current Research"

OTHER INVITED COLLOQUIA

1. January 16, 2009, National Science Foundation Sponsored CreativeIT Program PI Meeting, Arlington, VA, "Adaptive Interfaces for Musical Expression"
2. September 27, 2006, Chicago Chapter of the ACM, DePaul University, Chicago, IL, "Music Information Retrieval"

EXTERNAL SERVICE

JOURNAL EDITOR

- | | |
|---------|---|
| 2009-12 | Associate editor, <i>IEEE Transactions on Audio, Speech and Language Processing</i> |
| 2006 | Guest editor, <i>Communications of the ACM</i> |

CONFERENCE PROGRAM COMMITTEE AND REVIEWER

- 2011 Demo Session Chair - *ISMIR International Conference on Music Information Retrieval*
- 2011 Program Committee - *ACM CHI*
- 2011 Program Committee - *ACM Creativity and Cognition*
- 2009 Program Committee - *ISMIR International Conference on Music Information Retrieval*
- 2009 Program Committee - *World Wide Web: UI and Mobility Track*
- 2008 Program Committee - *Joint Conference on Digital Libraries*
- 2008 Program Committee - *IEEE International Symposium on Circuits and Systems*
- 2008 Program Committee - *International Symposium on Methodologies for Intelligent Systems*
- 2006-7 Program Committee - *ACM Multimedia Conference, Interactive Arts Program*

- 2009 Reviewer – *Mathematics and Computation in Music*
- 2008-10 Reviewer - *ICMC International Computer Music Conference*
- 2004-8 Reviewer - *ISMIR International Conference on Music Information Retrieval*

JOURNAL REVIEWER

- 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*
- 2006-9 *IEEE Transactions on Audio, Speech and Language Processing*
- 2006-10 *EURASIP Journal on Applied Signal Processing*
- 2005 *Musicae Scientiae*
- 2004-06 *Computer Music Journal*

OTHER SERVICE

- 2005-9 Referee and panelist, National Science Foundation
- 2009 Referee, Austrian Academy of Sciences

ORGANIZATIONAL MEMBERSHIPS

Acoustical Society of America
American Association for Artificial Intelligence
Association for Computing Machinery
International Association of Jazz Educators
International Computer Music Association
Institute of Electrical and Electronics Engineers
Society of Hispanic Professional Engineers

UNIVERSITY SERVICE

- 2012 Acting Division Chair, Cognitive Systems, EECS
- 2011 Member, Segal Design Faculty Search Committee
- 2011 Member, EECS Faculty Search Committee
- 2009 Member, Music Technology Faculty Search Committee
- 2008 Member, EECS Cognitive Systems Faculty Search Committee
- 2006-11 Member, Steering Committee, TSB Joint Ph.D. program
- 2006-11 Member, EECS Undergraduate Recruiting Committee
- 2005-11 Member, Cognitive Science Program Committee
- 2004-11 Member, EECS Graduate Committee
- 2004-8 Member, EECS Computer Science Undergraduate Curriculum Committee
- 2005 Mentor, Northwestern Summer Research Opportunity Program
- 2005-10 Undergraduate Advisor

TEACHING

DOCTORAL THESIS SUPERVISOR

Jinyu Han, Computer Science (graduation expected December 2012)

Zhiyao Duan, Computer Science (graduation expected June 2013)

Zafar Rafii, Computer Science (graduation expected June 2013)

Mark Cartwright, Computer Science (graduation expected June 2014)

MASTERS THESIS SUPERVISOR

John Woodruff, Master Thesis, Program in Music Technology (School of Music). Title: *Active Source Estimation for Improved Source Separation* (Graduated summer 2006)

DOCTORAL THESIS READER

Scott Friedman, Doctoral Dissertation, Computer Science

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

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

Morteza Dehghani, Doctoral Dissertation, Computer Science. (Graduated December 2009)

Kate Lockwood, Doctoral Dissertation, Computer Science. (Graduated June 2009)

Jiahui Liu, Doctoral Dissertation, Computer Science. Title: *Information Diversity in Web Search* (Graduated June 2009)

Sanjay Sood, Doctoral Dissertation, Computer Science. Title: *The Role of Relevance in Frictionless Information Systems: Building Systems that Delight and Inform* (Graduated June 2007)

Holger Winnemoeller, Doctoral Dissertation, Computer Science. Title: *Perceptually-motivated Non-Photorealistic Graphics* (Graduated September 2006)

Vidya Setlur, Doctoral Dissertation, Computer Science. Title: *Optimizing Computer Imagery for More Effective Visual Communication* (Graduated June 2005)

MASTERS THESIS READER

Edward Scott (Graduated December 2010)

Pubudu Silva, Master Thesis, Electrical Engineering. Title: *Perceiving Graphical and Pictorial Information via Touch and Hearing* (Graduated December 2010)

Chi Yin Cheung, Master Thesis, Computer Science. Title: *Interactive Exploration of Historical Paintings Through Raking Angle Photography* (Graduated December 2007)

COURSES DESIGNED

Fall 2011, EECS 349 **Machine Learning**, Northwestern University, Electrical Engineering and Computer Science, Enrollment: 38 Designed: yes, CTEC student overall instruction rating: 5.05 out of 6 (Taught previously: Fall 2009, Fall 2007, Winter 2007)

Spring 2011, EECS 348 **Introduction to Artificial Intelligence**, Northwestern University, Electrical Engineering and Computer Science, 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)

Winter 2011, EECS 395/495 **Computational Auditory Scene Analysis**, Northwestern University, Electrical Engineering and Computer Science, Enrollment: 12, Designed: yes, CTEC student overall instruction rating: 5.1 out of 6 (Taught previously: Winter 2009)

Spring 2010, EECS 395/495 **Active Learning and Crowdsourcing**, Northwestern University,

Electrical Engineering and Computer Science, Enrollment: 10, Designed: yes, CTEC student overall instruction rating: 5.2 out of 6

Winter 2010, EECS 352 *Machine Perception of Music*, Northwestern University, Electrical Engineering and Computer Science, Enrollment: 35, Designed: yes, CTEC student overall instruction rating: 5.2 out of 6 (Taught previously: Winter 2008, Winter 2006, Winter 2005)

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

SELECTED MUSICAL PERFORMANCES

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

"Swing Hakim," with *Swing Hakim*, CD Baby, 2011

"Balkano," with *Balkano*, CD Baby, 2009

"Presences," with *Spider Trio*, CD Baby, 2007

"This and That," with *Gabriel Bolkosky*, CD Baby, 2005

"The Shape of Klez to Come," with *Into the Freylakh*, CD Baby, 2004

"Original Flavor," with *Pardonato*, CD Baby, 2004

"Into The Freylakh," with *Into the Freylakh*, CD Baby, 2003

HONORS AND AWARDS

Northwestern EECS Department Teacher of the Year, 2010-2011

National Science Foundation Career Award, 2007