

Elaine Chew

Current Position	Associate Professor University of Southern California Andrew and Erna Viterbi School of Engineering Daniel J. Epstein Department of Industrial and Systems Engineering Ming Hsieh Department of Electrical Engineering Flora L. Thornton School of Music
Address	Office: 3715 McClintock Avenue GER 240 MC:0193, Los Angeles CA 90089-0193 E-mail: echew@usc.edu Homepage: www-bcf.usc.edu/~echew Laboratory website: www-bcf.usc.edu/~mucoaco Laboratory blog: mucoaco.blogspot.com
Research Interest	Mathematical and computational modeling of music and its performance. Applications include automated music analysis and visualization, expressive performance analysis and synthesis, and music information retrieval
Performance Interest	Chamber and solo performances of classical and eclectic post-tonal music

Education

Ph.D. 2000	Massachusetts Institute of Technology Operations Research Center Dissertation: <i>Towards a Mathematical Model of Tonality</i> Thesis Supervisor: Jeanne Bamberger OR Advisor: Georgia Perakis
S.M. 1998	Massachusetts Institute of Technology Operations Research Center Thesis: <i>Portfolio Optimization – Approx Dynamic Programming & Feynman Diagrams</i> Thesis Supervisor: Dimitris Bertsimas
B.A.S. 1992	Stanford University Mathematical and Computational Sciences (honors), Music Performance (distinction) Report: <i>Testing a Polynomially Bounded Algorithm Derived from a Converging Alg</i> Research Supervisor: George B. Dantzig
F.T.C.L. 1987	Trinity College, London Piano Performance (equiv. to Artist Diploma at US conservatories) Teacher: Lip-Tat Ong
L.T.C.L. 1985	Trinity College, London Piano Performance (equiv. to Graduate Performance Diploma at US conservatories) Teacher: Lip-Tat Ong

Awards and Fellowships

2007 – 2008	Edward, Frances, and Shirley B. Daniels Fellow, Radcliffe Institute for Advanced Study, Harvard University
2007 – 2008	Fulbright Fellowship to IRCAM, Paris, France (declined)
2005 – 2007	Viterbi Early Career Chair
2005	Presidential Early Career Award in Science and Engineering
2004 – 2010	National Science Foundation Early Career Development Award

- 1999 Josephine de Kármán Dissertation Fellowship
- 1999 Embassy Series Recital and Photography Exhibit at the Singapore Embassy
- 1998 President's Charity Concert soloist with the Singapore Symphony Orchestra
- 1998 Laya and Jerome Wiesner Award for contribution to the arts at MIT
- 1997 MIT International Science and Technology Initiative – China Program Grant
- 1992 – 1996 Office of Naval Research Graduate Research Fellowship
- 1992 – 1995 National Science Foundation Graduate Research Fellowship (declined)
- 1992 – 1995 Air Force Office of Scientific Research Graduate Research Fellowship (declined)
- 1992 – 1995 Army Research Office Graduate Research Fellowship (declined)
- 1991 Stanford University Summer Undergraduate Research Fellowship
- 1989 Singapore Public Service Commission Overseas Merit Scholarship
- 1989 First Prize, National Music Competition, Chamber Music (Open)
- 1988 Finalist (2nd / 3rd), Rolex Piano Performance Awards (Open)
- 1986 Finalist (3rd / 4th), Diners Club Pianist of the Year Competition
(open competition, youngest finalist, soloist with Singapore Symphony Orchestra)

Honors

- 2010 Invited Speaker, De-mystifying Music and Its Performance. U.S. Frontiers of Engineering Symposium, National Academy of Engineering, Engineering and Music Session, September 23–25, Armonk, New York
- 2008 – 2009 Organizing Committee, Fifteenth Annual German-American Kavli Frontiers of Science Symposium, U.S. National Academy of Sciences – Alexander von Humboldt-Stiftung, June 4–7, Irvine, California
Session Chair (with Stefan Bornholdt): Reductionism of Complex Systems
- 2007 – 2008 Organizing Committee, Fourteenth Annual German-American Kavli Frontiers of Science Symposium, Alexander von Humboldt-Stiftung – U.S. National Academy of Sciences, June 11–14, Potsdam, Germany
Session Chair (with Stefan Bornholdt): Computational Creativity
- 2007 Invited participant, Japan-American Frontiers of Engineering Symposium, U.S. National Academy of Engineering – Japan Science and Technology Agency – Engineering Academy of Japan, November 5–7, Hewlett-Packard Laboratories, Palo Alto, California
Award: Best U.S. Poster Presenter
- 2007 Kavli Fellow, Thirteenth Annual German-American Kavli Frontiers of Science Symposium, U.S. National Academy of Sciences – Alexander von Humboldt-Stiftung, May 30 – June 2, Irvine, California
- 2005 Invited participant, Johns Hopkins University Center for Language and Speech Processing Summer Workshop in Language Engineering Proposal Competition
Proposal: Creativity in Musical Expression, Second place (tied)
- 2004 Invited Participant, U.S. Frontiers of Engineering Symposium, National Academy of Engineering, September 9–11, Irvine, California

Professional Experience

Associate Professor 2010 – present	University of Southern California Ming Hsieh Department of Electrical Engineering Daniel J. Epstein Department of Industrial and Systems Engineering Thornton School of Music (Courtesy)
Research Area Director 2004 – present	University of Southern California Integrated Media Systems Center: Human Performance Engineering
Training Faculty 2010 – present	University of Southern California Neuroscience Graduate Program
Fellow 2011 – present	University of Southern California Brain and Creativity Institute
Associate Professor 2007 – 2010	University of Southern California Daniel J. Epstein Department of Industrial and Systems Engineering Ming Hsieh Department of Electrical Engineering (Courtesy) Thornton School of Music (Courtesy)
Visiting Scholar 2008 – 2009	Harvard University School of Engineering and Applied Sciences, Computer Science Faculty of Arts and Sciences, Department of Music
Fellow 2007 – 2008	Radcliffe Institute for Advanced Study at Harvard University Edward, Frances, and Shirley B. Daniels Fellow
Viterbi Early Career Chair 2005 – 2007	University of Southern California Viterbi School of Engineering
Assistant Professor 2007	University of Southern California Ming Hsieh Department of Electrical Engineering (Courtesy)
Assistant Professor 2001 – 2007	University of Southern California Daniel J. Epstein Department of Industrial and Systems Engineering
Visiting Assistant Professor 2000 – 2001	Lehigh University Industrial and Manufacturing Systems Engineering
Founder / Artistic Director 1998 – 2000	Massachusetts Institute of Technology Aurelius Ensemble
Affiliated Artist 1997 – 2000	Massachusetts Institute of Technology Music and Theater Arts
Lecturer 2000	Massachusetts Institute of Technology Engineering Systems Division
Teaching Assistant 2000	Harvard Business School Quantitative Methods Module
Instructor 1998	Massachusetts Institute of Technology Sloan School of Management, MBA Program
Teaching Instructor 1995 – 1997	Massachusetts Institute of Technology Sloan School of Management, Management of Technology Program

Teaching Assistant 1998	Massachusetts Institute of Technology Engineering Systems Division
Systems Administrator 1997	Massachusetts Institute of Technology Sloan School of Management, Laboratory for Financial Engineering
Teaching Assistant 1996	Massachusetts Institute of Technology Sloan School of Management

External Funding History

British Academy Proposal, co-PI (PI: Geraint Wiggins, co-PI: Alexandre François. Award: £2,000. Cognitive models of musical pitch and tonality perception. Submitted Nov 10, 2010, awarded Feb 14, 2011.

Radcliffe Institute for Advanced Study Exploratory Seminar Proposal, P.I. (co-PI: Alexandre R. J. François), Award: \$14,000. Prosody and Dialog in Language and Music. Submitted Mar 15, 2010, awarded Apr 12, 2010.

MIT Council for the Arts Director's Grant, proposal submitted by Clarise Snyder and Shirley Entzminger, Award: \$1000. The Mathematics in Music – a concert-conversation with Elaine Chew, submitted Jan 2008, awarded Mar 14, 2008.

Fulbright Scholar Program, France, Multidisciplinary Studies, Program Award #7270. Impressions Revisited – computational analyses and performances of contemporary music, submitted Aug 2006, awarded May 21, 2007 (declined).

Harvard University Radcliffe Institute of Advanced Studies Fellowship Program, P.I. (co-PI: Alexandre R. J. François), Award: \$130,000++. Analytical Listening through Interactive Visualization, submitted Oct 2006, awarded Feb 27, 2007.

University of Victoria Women Scholars Lecture Series, Victoria, BC, Canada, proposal submitted by George Tzanetakis. Lecture series brings distinguished women scholars to the University of Victoria for 3-5 days for university-wide and local academic area seminars. Primary selection criterion is scholarly excellence. Awarded Dec 14, 2005.

NSF Faculty Early Career Development (CAREER) Grant No.0347988, P.I., Award: \$500,000. Performer-Centered Approaches to Computer-Assisted Music Making, awarded Jan 31, 2004.

NSF Information Technology Research (ITR) Grant No. 0219912, co-P.I. (PI: Shrikanth Narayanan, co-PI: Jay C.-C. Kuo), Award: \$500,000 (leader in 1/3 of project, co-leading and co-advising of students in other 2/3). A User-centric Content-based Approach to Indexing, Query and Retrieval of Music through Signal Processing and Knowledge-based Methods, awarded Oct 2002.

NSF Major Research Instrumentation (MRI) Grant No. 0321377, Senior Investigator (designer and leader of the Distributed Immersive Performance project, and one of the key proposal writers for this equipment grant), Award: \$400,000. Acquisition of Equipment for Distributed Immersive Performance, awarded Aug 2003.

NSF Engineering Research Center (ERC) Cooperative Agreement No. EEC-9529152, Research Area Director, Award: ~\$100,000 per year. (annual amount until 2007). Integrated Media Systems Center.

Internal Funding History

USC WiSE Faculty Supplemental Research Grant. Award: \$2,500 – awarded June 29, 2010.

USC WiSE Child Care Subsidy. Award: \$4,000 – awarded June 29, 2010.

USC Provost's Arts and Humanities Initiative, Faculty Grants for Visions & Voices 2010–2011, P.I. (co-PIs: Aniruddh Patel, Peter Child, Alexandre François). Award: \$20,000. Musical Patois – how instrumental music reflects a composer's native language. Preliminary proposal submitted Sep 2009; full proposal submitted Feb 2010; awarded Mar 22, 2010.

USC Provost's Arts and Humanities Initiative, Faculty Grant for Visions & Voices 2006-2007. Award: \$5,000. The Mathematics in Music – a recital and conversation with Elaine Chew, awarded Jan 2007.

USC Women in Science and Engineering Supplemental Faculty Support. Annual Award: \$3,000 – awarded Aug 2004, Aug 2005.

USC Women in Science and Engineering Postdoctoral Fellowship for Dr. Anja Volk, Award: \$100,000. Faculty Sponsor, Sep 2003 – Aug 2005.

USC Arts Initiative Faculty Collaborative Grant, P.I. (co-PIs: Christos Kyriakakis and Dennis Thurmond) Award: \$15,000. Flying Sonics! – a tale of two pianos and immersive audio, awarded Feb 2002.

USC Women in Science and Engineering New Faculty Recruitment Grant, Award: \$30,000, awarded Sep 2001.

MIT Committee for Campus Race Relations Grants, P.I. Award: \$800. Aurelius Ensemble Concert Grants for: *Antojitos Latinos*, and *Tcherepnin Live!*, Jul 1999, Feb 2000.

MIT Council for the Arts Grants, P.I. Award: \$800. Aurelius Ensemble: *Poulenc Potpourri*, and *Fun, Wit and Humour*, and *Unabashed Angst*, Jan 1999, Aug 1998.

MIT Science and Technology Initiative China Program Grant, P.I. Award: \$4000. Field Study on Contemporary Chinese Piano Music in Beijing, China, Summer 1997.

Patents and Invention Disclosures

Chuan, C.-H., E. Chew. Automated Style-Specific Accompaniment System, USC Invention Disclosure, filed February 2008.

François, A. R. J., E. Chew, C. D. Thurmond. Multi-modal Interactive Musical Improvisation System, USC Invention Disclosure, filed January 31, 2007.

Chew, E., A. R. J. François, J. Liu, A. Yang. Expression Synthesis Project, USC Invention Disclosure (Ref. 3712) / US Provisional Patent Application (No. 60/685,357), filed June 30, 2005.

Chew, E., X. Wu. A Contig Mapping Algorithm for Voice Separation, USC Invention Disclosure (Ref. 3571) / US Patent Application (No. 60/654,686), filed April 5, 2004.

Chew, E., Chen Y.-C. Pitch Spelling Using the Spiral Array, USC Invention Disclosure (Ref. 3532 / MWE Ref. 18080-117).

Chew, E., A. R. J. François. MuSA.RT – Music on the Spiral Array . Real-Time, USC Invention Disclosure (Ref. 3533 / MWE Ref. 38080-118).

Plenary and Keynote Lectures

 2011

Mar 23 Music, Mathematics, and Computing, Keynote lecture, Women in Science, Technology and Math Event, Mirman School for Gifted Children, Los Angeles, CA.

 2010

Sep 25 De-mystifying Music and Its Performance through Science and Technology. Plenary lecture, National Conference of the Association for Technology in Music Instruction, Marriott Minneapolis City Center, Minneapolis, MN.

Sep 24 De-mystifying Music and Its Performance. Invited speaker, Engineering and Music Session, U.S. Frontiers of Engineering Symposium, National Academy of Engineering, September 23–25, Armonk, NY.

Mar 6 Tonality Algorithms and Visualization. Keynote lecture, Music Theory Southeast 2010, Winthrop University, Rock Hill, SC.

 2009

Aug 3 Music Computation and Cognition. Keynote lecture, Society for Music Perception and Cognition Conference, IUPUI Music and Arts Technology, Indianapolis, IN.

Mar 7 Modeling and Explaining Expressive Choices in Musical Performance. Keynote panel, Eighteenth Annual Meeting of the West Coast Conference of Music Theory and Analysis (WCCMTA, organizer: Joti Rockwell), Pomona College, Claremont, CA.

Feb 8 Decoding Performance Art through Music Science. Keynote lecture, Suncoast Music Education Research Symposium (SMERS VII – *Understanding Musical Expression*, organizer: Carlos Xavier Rodriguez), University of South Florida, Tampa, FL.

Invited Lectures, Seminars and Other Presentations

 2012

Jan 9–13 Title TBD. Guest speaker, Workshop on Large Scale Multimedia Search, Institute for Pure and Applied Mathematics, University of California, Los Angeles, CA.

 2011

Apr 4 De-mystifying Music and Its Performance. Department of Performing Arts Technology, School of Music, Theater and Dance, University of Michigan, Ann Arbor, MI.

Apr 4 Mathematical Modeling of Tonality – Theory and Applications. Department of Performing Arts Technology, School of Music, Theater and Dance, University of Michigan, Ann Arbor, MI.

Mar 31 Musical Patois – reflections of language in music. Elaine Chew, performer and producer, Alexandre R. J. François, co-producer. A concert-conversation with neuroscientist Aniruddh Patel and composer Peter Child featuring world premieres of newly commissioned works by Peter Child. USC Visions & Voices, Newman Recital Hall, Los Angeles, CA.

Mar 5 Musical Patois – reflections of language in music. Elaine Chew, performer and producer, Alexandre R. J. François, co-producer. A concert-conversation with neuroscientist Aniruddh Patel and composer Peter Child featuring world premieres of newly commissioned works by Peter Child. MIT 150th anniversary event, FAST Arts Festival, Cambridge, MA.

- Mar 2 De-mystifying Music and Its Performance. Invited lecture, Computer Science Department, University of North Florida, Jacksonville, FL.
- Feb 10 MuSA.RT and Beethoven's Fifth. Invited presentation/performance (with Julia Greer). NAE Regional Meeting, USC, Town & Gown, Los Angeles, CA.
- Jan 23 De-mystifying Music and Its Performance. Invited presentation, Dagstuhl Seminar on Multimodal Music Processing, Leibniz-Zentrum für Informatik, Schloss Dagstuhl, Saarland, Germany.
- Jan 11 Music Computation and Cognition. Invited presentation, Brain and Creativity Institute, USC, LA, CA.
- Jan 6 The Pentahelix: a Four-Dimensional Realization of the Spiral Array. Invited presentation, Joint Mathematics Meeting Special Session on Mathematical Techniques in Musical Analysis, New Orleans, LA.

 2010

- Nov 17 Engineering and Music – from Guitar Hero to Intelligent Machines. Guest lecture, Engineering Freshmen Academy (Najmedin Meshkati's two classes), USC, LA, CA.
- Nov 16, 18 Engineering and Music – from Guitar Hero to Intelligent Machines. Guest lecture, Engineering Freshmen Academy (Jesse Yen's two classes), USC, LA, CA.
- Oct 25, 27 Engineering and Music – from Guitar Hero to Intelligent Machines. Guest lecture, Engineering Freshmen Academy (Milind Tambe's two classes), USC, LA, CA.
- Oct 18 Engineering and Music – from Guitar Hero to Intelligent Machines. Guest lecture, Engineering Freshmen Academy (Andrea Armani's two classes), USC, LA, CA.
- Jun 5 The Science Behind MIMI (with Alexandre François), People in Electronics, Boston Court, Pasadena, CA.
- Mar 25 Music and Engineering, IML Digital Studies Symposium, USC School of Cinematic Arts, Los Angeles, CA. Video: dss.usc.edu/index.php/speakers/2010/03/25/symposium-9-john-underkoffler-and-elaine-chew
- Mar 11 Mentoring and Academic Job Search, PhD Seminar, USC Epstein Industrial and Systems Engineering Department, Los Angeles, CA.
- Feb 25 Tonality Algorithms: Determining Keys, Spellings, Boundaries, and Expectation. Invited Talk, Statistics / Operations Research / Math Finance Seminar Series, Claremont Center for the Mathematical Sciences, Claremont, CA.

 2009

- Oct 26 Understanding Musical Structure, Prosody, and Dialogue through Playful Interaction with Dynamic Visualizations. Ear Club Seminar, UC Berkeley, CA.
- Mar 12 Mathematics in Music: Elaine Chew in conversation with Boston Lyric Opera. MIT Club of Boston (organizer: Pauline Hsu Benninga), Killian Hall, Cambridge, MA.
- Jan 29 Musical Science and Engineering Art. New Media Colloquia Series, Ammerman Center for Arts and Technology, Connecticut College, New London, CT.
- Jan 29 MIMI: Multimodal Interaction for Musical Improvisation. CS312: Digital Sound Processing (Guest Lecture), Connecticut College, New London, CT.

 2008

- Sep 19 Music and Operations Research. Department of Industrial and Systems Engineering, Lehigh University, Bethlehem, PA.

- Sep 12 Engineering Science and Musical Art, Arts, Media and Engineering Program, Fulton School of Engineering and Herberger College of the Arts, Arizona State University, Tempe, AZ.
- Aug 26 The Expression Synthesis Project. (joint presentation with Alexandre François.) The 7th RENCON (Contest for Performance Rendering Systems) at ICMPC 10, Sapporo, Japan.
- Aug 25 MuSA.RT and the Pedal: The Role of the Sustain Pedal in Clarifying Tonal Structure. (joint presentation with Alexandre François.) International Conference on Music Perception and Cognition, Sapporo, Japan.
- May 29 Music Science and the Mathematical Modeling of Tonality. Symposium on Interactive Visualizations of Music (organizer: Juan P. Bello), Music Technology Program, New York University, New York, NY.
- May 19 Computational Modeling of Music and Its Performance. CSAIL Speech Seminar, MIT, Cambridge, MA.
- May 12 The Mathematics in Music – a concert-conversation with Elaine Chew. Applied Mathematics Colloquium, a joint seminar by the Department of Mathematics and the Music and Theater Arts Section, MIT, Cambridge, MA.
- April 4 Life after the ORC in the academe. Alumni presenter, Operations Research Center Open House, MIT, Cambridge, MA.
- Mar 25 Music Science and the Mathematical Modeling of Tonality. Operations Research Seminar, North Carolina State University, Raleigh, NC.
- Mar 24 The Mathematics in Music – a concert-conversation with Elaine Chew. North Carolina State University Arts Now Series, Raleigh, NC.
- Mar 5 Music Science and the Mathematical Modeling of Tonality. School of Informatics, Indiana University, Bloomington, IN.
- Feb 29 Analytical Listening Through Interactive Visualization. (joint presentation with Alexandre François.) Human-Computer Interaction Seminar (Seminar on People, Computers, and Design), Stanford University, Stanford, CA.
- Feb 28 Scientific Expressions of Musicianship. Master's Dinner Speaker, USC Parkside International Residential College, Los Angeles, CA.
- Feb 15 A Technical Analysis of P.D.Q. Bach. (with Alexandre François) Annals of Improbable Research Special Event, American Association for the Advancement of Science Annual Meeting, Sheraton Boston, Boston, MA.
- Feb 8 Music Science and the Mathematical Modeling of Tonality. Musical Information Archiving and Retrieval (Axis 3) Workshop, Center for Interdisciplinary Research in Music Media and Technology, McGill University, Montreal, Canada.
- Jan 25 Introductory Talk about MuCooCo. North East Music Information Special Interest Group, Columbia University, New York City, NY.
- Jan 16 Analytical Listening Through Interactive Visualization. (joint presentation with Alexandre François.) Radcliffe Institute Fellows' Presentation Series, Radcliffe Gymnasium, Harvard University, Cambridge, MA.
- 2007
- Nov 29 Music Science and the Mathematical Modeling of Tonality: Lecture and Demonstration. Computer Science Department Colloquium, Harvard University, Cambridge, MA.

- Nov 8 MuSA.RT and the Visualization of Tonality. Hearing Seminar, Center for Computer Research in Music and Acoustics, Stanford University, Stanford, CA.
- Nov 8 Life After The MCS Program: One Person's Story. Mathematical and Computational Sciences Program, Stanford University, Stanford, CA.
- Oct 19 Music and Operations Research – the Perfect Match. Operations Research / Management Science Seminar Series, University of Massachusetts, Amherst, MA.
- Aug 2 MIMI in the Context of Music and Computing. MIT Alumni Association, Club of Southern California, Pasadena Lunch Guest Speaker (with Alexandre François), Beckham Grill, Pasadena, CA.
- May 19 Lecture and Demonstration: The Seiler Grand Piano and Computer-Interactive Improvisation with MIMI. (joint presentation with Alexandre François). International Conference on Mathematics and Computation in Music (MCM2007), Musical Instrument Museum, Berlin, Germany.
- May 18 Visible Humour : Seeing PDQ Bach's Musical Humour Devices in The Short-Tempered Clavier on the Spiral Array Space. Plenary Lecture, International Conference on Mathematics and Computation in Music (MCM2007), Musical Instrument Museum, Berlin, Germany.
- Apr 10 Creating an Interdisciplinary Research Program in Music and Engineering. USC Women in Management Monthly Luncheon Guest Speaker, Los Angeles, CA.
- Mar 16 The Mathematics in Music: A Performance, Computer Demonstration and Conversation with Elaine Chew. Invited lecture-recital as part of the Techno-Arts Series in the National University of Singapore Arts Festival, NUS University Cultural Center, Singapore.
- Mar 14 Slicing It All Ways: Mathematical Models for Tonal Induction, Approximation and Segmentation Using the Spiral Array, Invited lecture at the Mathematics Department, National University of Singapore, Singapore.
- Feb 26-28 University of Victoria Women Scholars Lecture Series, Victoria, BC, Canada.
 - Music, Mathematics and Computing – beyond tuning, fractions, and sound synthesis (public lecture, Feb 26)
 - The Mathematics in Music – a performance and conversations with Elaine Chew (music lecture-concert, Feb 27)
 - Heuristics and Algorithms for Music Problems (computer science lecture, Feb 28)
- Jan 24 The Mathematics in Music – a performance and conversations with Elaine Chew. Invited lecture-recital as part of Provost's Arts and Humanities Initiative, Alfred Newman Recital Hall, University of Southern California, Los Angeles, CA.
- Jan 5 A Multi-Pronged Approach to the Creating of an Interdisciplinary Research Program in Mathematics and Computation in Music. Invited speaker for the Special Session on Mathematical Methods in Music Analysis as part of the 113rd Annual Meeting of the American Mathematical Society (AMS) at the Joint Mathematics Meeting, New Orleans, LA.
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- 2006
- Dec 8 Lecture-Recital on Music and Engineering. Los Angeles Philharmonic Auxiliary, Long Beach, CA.

- Nov 10 Interactive Music Systems Based on Analysis of Music and Its Performance. Invited lecture at the Eastman School of Music / University of Rochester / Cornell University Music Cognition Symposium, Rochester, NY.
- Nov 9 Interactive Music Systems Based on Analysis of Music and Its Performance. Invited seminar at the University of Rochester Electrical and Computer Engineering Department, Rochester, NY.
- Nov 9 Messiaen's Regard IV – from performance to analysis. Invited lecture at the Eastman School of Music Performance/Analysis class, Rochester, NY.
- Oct 21 Building an Interdisciplinary Research Program in Computational Music Cognition. Workshop on Music, Mathematics and Computation (organizer: Aline Honingh), Institute for Logic, Language and Computation, University of Amsterdam, Amsterdam.
- Oct 5 Panel on Latency Issues in Networked Audio Systems (organizer: Elizabeth Cohen), 121st Audio Engineering Society (AES) Convention, Moscone Convention Center, San Francisco, CA.
- Sep 18 Creating an Interdisciplinary Research Program in Music and Engineering. Featured lunch speaker at the Association of American Universities Association of Graduate Schools (AAU-AGS) Graduate Deans' Meeting, Davidson Conference Center, University of Southern California, Los Angeles, CA.
- Aug 8 Computer Models and Music. IDM Network Seminar, jointly organized by the NUS Department of Electrical and Computer Engineering, ACM SIGCHI Singapore, and Singapore Computer Society SIG on Entertainment Computing, EA06-02, National University of Singapore, Kent Ridge, Singapore.
- Jun 8 Distributed Immersive Performance: Enabling Technologies for, and Analyses of, Remote Performance and Collaboration, Workshop Network Performance (organizer: Norbert Schnell), IRCAM, Paris, France.
- May 18 Lecture-Recital on Music and Engineering. Los Angeles Philharmonic Auxiliary, Palos Verdes, CA.
- Apr 14 Music Information Retrieval (presentation w Shrikanth Narayanan). Massive Multimedia Databases – a forum on innovative collaborative research that can be leveraged for technology-enhanced, learner-centered education. Marsha Kinder, organizer. Annenberg Center, USC, Los Angeles.
- Mar 16 Distributed Immersive Performance: Qualitative and Quantitative Studies of Remote Collaboration. Seminar IRCAM, Paris, France.
- Feb 3 The Musical Engineer - examples of experiments and explorations. USC W.V.T. Rusch Engineering Honors Colloquium, Los Angeles, CA.
- Jan 20 Musical Rigging Through ESP: A Driving Interface for Expressive Performance Rendering. UCSB IGERT Seminar, Santa Barbara, CA.
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- 2005
- Nov 21 Musical Rigging Through ESP: A Driving Interface for Expressive Performance Rendering. Seminar IRCAM, Paris, France.
- Oct 28 Music + Engineering – Why, What, and How. Composer's Forum, Arnold Schoenberg Institute, USC Thornton School of Music, Los Angeles, CA.

- Sep 11 Looking Beyond the Notes: An Engineering Approach to the Study of Musical Performance. International Conference on Music Information Retrieval, Goldsmiths College, University of London, UK.
- Aug 3 Multi-scale Analysis and Visualization of Pitch Structures in Music. Plenary Lecture. Summer Workshop on Language Engineering, Center for Language and Speech Processing, Johns Hopkins University, Baltimore, MD.
- May 20 Music Cognition and Computation Research at USC. Interactive Digital Multimedia IGERT Seminar, UC Santa Barbara, Santa Barbara, CA.
- May 13 Collaborative Performance Experiments in the Distributed Immersive Performance Project. Seminar on People, Computers and Design. Program in Human-Computer Interaction, Stanford University, Stanford, CA.
- May 11 Tonal Induction, Recognition, and Segmentation. Music 151 Guest Lecture: Introduction to Psychoacoustics and Music Cognition. Music Department, Stanford University, Stanford, CA.
- May 11 Engineering Applications of Computational Music Research at USC. Center for Computer Research in Music and Acoustics Colloquium, Stanford University, Stanford, CA.
- Apr 18 Helping Music Systems Make Better Decisions. INFORMS Practice Meeting, Palm Springs, CA.
- Mar 13 Creating Tonal Visualizations that Dance to the Rhythm of the Music. MaMuX Seminar, Music Representation Group, IRCAM, Paris, France.
- Feb 16 Mathematical Modeling and Computational Analysis of Tonal Contexts and Segmentation in Music. Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI.
- Jan 7 The Engineering in Music. Lecture-Concert at the Achievement Rewards for College Scientists (ARCS) Annual Meeting Dinner hosted by the Viterbi School of Engineering, California Club, Los Angeles, CA.
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- 2004
- Nov 22 Distributed Immersive Performance. In *The Internet for Ensemble Performance?* Hosted by Rob Cutietta, Dean of USC Thornton School of Music. National Association of Schools of Music Meeting, San Diego, CA.
- Nov 5 Music and Computers: Recognizing Tonal Context. IMSC Student Council Speaker Series, USC Viterbi School of Engineering, Los Angeles, CA.
- Oct 24 Measuring Musical Dissimilarity: First and Second Order Center of Effect (CE) Differences Inside the Spiral Array. 1001th Meeting of the American Mathematical Society, Special Sessions on Mathematical Techniques in Musical Analysis. Organized by Judith Baxter, Richard Cohn and Robert Peck, Northwestern U., Evanston, IL.
- Oct 10 Musical Knowledge, Computational Models and Retrieval. Invited Tutorial at the 5th International Conference on Music Information Retrieval, Barcelona, Spain.
- May 25 The Spiral Array and Computational Models for Tonal Induction and Segmentation. Center for Computational Creativity, School of Informatics, City University, London, UK.
- May 21 Messiaen's Regard IV: Automatic segmentation using the Spiral Array. MaMuX Seminar on From Transformational Music Theory to Computer-Aided Music Analysis.

Music Representation Group, IRCAM, Paris, France.

May 22 Pitch Spelling: a computational approach using the Spiral Array. MaMuX Seminar on From Transformational Music Theory to Computer-Aided Music Analysis. Music Representation Group, IRCAM, Paris, France.

Jan 15 The Cognition of Musical Structures for Real-Time Interaction. Disney Online Technology Forum, Los Angeles, CA.

2003

Feb 15 Music Appreciation for Computers. Sigma Xi Lecture, General Motors Research, Detroit, MI.

2002

Nov Extracting Tonal Structure from Music. USC Signal and Image Processing Institute Seminar, Los Angeles, CA.

Dec A Geometric Model for Tracking Tonal Patterns in Music. Harvey Mudd College Computer Science Seminar, Claremont, CA.

Aug The PPP Connection: Paintings, Poetry, Pieces – Wang Lisan’s *Impressions of Paintings by Higashiyama Kaiti*. In “A Concert of Paintings: Musical Ekphrasis Throughout the Centuries,” Siglind Bruhn, chair. 17th International Musicological Society Conference (quintennial event), Leuven, Belgium.

Jul 4 New Pianos, Music, Internet. Lecture (w Dennis Thurmond) at the World Piano Conference, Portoroz, Slovenia.

Jul 2 Methodology and Teaching of Improvisation. Lecture (w Dennis Thurmond) at the World Piano Conference, Portoroz, Slovenia.

Jun A Computational Framework for Problems in Music Perception and Cognition. Turin Polytechnic Transportation Department Seminar, Turin, Italy.

Mar Exploiting the Structure of Musical Space in Music Information Processing. Information Science Institute Artificial Intelligence Seminar Series, Marina Del Rey, CA.

2001

Apr Towards a Mathematical Model of Tonality. Lehigh University Mathematics Department seminar, Bethlehem, PA.

Mar Towards a Mathematical Model of Tonality. Lehigh University Cognitive Science seminar, Bethlehem, PA.

2000

Sep Cognition and Recognition using Voronoi Diagrams. Lehigh University Department of Industrial and Manufacturing Systems Engineering Research Seminar, Bethlehem, PA.

1999

Apr A Geometric Model for Pitch Relations and an Algorithm for Identifying Tonal Centers and Harmonic Progressions. Midwest Graduate Music Consortium, U. of Chicago, Chicago, IL.

Books and Edited Volumes

Chew, E. *Mathematical and Computational Modeling of Tonality: Theory and Applications*. Operations Research and Management Science Series, Berlin/Heidelberg, Germany: Springer (in preparation).

Chew, E., A. Childs, C.-H. Chuan (2009). Mathematics and Computation in Music, Second International Conference, MCM 2009, John Clough Memorial Conference, New Haven, CT, USA, June 19-21, 2009. Proceedings. Communications in Computer and Information Science (CCIS) 38, Berlin/Heidelberg, Germany: Springer. isbn: 978-3-642-02393-4 (print) 978-3-642-02394-1 (online), doi: 10.1007/978-3-642-02394-1, url: www.springerlink.com/content/978-3-642-02393-4/contents

Bello, J. P., E. Chew, D. Turnbull (2008). Proceedings of the 9th International Conference on Music Information Retrieval, September 14-18, 2008, Philadelphia, Pennsylvania. url: www.lulu.com/content/3804316

Chew E., A. Cramer, C. Raphael (2008). Journal of Mathematics and Music: Special Issue on Computation, 2(2). London, UK: Taylor & Francis. cfp: www-rcf.usc.edu/~echew/MCM_Computation, url: www.tandf.co.uk/journals/titles/17459737.asp

Amatriain, X., E. Chew, J. Foote (2006). Proceedings of the 1st ACM Workshop on Audio and Music Computing for Multimedia, October 27, 2006, Santa Barbara, CA. url: www.create.ucsb.edu/amcmm06, pub: portal.acm.org/toc.cfm?id=1178723

Chew, E., R. Dannenberg, J. Sokol and M. Steedman (2006). Special Cluster on Computation in Music, INFORMS Journal on Computing, 18(3). cfp: joc.pubs.informs.org/CallClusterCompInMusic.html, pub: joc.journal.informs.org/content/vol18/issue3/index.dtl

Chew, E. (2005). ACM Computers in Entertainment: Special Issue on Music Visualization and Education, 3(4). portal.acm.org/citation.cfm?id=1095534.1095540

Refereed Journal Publications

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Chew, E. (2001). Exploiting the Structure of Musical Space to Represent Musical Information. In proceedings for the INFORMS meeting, Miami, FL, November, 2001.

Chew, Elaine (2001). The PPP Connection: Paintings, Poems, Pieces -- An Essay on Wang Lisan's "Impressions of Paintings by Higashiyama Kaii". In proceedings of the 7th International Congress on Musical Signification, Imatra, June 7-10, 2001.

2000

Chew, E. (2000). Towards a Mathematical Model for Tonality. In proceedings for the Society of Music Perception and Cognition (SMPC) at the Toronto 2000 conference, a joint meeting of fifteen societies engaged in musical research, November, 2000.

1999

Chew, E. (1999). A Geometric Model for Computational Music Analysis. In proceedings for the INFORMS meeting, Philadelphia, PA, November, 1999.

1995

Chew, E. and Bertsimas, D. (1995). Dynamic Portfolio Optimization through Feynman Diagrams: when Finance meets Quantum Field Theory. In program of the INFORMS meeting, New Orleans, LA, Oct 1995.

Technical Reports

Chuan, C.-H. and E. Chew. Audio Onset Detection Using Machine Learning Techniques: The Effect and Applicability of Key and Tempo Information. Computer Science Department Technical Report No.08-895, Mar 2008.

2007

François, A. R. J., E. Chew and D. Thurmond. MIMI - A Musical Improvisation System That Provides Visual Feedback to the Performer. (8-page version of 4-page NIME2007 paper) USC Computer Science Department Technical Report No.07-889, Jan 2007.

2006

François, A. R. J. and E. Chew. An Architectural Framework for Interactive Music Systems. IMSC Technical Report No.06-001, Jan 2006.

Chew, E., A. R. J. François, J. Liu and A. Yang. ESP: Expression Synthesis Project. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2006.

Huang, C.-Z. and E. Chew. Palestrina Pal: a grammar checker for compositions in the style of Palestrina. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2006.

Chuan, C. and E. Chew. Polyphonic Audio Key Finding. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2006.

Mardirossian, A. and E. Chew. Key Distributions as Musical Fingerprints for Similarity Assessment. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2006.

Parke, R., E. Chew and C. Kyriakakis. Impact of Music on Emotional Intensity of Audio/Visual Presentation. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2006.

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Chuan, C.-H. and E. Chew. Polyphonic Audio Key-Finding Using the Spiral Array CEG Algorithm. IMSC Technical Report No.05-001, Jan 2005.

Chew, E., A. R. J. François, J. Liu and A. Yang. ESP: Expression Synthesis Project. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2005.

Huang, C.-Z. and E. Chew. Palestrina Pal: a grammar checker for compositions in the style of Palestrina. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2005.

Chew, E., A. A. Sawchuk, R. Zimmermann, C. Kyriakakis, C. Papadopoulos, A. R. J. François, A. Volk, Tosheff Piano Duo, C. Tanoue, S. Aslan, D. Desai, M. Pawar. Human Performance Experiments for Distributed Immersive Performance. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2005.

Chuan, C. and E. Chew. Polyphonic Audio Key Finding. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2005.

Mardirossian, A. and E. Chew. The Rating Game – Methods for Evaluating Key Finding Algorithms. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2005.

Chew, E., A. R. J. François. MuSA.RT: Music on the Spiral Array . Real-Time. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2005.

2004

Chew, E., A. R. J. François, J. Liu and A. Yang. ESP: Expression Synthesis Project. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Chew, E. and A. R. J. François. MuSA.RT – Music on the Spiral Array . Real- Time. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Chew, E. and Y.-C. Chen. PST: Pitch Spelling Technology. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Chew, E. and X. Wu. VoSA: Voice Separation Analyzer. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Chew, E., A. A. Sawchuk and R. Zimmermann. Distributed Immersive Performance. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Narayanan, S., E. Unal, E. Chew and C.-C. Kuo, Content-based Representations, Indexing and Retrieval of Music. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Huang, C.-Z. and E. Chew. Palestrina Pal: a grammar checker for compositions in the style of Palestrina. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

 2003

Yardi, S. and E. Chew. Giving Ragas the Time of Day: Pitch Structures in North Indian Classical Music. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2004.

Chew, E. Thinking Out of the Grid and Inside the Spiral. IMSC Technical Report No.03-002.

Chew, E. MuSA: Music Information Processing. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2003.

Narayanan, S., E. Unal, E. Chew and C.-C. Kuo. Content-based Representations, Indexing and Retrieval of Music. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2003.

Chew, E. Analysis of Music Content and Interpretative Decisions. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2002.

Narayanan, S., H. Shih, E. Unal, E. Chew and C.-C. Kuo. Content-based Representations, Indexing and Retrieval of Music. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2002.

Shahabi, C., S. Ghandeharizadeh, R. Zimmermann, M. McLaughlin, G. Sukhatme, J. Hespanha, U. Neumann, A. Rizzo and E. Chew. Immersidata Content Extraction and Analysis. In IMSC National Science Foundation Site Visit Vol. 2 Report, June 2002.

Chew, E., and A. R. J. François. MuSA.RT – Music on the Spiral Array . Real-Time. IMSC Demo Tech Summary, March 2003.

Chew, E. and Y.-C. Chen. MuSA – Music and the Spiral Array. IMSC Demo Tech Summary, March 2003.

 1996

Kalim, M., E. Chew, P. Jindhara and C. Wang. (1996). A Practical Model for Estimating the Term Structure of Interest Rates in Mexico”, with PJindhara, MKalim and CWang, Sloan Lab for Financial Engineering Working Paper No. P96S-1, Mar 1996.

 1994

Chew, E. Markov chain models for predicting oligonucleotide frequencies: model errors, manuscript, 1994.

 1992

Ahn, S., E. Chew, P. Greenspun, Lopez, K. Malone, E. Pinker, R. Shumsky. (1992). A Telecommunication System Model. MIT OR Practicum report for Scudder Corp, Dec 1992.

Chew E. and P. Greenspun. (1992). Is Suicide at MIT Poisson? MIT OR Practicum report, Fall 1992.

Dantzig, G. B. (1991). Bracketing to speed convergence illustrated on the Von Neumann algorithm for finding a feasible solution to a linear program with a convexity constraint. Computational analysis by Elaine Chew. [Stanford University Operations Research Technical Report SOL 92-6].

Translations

Chen, G. (1994). Releasing Muse’s Arrow to the World – autobiography of Hui composer, Chen Gang. Wei Tingge (ed.): Modern and Contemporary Chinese Musicians’ Biographies, 4: 535-543, Shenyang, China: Spring Wind Cultural Press.

Trans. (from Chinese to English) by E. Chew, Nov 2007, url: www-rcf.usc.edu/~echew/projects/ChineseMusic/composers/chen_gang.html

Yu, Y.-Z. (1994). The Unquenchable Fire of Creativity – composer Jiang Wenye. Wei Tingge (ed.): Modern and Contemporary Chinese Musicians' Biographies, 2: 98-110, Shenyang, China: Spring Wind Cultural Press. Trans. (from Chinese to English) by E. Chew, Aug 1997, under revision, Dec 2007, url: www-rcf.usc.edu/~echew/projects/ChineseMusic/composers/jiang_wenye.html

Zhou, Z.-Q. (1994). Scholar of the Chinese People, Genius of the Music Sphere – Composer Wang Lisan. Wei Tingge (ed.): Modern and Contemporary Chinese Musicians' Biographies, 4: 414-425, Shenyang, China: Spring Wind Cultural Press. Trans. (from Chinese to English) by E. Chew, Aug 1997, url: www-rcf.usc.edu/~echew/projects/ChineseMusic/composers/wang_lisan.html

Zhao, S.-M. (1994). The Piano Is My Life – female pianist Zhou Guangren. Wei Tingge (ed.): Modern and Contemporary Chinese Musicians' Biographies, Shenyang, China: Spring Wind Cultural Press. Trans. (from Chinese to English) by E. Chew, Aug 1997, url: www-rcf.usc.edu/~echew/projects/ChineseMusic/pianists/zhou_guangren.html

Theses

Chew, E. (2000). Towards a Mathematical Model of Tonality. Ph.D. dissertation. Operations Research Center, MIT. Cambridge, Massachusetts.

Chew, E. (1998). Multiperiod Portfolio Optimization: Feynman diagrams and approximate dynamic programming. S.M. thesis. Operations Research Center, MIT. Cambridge, Massachusetts.

Students' Theses

Unal, Erdem (2008). Music Retrieval Systems: Robust Search Under the Effect of Uncertainty. PhD dissertation, Electrical Engineering, USC, Los Angeles, California.

Chuan, Ching-Hua (2008). Hybrid Methods for Music Analysis and Synthesis: Audio Key Finding and Automatic Style-Specific Accompaniment. PhD dissertation, Computer Science, USC, Los Angeles, California.

Liu, Jie (2007). User-Centered Computing and Design in ESP: A Driving Interface for Musical Expression Synthesis. PhD dissertation, Industrial and Systems Engineering, USC, Los Angeles, California.

Mardirossian, Arpi (2007). Investigations in Music Similarity: Analysis, Organization, and Visualization using Tonal Features. PhD dissertation, Industrial and Systems Engineering, USC, Los Angeles, California.

Cheng, Eric K. (2006). Computational Analysis of Expression in Violin Performance. Masters thesis, Electrical Engineering - Systems, USC. Los Angeles, California.

Mosst, Merrick (2006). Quantitative Modeling of Emotion Perception in Music. Masters thesis, Electrical Engineering - Systems, USC. Los Angeles, California.

Yardi, Shivani (2004). Raga Structure: Geometric and Generative Models. Masters thesis, Electrical Engineering – Systems, USC, Los Angeles, California.

- Conference Organization**
- 2010 Radcliffe Exploratory Seminar
Prosody and Dialog in Speech and Music
Radcliffe Institute for Advanced Study, Cambridge, MA, November 5-6, 2010.
www-bcf.usc.edu/~mucoaco/Radcliffe/ProsodyAndDialog
 - 2010 Technical Program Committee
Third ACM Workshop on Machine Learning and Music
ACM Multimedia Conference, Firenze, Italy, October 25-29, 2010.
www.dtic.upf.edu/~rramirez/MML10
 - 2009 Program Chair (with Adrian Childs)
Second International Conference Mathematics and Computation in Music
Yale University, New Haven, Connecticut, June 19-21, 2009.
www.mcm2009.info
 - 2008 – 2009 Organizing Committee
Co-Chair of Session on Reductionism of Complex Systems (with Stefan Bornholdt)
Fifteenth Annual National Academy of Sciences German-American
Kavli Frontiers of Science Symposium
Planning meetings: Potsdam, Germany, June 13, 2008;
New York City, New York, September 27, 2008.
Symposium: Irvine, California, June 4-7, 2009.
www.nasonline.org/site/PageServer?pagename=FRONTIERS_main
 - 2008 Program Chair (with Juan Pablo Bello)
Ninth International Conference on Music Information Retrieval
Philadelphia, Pennsylvania, September 14-18, 2008.
ismir2008.ismir.net
 - 2008 Organizer (with Alexandre François)
Interactions – Humans • Computers • Music
An Analytical Listening through Interactive Visualization Cluster Symposium
Radcliffe Institute for Advanced Study, Cambridge, Massachusetts, April 24, 2008.
www-rcf.usc.edu/~mucoaco/Radcliffe/interactions-humans.computers.music
 - 2008 Program Committee
Joint Conference on Digital Libraries
Pittsburgh, Pennsylvania, June 15-20, 2008.
www.jcdl2008.org
 - 2007 – 2008 Organizing Committee
Co-Chair of Session on Computational Creativity (with Stefan Bornholdt)
Fourteenth Annual National Academy of Sciences German-American
Kavli Frontiers of Science Symposium
Planning meetings: Irvine, California, June 1, 2007;
Köpenick-Berlin, September 28-29, 2007.
Symposium: Potsdam, Germany, June 11-14, 2008.
www.nasonline.org/site/PageServer?pagename=FRONTIERS_main
 - 2007 Technical Program Committee
Program Committee meeting and workshop, Delft, the Netherlands, June 14-15, 2007.
ACM Multimedia Conference, Augsburg, Germany, September 23-29, 2007.
 - 2007 Program Committee
First International Conference of the Society for Mathematics and Computation in
Music, Berlin, Germany, May 18-20, 2007.
www.mcm2007.info

- 2007 Symposium Organizer (with Shlomo Dubnov)
Inaugural Meeting of the Southern California Computing in Music (SCCiM) network
Host at University of Southern California, Los Angeles, CA, February 17, 2007.
www-rcf.usc.edu/~mucoaco/SCCiM/2007i
- 2006 Workshop Organizer (with Xavier Amatriain and Jonathan Foote)
Workshop on Audio and Music Computing for Multimedia (AMCMM),
ACM Multimedia Conference, Santa Barbara, CA, October 27, 2006.
www.create.ucsb.edu/amcmm06
- 2005 Special Sessions Organizer and Sessions Chair: *Music, Computation and AI*,
9th INFORMS Computing Society Conference, Annapolis, MD, Jan 6, 2005.
www-rcf.usc.edu/~echew/INFORMS/ics2005.html
- 2003 Invited Cluster Organizer and Cluster Chair: *OR in the Arts: Applications in Music*
INFORMS Meeting Atlanta, GA, October, 2003.
www-rcf.usc.edu/~echew/INFORMS/cluster.html

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- Other Conference Service**
- 2011 Program Committee, 1st International Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM), held in conjunction with ACM Multimedia 2011, Scottsdale, AZ, November 28 – December 1, 2011.
- 2011 Program Committee, Twelfth Intl Society for Music Information Retrieval Conf, Miami, FL, October 24-28, 2011.
- 2011 Program Committee, Third International Conference on Mathematics and Computation in Music, Paris, France, June 15-17, 2011.
- 2011 Program Committee, Third International Conference on Music and AI, Rethymnon, Crete, March 26-28, 2011.
- 2010 Program Committee, Third International Workshop on Machine Learning and Music Firenze, Italy, October 29, 2010. www.dtic.upf.edu/~rramirez/MML10
- 2010 Program Committee, Eleventh Intl Society for Music Information Retrieval Conf, Utrecht, the Netherlands, August 9-13, 2010. ismir2010.ismir.net
- 2009 Program Committee, Tenth International Society for Music Information Retrieval Conf, Kobe, Japan, October 26-30, 2009. ismir2009.ismir.net
- 2009 Reviewer, Intl Computer Music Conference, August 16-21, Montreal, Quebec, Canada
- 2009 Reviewer, INFORMS Computing Society Conference, January 11-13, Charleston, SC
- 2008 Reviewer, International Computer Music Conference, August 24-29, Belfast, UK
- 2007 Program Committee, Third IEEE International Workshop on Multimedia Information Processing and Retrieval, Taichung, Taiwan, December 10-12, 2007.
- 2007 Program Committee, Eighth International Conference on Music Information Retrieval, Vienna, Austria, September 23-27, 2007.
- 2007 Reviewer, Twenty-Ninth Meeting of the Cognitive Science Society, Nashville, TN, August 1-4, 2007.
- 2007 Scientific Committee, Fourth Sound and Music Computing Conference, Lefkada, Greece, July 11-13, 2007.
- 2007 Papers Committee, Seventh International Conference on New Interfaces for Musical Expression, New York University, New York, June 7-9, 2007.
- 2007 Program Committee, International Workshop on Artificial Intelligence and Music, Hyderabad, India, January 6-12, 2007.
- 2006 Program Committee, Second IEEE International Workshop on Multimedia Information Processing and Retrieval, San Diego, December 11-13, 2006.
- 2006 Reviewer, Seventh International Conference on Music Information Retrieval, Victoria, Canada, October 8-12, 2006.

- 2006 Papers and Posters Program Committee, Sixth International Conference on New Interfaces for Musical Expression, Institut de Recherche et Coordination Acoustique/Musique, Paris, France, June 4-7, 2006.
- 2006 Reading Panel, Third Sound and Music Computing Conference, Centre National de Creation Musicale, Marseille, France, May 18-20, 2006.
- 2006 Reviewer, IEEE International Conference on Acoustics, Speech and Signal Processing, Toulouse, France, May 14-19, 2006.
- 2005 Program Review Panel, Sixth International Conference on Music Information Retrieval, London, UK, September 11-15, 2005.
- 2002 Program Committee, Second International Conference on Music and Artificial Intelligence, Edinburgh, Scotland, UK, September 12-14, 2002.
- Aug 2010 Session Chair, Eleventh International Conference on Music Information Retrieval
- Sep 2007 Session Chair, Eighth International Conference on Music Information Retrieval
- Dec 2005 Session Chair, First IEEE Multimedia Information Processing and Retrieval Workshop
- Sep 2005 Session Chair, Sixth International Conference on Music Information Retrieval
- Oct 2004 Session Chair, First Sound and Music Computing Conference
- Oct 2002 Session Chair, Third International Conference on Music Information Retrieval

Editorial Service

- 2010 – Member, Editorial Board, Journal of New Music Research
- 2005 – Member, Editors' Panel, Computing in Musicology
- 2004 – Founding Associate Editor, Journal of Music and Meaning
- 2004 – Founding Member, Editorial Board, Journal of Mathematics and Music
- 2002 – Founding Associate Editor, ACM Computers in Entertainment
- 2009 – Editor, Society for Mathematics and Computation in Music Newsletter
- 2007 – 2008 Guest Editor, Journal of Mathematics and Music: Special Issue on Computation
- 2003 – 2005 Guest Editor, INFORMS Journal on Computing: Special Cluster on Computation in Music

Grant Proposal Reviews

National Science Foundation (Human-Computer Interaction, Info & Intelligent Systems)
 National Science Foundation (Artificial Intelligence and Cognitive Science, IIS)
 Professional Staff Congress-City U. of New York, Research Grant Program
 Radcliffe Institute for Advanced Study Fellowship Program

Austrian Science Foundation Erwin Schroedinger Program
 Natural Sciences and Engineering Research Council of Canada
 UK Economic and Social Research Council

Journal Paper Reviews

Computer Music Journal
 IEEE Transactions on Multimedia
 IEEE Computer
 Journal of Mathematics and Music
 Journal on Music and Meaning
 Journal of New Music Research
 Musicae Scientiae
 Music Theory Spectrum
 Proceedings of the Mathematical Music Theory Seminars, Berlin

Review and Steering Committees

- 2009 – Member, Advisory Board, Sustainable Software for Digital Music and Audio Research, a UK Engineering and Physical Sciences Research Council Proposal
- 2007 – Member, Steering Committee, Online Music Recognition And Searching 2 Project, UK Engineering and Physical Sciences Research Council Project
- 2007 – Member, Advisory Committee, Center for Digital Music, Queen Mary U. of London (London site visit Jun 4-11, 2008)

- 2007 – Secretary, Society for Mathematics and Computation in Music
- 2007 – Founding Member, Executive Board, Soc for Mathematics and computation in Music

- 2004 – 2012 Member, Visiting Committee, MIT Music and Theater Arts (Cambridge Site Visits Dec 1-2, 2004, Oct 25-26, 2006, Sep 28-29, 2008, Nov 9-10, 2010, Nov 13-14, 2012)

- 2006 – 2009 Member, Steering Committee, International Society for Music Information Retrieval
- 2007 – 2008 External Reader, Anna Huang's Masters thesis, MIT Media Lab
- 2006 External Member, PhD Thesis Committee for Aline Honingh, University of Amsterdam, the Netherlands

University Committees

- 2010 – 2011 Member, Provost's Committee on Academic Programs and Teaching

- 2009 – 2011 At-Large Member, Appointment, Promotion and Tenure Review Committee
- 2009 – 2011 Member, Renaissance Scholars Faculty Panel

- 2006 – 2007 Vice-Chair, Engineering Faculty Council
- 2007 Member, EFC/APT Merit Review Committee
- 2005 – 2006 Chair, EFC Standing Committee on Web-based Annual Faculty Review
- 2004 – 2005 Webmaster, Elected Officer, EFC, Elected Officer
- 2003 – 2007 Member, Engineering Faculty Council

- 2007 Reviewer, Digital Dissertation Fellowship
- 2005 – 2006 Member, Provost's Arts and Humanities Initiative Committee
- 2005 – 2006 Member, University Committee on Curriculum: Arts and Humanities Panel

- 2005 – 2006 Member, Viterbi School of Engineering Dean Search Committee
- 2002 – 2003 Engineering Curriculum Committee
- 2001 – 2002 Distance Education Network Committee

- 2002 – present Ambassador appointed by the President of USC

Department Committees

- 2009 – 2010 Member, Epstein ISE Department Undergraduate Curriculum Committee
- 2003 – 2004 Chair, Epstein ISE Department Space Committee

- 2002 – 2003 Member, Epstein ISE Department Faculty Search Committee
- 2001 – 2002 Chair, Epstein ISE Department Faculty Search Committee

- 2002 – 2003 Chair, Epstein ISE Department Graduate Committee

- 2001 – 2002 Member, Epstein ISE Department Graduate Committee
- 2000 – 2001 Faculty Advisor, Lehigh University IIE Student Chapter

Professional Society Memberships Inst for Operations Research & Management Science (INFORMS) member since 1992. Nominated to participate in doctoral colloquium, Atlanta, GA (Nov 1996).

Institute for Industrial Engineers (IIE) member since 2002.

Association for Computing Machinery (ACM) member since 2003.

IEEE Computer Society member since 2005.

International Soc for Math and Computation in Music, founding member, since 2005.

International Society for Music Information Retrieval, since 2009.

International Musicological Society (IMS) member, 2002.

College Music Society (CMS) member, 2000-2001.

Society for Music Perception and Cognition (SMPC) member, 2000, 2005.

American Mathematical Society (AMS) member, 2007.

Lecture Series Organized

- Organizer Viterbi Early Career Chair Lecture Series
- Founder Interdisciplinary lectures on music computation and cognition by visitors worldwide. Website created: www-bcf.usc.edu/~mucoaco/events/lectures.html
- Coordinator PhD Seminar (ISE 650, USC, 2002)
Website created: www-scf.usc.edu/~echew/PhDSeminar2002 (discontinued)
- Coordinator MIT Operations Research Center Fall Seminar Series
web.mit.edu/orc/www/seminar/1995f (discontinued)

Courses Taught and Open Courseware

- Instructor Topics in Eng Approaches to Music Cognition (ISE575/CSCI575/EE675, USC)
- Creator Structure in Music
Open Courseware: www-scf.usc.edu/~ise575/e
2011: Students: 9
- Instructor Engineering Freshman Academy (ENGR102, USC)
- Creator Open Courseware: www-classes.usc.edu/engr/engr/102
2010: Students: 39 (section 28512); Course: 2.76/5.0; Instructor: 3.72/5.0
2010: Students: 37 (section 28517); Course: 2.88/5.0; Instructor: 4.09/5.0
- Instructor Topics in Eng Approaches to Music Cognition (ISE575/CSCI575/EE675, USC)
- Creator Musical Prosody and Interpretation
Open Courseware: www-scf.usc.edu/~ise575/d
2010: Students: 9 (+1 auditor); Course: 4.5/5.0; Instructor: 4.7/5.0
- Instructor Topics in Eng Approaches to Music Cognition (ISE575c/CSCI575c/EE675c, USC)
- Creator Human-Centered Computing in Generating Music
Open Courseware: www-scf.usc.edu/~ise575/c (week-by-week details, reports, projects)

	2007: Students: 6 for credit (+2 official auditors); Course: 5.0/5.0; Instructor: 5.0/5.0
Instructor Creator	Topics in Eng Approaches to Music Cognition (ISE575b/CSCI575b/EE675b, USC) Computational Modeling of Expressive Performance Open Courseware: www-scf.usc.edu/~ise575/b (week-by-week details, reports, projects) 2006: Students: 13 for credit (+3 auditors); Course: 4.6/5.0; Instructor: 4.7/5.0
Instructor Creator	Eng Approaches to Music Perception and Cognition (ISE575/CSCI575/EE675, USC) Open Courseware (2005): www-scf.usc.edu/~ise575 (including reports, projects) Open Courseware (2004): www-classes.usc.edu/engr/ise/599muscog/2004 Open Courseware (2003): www-classes.usc.edu/engr/ise/599muscog/2003 2005: Students: 11/11; Course: 3.7/5.0; Instructor: 4.1/5.0 2004: Students: 12/12; Course: 4.5/5.0; Instructor: 4.7/5.0 2003: Students: 9/9; Course: 4.6/5.0; Instructor: 4.8/5.0
Instructor	Web Technology for Industrial Engineering (ISE582, USC) Open Courseware (2003): www-classes.usc.edu/engr/ise/582/2003 (including projects) Open Courseware (2002): www-classes.usc.edu/engr/ise/582/2002 Open Courseware (2001): www-classes.usc.edu/engr/ise/582/2001 2003: Students: 19/38; Course: 3.2/5.0; Instructor: 4.2/5.0 2002: Students: 20/35; Course: 3.2/5.0; Instructor: 3.6/5.0 2001: Students: 25/32; Course: 3.7/5.0; Instructor: 4.3/5.0
Instructor	Introduction to Operations Research (ISE330, USC) Open Courseware (2006): www-scf.usc.edu/~ise330 (including, hw/exams and solns) Open Courseware (2003): www-classes.usc.edu/engr/ise/330/2003 Open Courseware (2002): www-classes.usc.edu/engr/ise/330/2002 2006: Students: 36/49; Course: 3.6/5.0; Instructor: 3.7/5.0 2003: Students: 30/39; Course: 3.2/5.0; Instructor: 3.1/5.0 2002: Students: 12/18; Course: 3.8/5.0; Instructor: 4.5/5.0
Faculty Advisor	Senior Design Project (ISE495b, USC) 2005 (BMW dealership team), 2006 (Aramark team), 2010 (Ability First team)
Instructor	Engineering Statistics (IE121, Lehigh, 2001) Open Courseware (discontinued)
Instructor	Operations Research – Probabilistic Models (IE221, Lehigh, 2000) Open Courseware (discontinued) Developed case study: Imogen Timber and Lumber (UG assistant Anthony Hillman)
Instructor	Engineering Risk Benefit Analysis (1.155J, MIT, 2000) Open Courseware (discontinued, password protected)
Teaching Assistant	Engineering Risk Benefit Analysis (1.155J, MIT, 1998) Open Courseware (discontinued)
Teaching Assistant	Quantitative Methods (HBS, Harvard, 2000)
Teaching Assistant	Data, Models and Decisions (15.060, MIT, 1996)
Teaching Assistant	Urban Operations Research (6.281J, MIT, 1997-1998) OpenCourseware website created Supervised online textbook initiative: web.mit.edu/urban_or_book/www
Instructor	MBA Mathematics Review (MIT, 1998) Website created (discontinued)
Tutorial Instructor	Statistical Analysis for Technology Managers (15.061, MIT–MOT, 1995 – 1997)
Instructor	Pianolab (MIT, 1998-2000)

Systems Administrator Laboratory for Financial Engineering (Sloan, MIT, 1997)

Other Web Publications

Researcher Contemporary Chinese Piano Music
 Creator Public Resource (1997, 2007): www-bcf.usc.edu/~echew/projects/ChineseMusic
 Contains my translations of biographies and autobiographies of composers Chen Gang, Jiang Weny, Wang Lisan, and pianist Zhou Guangren

Postdoctoral Fellow Supervised

Anja Volk (WISE Postdoctoral Fellow, 2003 – 2005)
NWO Innovational Research Incentives Scheme Vidi laureate (2010 – 2015) to 'Model music similarity over time using the variation principle'
 (2011–) Assistant Professor of Information and Computing Sciences, University of Utrecht, the Netherlands.
 (2006 – 2010) University of Utrecht, deputy project leader of the Witchcraft Project, a NWO-CATCH funded project in music information retrieval.

Ph.D. Students Supervised

Jordan Bennet Louis Smith (Industrial and Systems Engineering, 2010 –)
 Topic: Music Structure Analysis

Erdem Unal (Electrical Engineering, 2002 – 2008), co-advised with S. Narayanan
 Thesis: *Music Retrieval Systems: Robust Performance Under the Effect of Uncertainty*
 Qualifying exam: August 6, 2007. Thesis defense: May 13, 2008.
Turkish Career Grant for 'Music tracking system for royalty rights management' (2010)
 (2008 –) Researcher, Scientific and Technological Research Council of Turkey (TÜBİTAK)

Ching-Hua Chuan (Computer Science, 2004 – 2008)
 Thesis: *Hybrid Methods for Music Analysis and Synthesis: Audio Key Finding and Automatic Style-Specific Accompaniment*
Grace Hopper Celebration of Women in Computing's Best New Investigator Paper Award 2011
 Recipient of USC Digital Dissertation Fellowship (2007 – 2008)
 Nominated to membership in USC's Phi Kappa Phi honor society
 Qualifying exam: May 29, 2007. Thesis defense: May 13, 2008.
 (Aug 2010 –) Assistant Professor at University of North Florida
 (Aug 2008 – Jul 2010) Assistant Professor at Barry University

Yu Shiu (Electrical Engineering, 2005 – 2008), co-advised with Prof. Jay C.-C. Kuo
 Thesis: *Digital Signal Processing Techniques for Music Structure Analysis*
 Qualifying exam January 26, 2006. Thesis defense: August 20, 2007.
 (since April 2008) Engineer at SonicJam (a web-based digital music company)

Jie Liu (Industrial and Systems Engineering, 2003 – 2007)
 Thesis: *User-Centered Design and Computing in ESP: a Driving Interface for Musical Expression Synthesis*
 Recipient of USC Dissertation Completion Fellowship (Fall 2007)
 Qualifying exam: May 4, 2006. Thesis defense: August 28, 2007.
 (since Jul 2010) Software engineer, Facebook
 (Mar 2008 – Jun 2010) Software engineer, Ironport (a Cisco business unit)

Arpi Mardirossian (Industrial and Systems Engineering, 2002 – 2007)
 Thesis: *Investigations in Music Similarity: Analysis, Organization, and Visualization Using Tonal Features*
 Recipient of USC Digital Dissertation Fellowship (2006 – 2007)
 Qualifying exam: August 21, 2006. Thesis defense: June 5, 2007.
 (2009 –) Lecturer at USC Epstein Department of Industrial and Systems Engineering
 (2008 – 2009) Interface and Media Design Manager, Buzznet

Visiting Doctoral Students

Suranga Nanayakkara (Electrical Engineering, National U. of Singapore, 2007–)
 Interactive and Digital Media Network, NUS Hollywood Lab Intern (Summer 2007)
 Project: Hearing through Sight

Oliver Grewe (University of Music and Drama, Hannover, Germany)
 The Institute for Music Physiology and Musicians' Medicine
 student of Eckhart Altenmuller and Reinhart Kopiez (visited Spring 2005)
 Project: How does music arouse "chills"? Investigations of strong emotions

Frederik Nagel (University of Music and Drama, Hannover, Germany)
 The Institute for Music Physiology and Musicians' Medicine
 student of Eckhart Altenmuller and Reinhart Kopiez (visited Spring 2005)
 Project: EMuJoy software for continuous measurement of perceived emotions in music

M.S. Theses Students Supervised

Eric Cheng (Elec Eng – Multimedia & Creative Tech, 2006 – 2007) MS Thesis advisee
 Thesis: *Computational Analysis of Expression in Violin Performance*
 Recipient of a *Frank and Eva Buck Foundation Scholarship*, since 2000
 Thesis defense: November 21, 2006.
 (since Dec 2006) Research Analyst, Arete Associates.

Merrick Mosst (Electrical Engineering, 2005 – 2006) MS Thesis advisee
 Thesis: *Quantitative Modeling of Emotion Perception in Music*
Rose Hills Merit Scholarship Award, 2006
 USC Trustee's Scholar, 2001 – 2005
 Thesis defense: September 1, 2006.
 (since Aug 2006) Audio Engineer, Audyssey Laboratories.

Shivani Yardi (Electrical Engineering, 2003-2004) MS Thesis advisee
 Thesis: *Raga Structure: Geometric and Generative Models*
 Thesis defended: Spring, 2004.
 (since 2004) Jacuzzi Brands, Inc.

Other M.S. Students Supervised

Chandras Rajagopal (Electrical Engineering – Systems, 2010)
 Topic: Granados on Guitar and Piano

ChangHyun Kim (Electrical Engineering – Systems, 2006 – 2008)
 Topic: Wireless Conducting Interface
 (2009 –) Doctoral student at KAIST, South Korea.

Robert Parke (Electrical Engineering – Systems, 2005 – 2007)
 Topic: Film, Music, and Emotion
 USC Trustee's Scholar, 2000-2004
 USC Archimedes' Circle Award (Engineering Valedictorian), 2004

Aaron Yang (Computer Engineering, 2004 – 2005)
 (2006) Integrated circuit design intern, Electronic Design Automation, CA
 (since 2007) Integrated circuit design engineer, Electronic Design Automation, CA

Carley Tanoue (Engineering Management, 2004 – 2005)
Best Presentation Award, IMSC Student Conference, 2005
 (2005 – 2007) User Interface Developer, GoldPocket Interactive
 (since 2008) Senior Flash Engineer, ABC.com

Cindy Chia-Ying Lee (Computer Science, 2003 – 2004)
 (2005-2006) Masters Diploma, Interaction Design Institute Ivrea, Italy

Phillip Wu (Industrial and Systems Engineering, 2002 – 2004)
 (2006 – 2007) Web Engineer, Veeky Inc., online video sharing startup, CA
 (since 2007) Web/Wap Engineer, Helio LLC

Dulari Parikh (Computer Science, 2003 – 2004)

Hui-Yun Kao (Computer Science, 2003 – 2004)
 (since 2004) LiteOn Technology Corp., communications group, Taiwan

Divya Devaguptapu (Electrical Engineering, 2003 – 2004)

Xumei Tan (Industrial and Systems Engineering, 2002 – 2004)
 (since May 2007) Operations Research Analyst, E & J Gallo Winery.

Yun-Ching Chen (Integrated Media Sys/Industrial & Systems Engineering, 2002–2003)
 (since 2003) Fab 12 Manufacturing Dep, Taiwan Semiconductor Manuf Dep, Ltd.

Sharvajana Ameresekere (Engineering Management, 2002 – 2003)
 (since 2003) Managing Director, Consultant 21 Limited, Colombo, Sri Lanka

Undergraduates Supervised

Katie Powell (Computer Science, 2011)
 (2011–) KUSC Undergraduate Research Assistant

Keith DeRuiter (Computer Science, 2011)

Tim Brochier (Electrical Engineering, Minor in Music Industry, 2010–)
 (2010 – 2011) USC Merit Research Scholar

Joyce Liu (Biomedical Engineering, 2010)
 (2010) USC Merit Research Scholar

Steven Lewis (Mechanical Engineering, 2010)

Yawen Cheng (Neuroscience, Summer Undergraduate Research Fellow, 2010)

Jiayun (Gloria) Guo (Computer Science, University of Washington)
CRA-W Distributed Research Experiences for Undergraduates Fellow (2010)

KatieAnna Wolf (Computer Science / Mathematics / Italian, University of Minnesota)
 Honors thesis: Evaluation of Performance-to-Score MIDI Alignment for Piano Duets
NSF Graduate Research Fellowship, 2011

CRA Outstanding Undergraduate Award Finalist, 2010

CRA-W Distributed Research Experiences for Undergraduates Fellow (2010)

Late breaking poster presentation at the International Conference on Music Information Retrieval, Utrecht, the Netherlands (2010)

(2011–) PhD, Computer Science, Princeton University

Anna Huang (Comp Sci / Music Comp, IMSC-UGRP, WISE, Annenberg, 2002 – 2006)
NSF Graduate Research Fellowship, 2006
Outstanding Research Award in Computer Science, 2006

CRA Outstanding Undergraduate Award Finalist, 2005
Josephine de Kármán Fellowship Award, 2005
First Prize, San Francisco Choral Artists' New Voice Project, 2005
First Prize, Interdisciplinary Award, 2004 USC Undergraduate Symposium
 (2006 – 2008) SM, MIT Media Lab Music, Mind, and Machine Group
 (scholarship to New England Conservatory MS Composition program deferred)
 PhD candidate, Harvard University Computer Science (since 2008)

Aaron Yang (Computer Engineering, IMSC-UGRP, 2003 – 2004)
Best Presentation Award, IMSC Student Conference, 2003
Best Presentation Award, IMSC Student Conference, 2004
 (2005 – 2006) MS, Computer Engineering
 (since 2007) Integrated Circuit Designer, Electronic Design Automation

Eric Wiggins (Computer Science, IMSC-UGRP, 2004 – 2005)
Best Presentation Award, IMSC Student Conference, 2005

Katherine deSousa (Industrial and Systems Engineering, WISE-UGRP, 2006–2007)
 (Fall 2006) Dean's List

Nate Dahlin (Electrical Engineering, USC Merit Scholarship, 2005 – 2006)
 (Fall 2006) Dean's List

Jesse Hans (Electrical Engineering, IMSC-UGRP, 2005 – 2006)
 (2004 – 2008) USC Merit Scholar
 (Fall 2006) Dean's List

Jan Zheng (CS/Math/Psych, UMBC, IMSC-REU intern, 2007)

Joann Emmanuel (Aeronautical and Mechanical Engineering, IMSC-UGRP, 2003)
 (2004 – 2005) Masters student, Industrial and Systems Engineering

Dennis Leung (Biomedical Engineering, IMSC-UGRP, 2005 – 2006)

Tanya Cabral (Electrical Engineering, IMSC-UGRP, 2004 – 2005)

Michael Rapp (Mathematics, 2007)

Scout Kingery (Engineering undeclared, 2006)

Audrey Yen (Biology, 2002)
 (2001 – 2005) USC Trustees' Scholar
 (since 2005) Medical student, Keck Medical School

John Zhu (Mathematics / Computer Science / Music, 2002)
 (since 2003) Undergraduate, U. of Chicag

Other Ph.D. Committees

Haojun (Leo) Wang (CS, 2007); Shiva Sundaram (EE-Systems, 2006–2008); Min Qin (CS, 2006–2007); Zhenyao Mo (CS, 2006-); Yu Shiu (EE-Systems, 2004–2007); Brian Harlan (Music History and Literature, 2004–2007); Maverick Shih (EE-Systems, 2002–2003); Elaine Eun-Young Kang (Computer Science, 2003); Wei-Chung Cheng (EE-Systems, 2003).

Other Qualifying Exam Committees

Haifeng Ji (ISE, 2007); Jiamin Zhao (ISE, 2002); Boontariga Kasemsomtitum (ISE, 2002), Apichat Chayanupatkul (ISE, 2003).

Media Interviews

(about my projects/work)

LaPointe, Michael (2010). Interview on Music and Mathematics in a documentary on the piano, Galileo, and mathematics. Recorded by Pointe Media July 13, 2010.

- New, David (2009). Interview on Music and Mathematics. In “Donald Coxeter – the man who saved geometry,” TV Ontario’s documentary on Coxeter’s life. Recorded June 29, 2008, premiered October 21, 2009.
- Lewis, Dan (2008). Engineer and musician Elaine Chew explores science and the aesthetics of music. In *Modern Perspectives: Scientists and Historians Discuss the Beauty of Science, Beautiful Science: Ideas that Changed the World*, Dibner Hall of History of Science, The Huntington, San Marino, CA, since November 1, 2008. www.huntington.org/thehuntington_full02.aspx?id=3124
- Sit, Mary (2008). Guest interview on “Asian Focus,” a public affairs TV show on Channel 7’s WHDH-TV, December 7, 2008.
- Lemberg, David (2006). Interview on San Diego Art Talk (inaugural show), talk radio focusing on film, fine arts, performing arts, digital multimedia, and fostering the growth and development of young artists, July 7, 2006.
- Lemberg, David and Sam Kephart (2006). Interview on Science and Society, talk radio focusing on nanotechnology, life sciences, energy and the environment, space exploration and K-12 science education, June 28, 2006.
- Lee, N. (2005). Elaine Chew, *ACM Computers in Entertainment*, 3(4), October, 2005. portal.acm.org/toc.cfm?id=1095534
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External Press (print)
(about my projects/work)

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Tomlinson, Sarah (2008). The New Cure. Boston Globe Campus Calendar, May 7, 2008. www.boston.com/ae/events/articles/2008/05/07/the_new_cure

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The Mathematics in Music: a concert-conversation with Elaine Chew. Boston Events for Music, Concerts | YPGuides.com. boston.ypguides.com/events/music/4.html

The Mathematics in Music: a concert and conversation with MIT alumna Elaine Chew. Wicked Local Cambridge, with news from the Cambridge Chronicle. www.wickedlocal.com/cambridge/archive/x1180658824/Arts-Calendar-May-8

MIT: The Mathematics in Music: A Concert and Conversation with Elaine Chew. New Music Boston. www.acfnewengland.org/cgi-bin/dada/nmb.cgi/archive_atom/nmb

The Mathematics in Music. Cambridge Office of Tourism Calendar. www.cambridge-usa.org/visitors/news/list.php?day=-2-51k

The Mathematics in Music. Boston Science and Engineering Lectures. www.bostonscienceandengineeringlectures.com

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Math & Music Concert – May 12, 2008. Posted by Ritchie, April 2, 2008. aaccel.blogspot.com/2008/04/math-music-concert-may-12-2008.html

Alumna Elaine Chew to present concert-conversation on 'The Mathematics in Music'. MIT Office for the Arts press release – web.mit.edu/arts/announcements/prs/2008/0402_Chew.html

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Thomas, Charlotte (2007). Engineering Music: *Technology has revolutionized how we enjoy music – and what is music*. Society of Women Engineers Magazine, October, 2007.

Corke, Jenny (2007). Humanists, scientists, artists among new fellows at Radcliffe. Humanists, scientists, artists among new fellows at Radcliffe, Harvard University Gazette, May 31, 2007. www.news.harvard.edu/gazette/2007/05.31/09-radcliffefellows.html

Corke, Jenny (2007). Radcliffe Institute Announces 2007–2008 Fellows and Their Projects: 51 Artists, Scholars to Work on Projects Ranging from Film Production to Stem Cell Research, June 1, 2007. www.radcliffe.edu/about/news/pr/show_pr.php?pr_name=070601_fellows.html

Goh, Leslie (2007). Seeing notes with numbers. Singapore Straits Times, Digital Life! March 20, 2007.

Ng Chien Hao (2007). Putting math back into music. National University of Singapore Campus Observer, Livin', March 18, 2007.

Brown, August (2007). Her solution to Sudoku? Music – Pianist Elaine Chew performs the world premiere of a puzzling composition. Los Angeles Times, Entertainment News, Classical Music, January 24, 2007. www.calendarlive.com/printedition/calendar/cl-et-chew24jan24,0,5790389.story

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How Exactly Does Music Elicit And Express Emotion? Medical News TODAY - Psychology/Psychiatry and Neurology/Neuroscience News, May 15, 2006. www.medicalnewstoday.com/medicalnews.php?newsid=43318

Computermodelle musikalischen Ausdrucks. Codex Flores - Onlinemagazin für Musikästhetik und kognitive Musikpsychologie (Swiss-based online magazine), May 12, 2006. www.codexflores.ch/nachrichten_ind2.php?art=2421

USC engineering class creates tools to analyze musical expression (via PhysOrg). digg.com: a technology news website with non-hierarchical editorial control: music, May 12, 2006. digg.com/music/USC_Engineering_Class_Creates_Tools_To_Analyze_Musical_Expression

USC engineering class creates tools to analyze musical expression (via SciDaily-MattEnrgy). ProLog - a service of PenTeleData: ptd.net, May 12, 2006. www.ptd.net/webnews/wed/du/Cwebwire-scidaily_mattenrgy.2447.html

Engineering Class Creates Tools to Analyze Musical Expression. K.N.I.S. - Kensei News & Information Services: BizDev: Business: Music Industry, May 11, 2006. www.kensei-news.com/bizdev/publish/mi_business/article_45558.shtml

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USC engineering class creates tools to analyze musical expression. PhysOrg.com, May 11, 2006. pda.physorg.com/lofi-news-engineering-class-course_66577022.html

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BEEP BEEP: Researchers at the University of Southern California have developed a device that turns drivers into musicians. Chronicle of Higher Education: Vol.51 No.43 p.A27: Information Technology, July 1, 2005. chronicle.com/chronicle/v51/5143guide.htm

University Researchers Make Device That Turns Drivers Into Musicians. ACM Tech News: Vol.7 Issue 810 Item#16, June 29, 2005. www.acm.org/technews/articles/2005-7/0629w.html

Now, you can drive your music! Zeenews: Sci-Tech: Space and Technology, June 22, 2005. www.zeenews.com/znew/articles.asp?aid=220997&sid=ENV&ssid=27

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- Keir, Rick (2004). Prof. Elaine Chew receives NSF Early Career award. IMSC Newsletter, April 2004, p.2.
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- Calverley, Bob (2002). In Tune with Science. Mixing computation and composition, an engineer-pianist probes the structure of music and performance decision-making. USC Trojan Family Magazine, Summer 2002. www.usc.edu/dept/pubrel/trojan_family/summer02/whatsnew/PeopleWatch2.html
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- Junior Faculty Profile: Elaine Chew. USC Engineering Research Brochure, March 2002.
- Calverley, R. (2002). Composed Research. USC Engineer, Vol. 1 Issue 1, Spring/Summer 2002.
- Keir, R. (2002). Prof. Chew Bring Music Expertise to IMSC Research. IMSC Newsletter, February 2002, p.6.
- Calverley, R. (2002). Concert Pianist Uses Engineering Tools to Probe the Structure of Music. USC Today, January 21, 2002.
- Calverley, Bob (2002). Music of Changes Promotes Contemporary Music. USC News, January 21, 2002.
- Pfitzer, Kurt (2000). Pianist and engineering professor, she marries music and computers. Lehigh Weekly, October 18, 2000.
- Group Plays Poulenc. MIT Tech Talk, January 27, 1999.
- Heinemann, Lynn (1998). Arts News. MIT Tech Talk, October 28, 1998.
- Heinemann, Lynn (1998). Award recognize MIT achievements in the arts. MIT Tech Talk, June 3, 1998.
- Haller, Mary (1998). Alumnus to showcase faculty compositions. MIT Tech Talk, February 25, 1998.
- Heinemann, Lynn (1998). Chew offers ‘Impressions from the East.’ MIT Tech Talk, February 4, 1998.
- Students and alum present teacher’s music. MIT Tech Talk, February 5, 1997.
- Chen, Thomas (1996). MITSO concert features brilliant piano, violin solos. MIT Tech Talk, March 19, 1996.
- Haller, Mary (1994). Campus Musicians Hear Preview of New Harbison Work. MIT Tech Talk, March 30, 1994.

Premieres of New Music with Selected Performances

- | | |
|-------------------------|---|
| Peter Child | <i>f80 (Faure), b510 (Bax), i95 (Ireland)</i>
Mar 5, 2011. MIT Little Kresge Auditorium, Cambridge, MA.
Mar 31, 2011. USC Newman Recital Hall. |
| H.S.M. ‘Donald’ Coxeter | <i>Andante</i> (‘To O.B., with many happy returns, Feb 1925’).
<i>Allegro Moderato</i> (from <i>Magic</i>).
Jun 29, 2008. MIT Kresge Auditorium, Cambridge, MA.
Recording of Soundtrack for TV Ontario’s documentary on Coxeter’s life. |
| Rodney Waschka II | <i>A Simple Gift for Elaine</i> (2008) for Elaine Chew. World premiere.
May 12, 2008. MIT Killian Hall, Cambridge, MA.
Mar 24, 2008. N. Carolina State U. Arts Now Series, Raleigh, NC. |
| Tamar Diesendruck | <i>Sudoku Variations</i> (2006) for Elaine Chew. World premiere.
May 12, 2008. MIT Killian Hall, Cambridge, MA.
Mar 24, 2008. N. Carolina State U. Arts Now Series, Talley Student Center Ballroom.
Mar 16, 2007. National University of Singapore Techno-Arts Series, U. Cultural Ctr.
Feb 26, 2007. University of Victoria, Victoria, British Columbia, Canada.
Jan 24, 2007. Provost’s Arts and Humanities Initiative, Newman Hall, Los Angeles, CA |

- Alba Potes *Tres Piezas Breves para Piano* (1994-1997). Los Angeles premiere.
Siete Haiku (1992) for soprano and piano. Los Angeles premiere.
 with Julieanne Klein, soprano.
 Apr 3, 2002. Portrait of Alba Potes by Music of Changes, Zipper Hall, Los Angeles, CA
- Paul Schoenfield *Trio for Clarinet, Violin and Piano* (1990). Los Angeles premiere.
 with *Xine and Friends*: Lynn Maxine Rosen, vln, and Tad Calcara, cl.
 Feb 23, 2002. Samuelson Chapel, Cal Lutheran University, Thousand Oaks, CA
- Chris Dench *Eigenmomenta* (2000-2001). US premiere.
Tilt (1985) for solo piano. US premiere.
 Feb, 2002. Portrait of Chris Dench by Music of Changes, Zipper Hall, Los Angeles.
- Cecilia Heejeong Kim *Illusions* for solo piano (1994). US premiere.
 Jae Eun Ha *Quodlibet* for piano and violin (1995) by Jae Eun Ha.
 Donald Sur *Satori on Park Avenue* (1984) by Donald Sur.
 Feb, 2001. Contemporary Korean Concert by the Lehigh U. Very Modern Ensemble.
 Baker Hall, Lehigh University, Bethlehem, PA.
- Peter Child *Doubles: III* (1998), *Prelude and Postlude* (2000). World Premiere.
Doubles III was written for Elaine Chew and based on Chinese/Malay songs from my childhood.
 Jan 24, 2007. Provost's Arts and Humanities Initiative, Newman Hall, Los Angeles, CA
 Jan 7, 2004. ARCS Annual Meeting Dinner, California Club, Los Angeles, CA.
 Dec 2, 2001. Music of Changes, Zipper Hall, Los Angeles, CA.
 Feb 17, 2001. Killian Hall, Massachusetts Institute of Technology, MA.
 May 12, 2000. Jordan Hall, New England Conservatory, Boston, MA.
 Aug 3, 1999. St. Mary's Pro-Cathedral, Salt Ste. Marie, MI.
 Apr 30 / May 1, 1999. Cambridge Multicultural Arts Center, Cambridge MA.
 Mar 27, 1999. Building 10-250, MIT, Cambridge, MA, for Odyssey Program.
 Nov 17, 1998. Home of Pat Chute, MIT Council for the Arts Mtg, Cambridge, MA.
 Nov 13, 1998. Killian Hall, Massachusetts Institute of Technology, Cambridge, MA.
 Sep 12, 1998. Home of Chin Nam Tan, Singapore.
- Wang Lisan *IMPRESSIONS* – concert of contemporary Chinese and French music.
 Jiang Wenye *Impressions of Paintings by Higashiyama Kaiti* (1979). US premiere.
Festive Poems of the Home Village (1950). US premiere.
 and *Gaspard de la Nuit* (1908) by Maurice Ravel.
 Nov 3, 2000. American Musicological Society lecture-recital, Toronto2000, Canada.
 Oct 24, 2000. Lecture-recital, Baker Hall, Lehigh University, Bethlehem, PA.
 May 12, 2000. Fdn for Chinese Performing Arts Recitals, Jordan Hall, Boston, MA.
 Aug 3, 1999. St. Mary's Pro-Cathedral, Sault Ste. Marie, MI.
 May 14-15, 1999. Embassy Series Exhibition-Recital. Singapore Embassy, D.C.
 Apr 30 / May 1, 1999. Cambridge Multicultural Arts Center, Cambridge, MA.
 Oct 25, 1998. The Unitarian-Universalist Church of Greater Lynn, Swampscott, MA.
 Feb 8, 1998. Advanced Music Performance Program Recital, MIT, Cambridge, MA.
- Chen Yi *Ba Ban* (2000) for solo piano. Boston Premiere.
 May 12, 2000. Jordan Hall, New England Conservatory, Boston, MA.
- Peter Child *The Great Panjandrum: Seven Songs for Young Listeners* (1989) by Peter Child.
 Mar 10, 2000. (with Miho Sato, sop) Cambridge Multicultural Arts Ctr, Cambridge MA.
 Feb 28, 1998. (with Janna Baty, sop) Sounds of the XXth Century, Killina Hall, MIT.
 Jun 15, 1997. (with Janna Baty, sop) Rockport Chamber Music Festival, Rockport, MA.
 Feb 8, 1997. (with Janna Baty, sop) Child's Play, Killian Hall, MIT, Cambridge, MA.
- Eric Sawyer *Quartet for Piano and Strings* (1997). Boston Premiere.
 with Walter Federle, vln, Annette Klein, vla, and Michael Bonner, cello.

Apr 11, 1999. Crowell Chapel, Manchester-by-the-Sea, MA.
 Apr 7, 1999. Cabot Living Room, Harvard University, Cambridge, MA.
 Mar 30, 1999. Killian Hall, Massachusetts Institute of Technology, Cambridge, MA.
 Mar 27, 1999. Building 10-250, MIT, Cambridge, MA, for Odyssey Program.
 Mar 7, 1999. Ashdown House, Massachusetts Institute of Technology, Cambridge, MA.

John Harbison *Cello Concerto* (1994). World premiere preview.
 with Yo-Yo Ma, cello. Pianists: A. Child (mvt 1), J. Yap (mvt 2), E. Chew (mvt 3).
 Feb 1994. Killian Hall, Massachusetts Institute of Technology, Cambridge, MA.

Contemporary Music CD Recordings

Peter Child *Doubles* (1998-2000) – *Prologue, Doubles III, Epilogue*.
 March 2001, recorded at the Sonic Temple Studio, Roslindale, MA,
 by recording engineer: Joel Gordon.
 In *Doubles – Music of Peter Child*
 © 2009 Albany Records – TROY 1114

Peter Child *Trio* (1998) – *Celebration-Variation-Reflection-Gombosi Romp*
 with Grant Ho, vln, and Asher Davison, cl
 In *Child's Play*
 © 1998 Neuma Records – 45-098; ASIN: B00000G3WC

Movie Soundtrack Recording

H.S.M. 'Donald' Coxeter *Andante* ('To O.B., with many happy returns, Feb 1925')
Allegro Moderato (from *Magic*)
 Recorded June 29, 2008, Kresge Auditorium, Cambridge, MA.
 Soundtrack for documentary on Coxeter's life,
 Donald Coxeter – the man who saved geometry
 by the Toronto-based Foundry Films.
 September 9, 2009. Preview Screening at the Fields Institute, Toronto, Canada.
 October 21, 2009. Premiere on TV Ontario, Canada.
 October 25, 2009. Repeated on TV Ontario, Canada.

Recordings Featured on National Public Radio

Ivan Tchernepin *Fetes – Variations on Happy Birthday* (1970-1979).
 2001. In the online feature archive on *Parody Pieces, Art of the States*
 Distributed by Public Radio International.
 Streaming audio available at <http://www.artofthestates.org/cgi-bin/piece.pl?pid=22>

Francis Poulenc *Sextuor* (1932-40) by Poulenc
 with Lehigh University's faculty wind ensemble: the East Winds Ensemble.
 Robin Kani, fl, David Diggs, ob, Christopher DiSanto, cl, Ping Liang, bs, Paul
 Lafollette, hn.
 March 2001. Recorded live for WDIY, Lehigh Valley's NPR member station.

Multimedia Concerts 2011. **Musical Patois** – reflections of language in music
 Elaine Chew, performer and producer, Alexandre R. J. François, co-producer
 A concert-conversation with neuroscientist Aniruddh Patel and composer Peter Child

- featuring world premieres of newly commissioned works by Peter Child.
 March 31, 2011. USC Visions & Voices, Newman Recital Hall, Los Angeles, CA
 March 5, 2011. MIT 150th anniversary event, FAST Arts Festival, Cambridge, MA
2011. **MuSA.RT and Beethoven's Fifth** – invited presentation/performance
 (with Julia Greer).
Beethoven's Fifth Symphony Arranged for Piano Four Hands (n.d., ca.1905)
 by Xaver Scharwenka
 Feb 10, 2011. NAE Regional Meeting, USC, Town & Gown, Los Angeles, CA.
2008. **The Mathematics in Music** – a concert-conversation with Elaine Chew
Sudoku Variations (2006) by Tamar Diesendruck
Doubles III and Epilogue (1998-99) by Peter Child
A Simple Gift for Elaine (2008) by Rodney Waschka II
Fêtes – Variations on Happy Birthday (1975) by Ivan Tcherepnin
 Mar 24, 2008. NCSU Arts Now Series, Talley Student Center Ballroom, Raleigh, NC.
 May 12, 2008. MIT Applied Mathematics Colloquium, Cambridge, MA
2007. **The Mathematics in Music** – a concert-conversation with Elaine Chew
Sudoku Variations (2006) by Tamar Diesendruck, special commission for event.
Fêtes – Variations on Happy Birthday (1975) by Ivan Tcherepnin
Doubles III and Epilogue (1998-99) by Peter Child
 Jan 24, 2007. USC Provost's Arts and Humanities Initiative, Alfred Newman Recital
 Hall, Los Angeles, CA.
 Feb 26, 2007. University of Victoria Women Scholars Lecture Series, Victoria, British
 Columbia, Canada.
 Mar 16, 2007. National University of Singapore Arts Festival – Techno-Arts Series,
 NUS University Cultural Center, Singapore.
 (with Alexandre François coordinating MuSA.RT, a real-time tonal analysis system)
2003. January 31, 2003. **Dark Blue Sky Dream**
 Music Under the Stars concert series, Ask Jeeves Planetarium
 Chabot Space & Science Center, Oakland, CA.
 Julia Ogrydziak, violin & artistic director, Elaine Chew, piano.
 A multimedia production featuring music by Bolcom, Pärt, Takemitsu and Ravel.
 Concurrent projection of slides and video in the planetarium dome.
 See <http://www.julia-o.com/shows.html>
2002. April 15, 2002. **Flying Sonics** – a tale of two pianos and immersive audio
 Newman Hall, University of Southern California, Los Angeles, CA.
 Elaine Chew, artistic director and producer
 with Dennis Thurmond, Chris Kyriakakis, Tom Holman, Kevin Dooley and Ben Levine
 Featuring music by Piazzolla, Herbie Hancock, Gershwin, Dooley and Levine
 with live and prepared renderings of sounds in 10.2-channel immersive audio.
 See <http://audiolab.usc.edu/events/FlyingSonics>

Other Selected Solo Piano / Concerto Performances

2008. Concert at the International Conference on Music Information Retrieval (ISMIR)
Fêtes – Variations on Happy Birthday (1975) by Ivan Tcherepnin
 Sep 16, 2008. ISMIR Concert, Drexel University, Philadelphia, PA
2006. *Thirty-two Variations on an Original Theme in C minor WoO 80o* by Beethoven,
Doubles III and Epilogue (1998-1999) by Peter Child
 Dec 8, 2006. Los Angeles Philharmonic Affiliates Concert, Long Beach, CA.

2006. *Russian Fairy Tale* by Nikolai Medtner, *Regards No.IV and XVI* by Olivier Messiaen, *Fêtes – Variations on Happy Birthday* by Ivan Tcherepnin.
May 18, 2006. Los Angeles Philharmonic Peninsula Committee Salon, Rolling Hills United Methodist Church, Rolling Hills Estates, CA.
2005. *Doubles* (1998-1999) by Peter Child
Fetes – Variations on Happy Birthday (1970-1979) by Ivan Tcherepnin
May 28, 2005. UBC School of Music Recital Hall, NIME Concert.
May 13, 2005. CCRMA Strictly Ballroom Concert.
April 18, 2005. INFORMS Pract Conf, Westin Mission Hills Resort, Palm Springs, CA.
2003. Selections from *Peccadilloes* by Paul Schoenfield
June 22, 2005. Renaissance at the Wellington, Laguna Hills, CA
2003. *Village Earth Poems* (1950) by Jiang Wenye, *Doubles* (1998-1999) by Peter Child
Impressions of Paintings by Higashiyama Kaiti (1979) by Wang Lisan
Feb 3, 2003. 31st ICCIE Conference, Sheraton Fisherman's Wharf, San Francisco, CA.
2002. *Three Chinese Songs* from *Doubles* (1998) by Peter Child
Sep 12, 2002. ICMAI Concert, Reid Hall, U. of Edinburgh, Scotland, UK.
2002. *Trez Piazas Breves para Piano* (1994-7) by Alba Potes
Apr 3, 2002. Music of Changes: Portrait of Alba Potes, Zipper Hall, Los Angeles, CA.
2002. *Tilt* by Chris Dench
Feb 7, 2002. Music of Changes: Portrait of Chris Dench, Zipper Hall, Los Angeles, CA.
2001. *Impressions of Paintings by Higashiyama Kaiti* (1979) by Wang Lisan
June 9, 2001. 7th Intl Congress on Musical Signification, Imatra, Finland.
2000. *Fêtes – Variations on Happy Birthday* (1970-1979) by Ivan Tcherepnin
Nov 3, 2000. Lecture-recital at Toronto2000-AMS Meeting, Toronto, Canada.
October 24, 2000. Lecture-recital at the Zoellner Arts Center, Lehigh University, PA.
May 12, 2000. Fdn for Chinese Performing Arts Concert, Jordan Hall, Boston, MA.
February 12, 2000. Tcherepnin Live!, Aurelius Ensemble, Killian Hall, MIT.
2000. *Russian Fairy Tales* by Nikolai Medtner
Children's Suite by Ding Shande
Mar 10, 2000. Cambridge Multicultural Arts Center, Cambridge, MA.
- 1996 – 1998. *Burleske* by Ricard Strauss
Sep 18-19, 1998. President's Charity Concert, Singapore Symphony Orchestra.
Victoria Concert Hall, Singapore.
Mar 16, 1996. MIT Symph Orch Concert, Kresge Auditorium, MIT, Cambridge, MA.
1996. *Flute and Drums in the Setting Sun* by Li Yinghai
Myriad Birds Adoring the Phoenix by Wang Jianzhong
Shadow Play by Alexander Tcherepnin
Russian Fairy Tales Op.51 No.1, Op.26 No.3, Op.31 No.3 by Nikolai Medtner
Romeo and Juliet by Sergei Prokofiev
Apr 26, 1996. Sino-Soviet Concert, Killian Hall, MIT, Cambridge, MA.
1994. *Vingt Regards sur l'Enfant Jésus* by Olivier Messiaen
Alborada del Gracioso and Oiseaux Tristes from *Miroirs* by Maurice Ravel
Partita No. 5 in G BWV 829 by J. S. Bach
Jun, 1994. University of Science and Technology, China.
May 27, 1994. Singapore Festival of Arts Fringe Concert, Shell Theatre, Singapore.
April 29, 1994. (Ravel) Trio Concert w/ Egozy & Hsieh, Killian Hall, Cambridge, MA.

- Apr 13, 1994. Killian Hall, MIT, Cambridge, MA.
1993. *Fantasia Op. 77* and *Sonata in Eb, Op. 7* by Beethoven
La Chasse and *Hungarian Rhapsody No. 13* by Liszt
Apr, 1994. Killian Hall, MIT, Cambridge, MA.
1992. *Sonata Piano Sonata Op.26* by Samuel Barber
Two Preludes: Op.23 No.2 in B flat major, Op.32 No.10 in B minor by Rachmaninov
Two Preludes: Voiles and *Feux d'artifice* by Debussy
Sonata in D Hob. XVI:51 by Haydn
Aug 1992. Bechtel International Center, Stanford University, Stanford, CA.
May 28, 1992. Campbell Recital Hall, Stanford University, Stanford, CA.
May 24, 1992. Morning Service, United Universalist Church, Palo Alto, CA.
1990. Works by Mozart, Chopin and Liszt
Nov 1990. Campbell Recital Hall, Stanford University, Stanford, CA.
1989. Works by Chopin, Mozart and Debussy
Jul 1989. Singapore Arts Festival Fringe Concert, Goethe Institute, Singapore.
1987. *Jeux d'eau* by Ravel
Aug 1987. Young Musicians on Sunday, Meridien Hotel, Singapore.
1986. *Concerto No. 1 in E minor* by Chopin
Aug 1986. Singapore Symphony Orchestra, Victoria Concert Hall.
Youngest finalist in Pianist of the Year Competition.

Selected Chamber Music Performances

2011. *Beethoven's Fifth Symphony arranged for Piano Four Hands* (n.d., ca.1905)
by Xaver Scharwenka
Feb 10, 2011. Off the Clock, Caltech, Pasadena, CA. (with Julia Greer)
Feb 18, 2011. NAE Regional Meeting, USC, Town & Gown, Los Angeles, CA. (with Julia Greer)
Jan 27, 2011. Schloss Dagstuhl, Germany. (with Cynthia Liem)
2010. *Suite for Violin, Clarinet, and Piano Op.157b* (1936) by Milhaud
Apr 7, 2010. 32nd Annual Viterbi Awards, California Club, Los Angeles, CA.
(with TK Wang, violin; Carl Kesselman, clarinet)
2007. Franco-Chinese Concert
Sonata for violin and piano in G minor (1917) by Debussy,
The Dawn of the Miao Mountains (1973-1975) by Gang Chen,
The Sun Shines on Tashkent (1973-1975) by Gang Chen,
Sonata for violin and piano in G major (1923-1927) by Ravel,
Nov 13, 2007. Greenleaf House, Harvard University, Cambridge, MA.
www-rcf.usc.edu/~mucoaco/Radcliffe/franco-chinese
(with TK Wang, violin)
2007. *Sextuor for piano, flute, oboe, clarinet, bassoon, and french horn* (1932-40) by Poulenc
May 26, 2007. Horn Concert, Regional Artists, Hummingbird – Hornswoggle,
Jemez Springs, NM.
(with Sally Chapman, Flute; Lauren Stephens, Oboe; Donna Greenstreet, Clarinet; John Petring, Horn, Icel Kendrick, Bassoon)
2006. Sinfonia from *Divertimento – Ballet Suite fr Le baiser de la fée* (The Fairy's Kiss, 1934)

- by Stravinsky
 Sep 10, 2006. Concert honoring Eudice Shapiro, Newman Hall, Los Angeles, CA.
 (with TK Wang, vln)
2006. *Concerto for Four Horns and Orchestra, Opus 93* (1992) by Christopher D. Wiggins
 Piano reduction with solo parts
Concert Piece for Four Horns and Orchestra (1856) by Carl Heinrich Hübler
 Piano reduction with solo parts
 June 10, 2006. Private concert at the home of Naomi Heller, Santa Monica, CA.
 (with Bob Watt, Harold Aschmann, John Petring, and Chris Wilson on French horns)
2005. *Sonata for Violin and Piano K.570* by Mozart
Violin Sonata No.2 in A major, Op.12 No.2 by Beethoven
La Plus Que Lente – Valse by Debussy (trans. by Leon Roques)
 Dec 8, 2005. Los Angeles Philharmonic Auxiliary, Long Beach, CA.
 (with TK Wang, vln)
2005. *Trio for Piano, Violin and Cello* (1915) by Ravel.
 May 15, 2005. Masterclass with Menahem Pressler, Biola University, La Mirada, CA.
 April 29, 2005. Korean American Education Foundation, Los Angeles, CA.
 April 26, 2005. Newman Recital Hall, USC, Los Angeles, CA.
 April 24, 2005. Peter Marsh's Home, Monrovia, CA.
 (with Daniel Tringov, vln, Jee-Young Moon, vlc)
2004. *Piano Quartet No.1 in C minor* by Faure
 with the *After Dark Quartet* (with J. Ogrydziak, vln, W. Hsieh, vla, E. Wu, vcl)
 Jul 4, 2004. Saint Lawrence String Quartet Summer Chamber Music Institute,
 Campbell Recital Hall, Stanford University, CA.
2003. *Legende in G minor, Op.17*, by Henryk Wieniawski.
Sonata for violin and piano (1923-7) by Ravel.
Spanish Dances by Moritz Moszkowski.
 Jun 22, 2003. (with J. Ogrydziak, vln) Renaissance at the Wellington, Laguna Hills, CA.
2003. *Fratres* (1980) by Arvo Pärt.
Violin Sonata No. 2 (1978) by William Bolcom.
Hika (1973) by Takemitsu.
Sonata for violin and piano (1923-7) by Ravel.
 Jan 31, 2003. (with Julia Ogrydziak, vln) Ask Jeeves Planetarium, Chabot Space and
 Science Center, Oakland, CA.
2002. *Clarinet Concerto, Op.57* (1928) by Nielsen.
L'Histoire du Soldat (1919) by Stravinsky.
 Sep 21, 2002. (with Joel Scheckmann, cl) Newman Hall, USC, Los Angeles, CA.
2002. *Cuban Overture* (1933) by Gershwin.
The People United Will Never Be Defeated (1975) by Rzewski (arranged for two pianos)
Cantaloupe Island by Herbie Hancock
 with Dennis Thurmond, piano/keyboards, Chris Kyriakakis, immersive audio, Benjamin
 Levine, bass, Kevin Dooley, drums.
 Apr 15, 2002. Flying Sonics – a tale of immersive audio and diverse instruments,
 Newman Hall, USC, Los Angeles, CA.
2002. *Siete Haiku para soprano y piano* (1992) by Alba Potes.
 with Julieanne Klein, sop
 Apr 3, 2002. Music of Changes: Portrait of Alba Potes, Zipper Hall, Los Angeles, CA.
2002. *Trio for Clarinet, Violin and Piano* (1990) by Paul Schoenfield.

- Trio for Clarinet, Violin and Piano* (1932) by Darius Milhaud.
Le Grande Tango (1982) by Astor Piazzolla.
 Selections of music for violin and piano by Fritz Kreisler.
 with *Xine and Friends*: members of the Utah Symphony,
 Lynn Maxine Rosen, vln, Tad Calcara, cl, and Brant Bayless, vla.
 Feb 23, 2002. Parkinson's Institute Benefit Concert.
 Samuelson Chapel, Cal Lutheran University, Thousand Oaks, CA.
2002. *Eigenmomenta for ensemble* (2000–2001) by Chris Dench.
 Feb 7, 2002. Music of Changes: Portrait of Chris Dench, Zipper Hall, Los Angeles, CA.
2001. *Satori on Park Avenue* (1984) by Donald Sur.
Quodlibet for violin and piano (1995) by Jae Eun Ha.
Illusions for piano (1990) by Cecilia Kim.
 with Paul Chou, violin, and the Lehigh University Very Modern Ensemble (LUVME).
 Mar 25, 2001. LUVME Concert of Contemporary Korean Music, Baker Hall, Lehigh University, Bethlehem, PA.
2001. *Sextuor for piano, flute, oboe, clarinet, bassoon, and french horn* (1932-40) by Poulenc.
 with Robin Kani, fl, David Diggs, ob, Christopher DiSanto, cl, Ping Liang, bs, Paul Lafollette, hn.
 Mar 2, 2001. East Winds Ensemble Concert, Lehigh University's faculty wind ensemble, Baker Hall, Lehigh University, Bethlehem, PA.
2000. *Quartet for the End of Time* (1940) by Olivier Messiaen.
 with Eran Egozy, cl, Oliver Klein, vln, Benjamin Ross, cello.
 May 7, 2000. Chamber Music Society Concert, Killian Hall, MIT, Cambridge, MA.
 Jun 4, 2000. Crowell Chapel, Manchester-by-the-Sea, MA.
1999. *Le Grand Tango* (1982) by Astor Piazzolla (with Wilson Hsieh, vla)
Cuban Overture (1933) by Gershwin (with Ronni Schwartz, pno)
 Jul 22-23, 1999. Antojitos Latinos, Aurelius Ensemble, Killian Hall, MIT.
1999. *Suite for Two Cellos and Piano* by Menotti (1973)
 (with Andres Diaz and Jan Mueller, cellos)
 Jun 19, 1999. Rockport Chamber Music Festival, Rockport, MA.
1999. *From Silence for soprano, chamber ensemble, computer and tape* (1988) by J. Harvey
 (with Barry Vercoe, conductor, Yukiko Ueno and Diana Dabby, keyboards etc)
 May 21, 1999. Digital Rewind: Celebrating 25 years of Computer Music at MIT,
 Kresge Auditorium, MIT, Cambridge, MA.
1999. *Quartet for Piano and Strings* (1997) by Eric Sawyer.
Piano Quartet Op. 60 in c by Johann Brahms.
Piano Quintet by Dvorak.
 Apr 11, 1999. Crowell Chapel, Manchester-by-the-Sea, MA.
 Apr 7, 1999. Cabot Living Room, Harvard University, Cambridge, MA.
 Mar 30, 1999. Killian Hall, Massachusetts Institute of Technology, Cambridge, MA.
 Mar 27, 1999. Building 10-250, MIT, Cambridge, MA, for Odyssey Program.
 Mar 7, 1999. Ashdown House, Massachusetts Institute of Technology, Cambridge, MA.
1999. *Clarinet Sonata* (1962), *Sextuor* (1932-40), *Sonata for Piano Duet* (1953) by Poulenc
 Jan 29-30, 1999. Poulenc Potpourri, Aurelius Ensemble, Killian Hall, MIT.
1998. *Trio in G minor for Clarinet, Violin and Piano* (1932) by Khachaturian
 (with Nina Chen, vln, and Eran Egozy, cl.)
 Nov 13, 1998. MIT Chamber Music Society, Killian Hall, Cambridge, MA.

1998. *La Forza Del Duct Tape* – a mini opera (1998).
words by Don Kater and Marc Abrahams, music by Liszt, Verdi, Mozart and Beethoven
For the libretto and cast, see www.improbable.com/ig/ig98-duct-tape-libretto.html
Oct 8, 1998. Ig Nobel Prize Ceremony, Sanders Theater, Harvard U., Cambridge, MA.
1998. *Piano Quartet in C minor Op. 60* by Brahms
with Julia Ogrydziak, vln, Wilson Hsieh, vla, Michael Bonner, cello
Aug 27, 1998. Unabashed Angst, Aurelius Ensemble, Killian Hall, Cambridge, MA.
1998. *Trio für Klavier, Klarinette und Violoncello nach dem Septett Op. 20* by Beethoven
Sonate La Trille du Diable by Giuseppe Tartini
with Eran Egozy, cl, Michael Bonner, cello, and Grant Ho, vln.
Jul 23, 1998. Fun, Wit and Humour, Aurelius Ensemble, Killian Hall, Cambridge, MA.
1998. *Arrows to the Sun – A Pueblo Indian Tale for Children* by Peter Child
(with Nicole Lee, Jason Wong, and Youssef Marzouk)
May 3, 1998. A Concert of Music for Two Pianos,
Kresge Auditorium, MIT, Cambridge, MA.
1998. *The Great Panjandrum: Seven Songs for Young Listeners* (1989) by Peter Child.
Mirabai Songs (1983) by John Harbison
Sky Above Clouds (1989) for flute and piano by Elena Ruehr
Helen for soprano and piano (1997) by Edward Cohen
with Janna Baty, soprano, and Michael Horowitz, flute.
Feb 28, 1998. Sounds of the XXth Century, Killian Hall, MIT, Cambridge, MA.
- 1997-2000. *The Great Panjandrum: Seven Songs for Young Listeners* (1989) by Peter Child.
March 10, 2000. (with Miho Sato, sop) Cambridge Multicultural Arts Ctr, MA.
Feb 28, 1998. (with Janna Baty, sop) Sounds of the XXth Century, Killian Hall, MIT.
Jun 15, 1997. (with Janna Baty, sop) Rockport Chamber Music Festival, Rockport, MA.
Feb 8, 1997. (with Janna Baty, sop) Child's Play, Killian Hall, MIT, Cambridge, MA.
1997. *Trio* for clarinet, violin and piano (1996) by Peter Child
with Asher Davison, cl, and Grant Ho, vln.
Oct 1997. New England Composer's Conference, Killian Hall, Cambridge, MA.
Feb 8, 1997. Child's Play, Killian Hall, MIT, Cambridge, MA.
1996. *Cello Sonata* by Sergei Prokofiev (with Michael Bonner, cello)
Nov 1996. MIT Chamber Music Society, Killian Hall, MIT, Cambridge, MA.
1996. *Fratres for violin and piano* (1980) by Arvo Part (with Julia Ogrydziak)
Sonata in A major, BWV 1015 by Bach (with J. Ogrydziak)
Feb 21, 1996. Julia Ogrydziak AMP Recital, Killian Hall, Cambridge, MA.
Feb 20, 1996. Noontime Concerts, MIT Lincoln Laboratory, Lincoln, MA.
1995. *Trio* by John Harbison (with Eran Egozy, cl, and Julia Ogrydziak, vln.)
May 1995. MIT Chamber Music Society, Killian Hall, MIT, Cambridge, MA.
1995. Scenes from *Trouble in Tahiti* by Leonard Bernstein
Feb 16, 1995. A Black History Program, Dimock Youth Intervention Program,
Richards Bldg Auditorium, Dimock Community Health Center, Roxbury, MA.
1994. *Piano Quartet in C Minor, Op. 60* by Brahms
(with Julia Ogrydziak, vln, Wilson Hsieh, vla, Michael Bonner, cello)
Dec 7, 1994. MIT Chamber Music Society, Killian Hall, MIT, Cambridge, MA.
1994. *Sonata for viola and piano* by Hindemith (with Wilson Hsieh)
Trio für Klarinette, Viola und Klavier by Carl Reinecke

- Kegelstaat Trio* by Mozart (with E. Egozy, cl, W. Hsieh, vla, and M. Tripsas, ob)
 May, 1994. Chamber Music Society Concert, Killian Hall, MIT, Cambridge, MA.
 Apr 29, 1994. Adv Mus Performance Trio Recital, Killian Hall, MIT, Cambridge, MA.
1994. *Deux Rhapsodies for oboe, viola and piano* (1901) by Charles Martin Loeffler
 (with W. Hsieh, vla, and M. Tripsas, ob)
 Apr 24, 1994. MIT Chamber Music Society, Killian Hall, MIT, Cambridge, MA.
1994. *Cello Concerto arranged for cello and piano* by Harbison (with Yo-Yo Ma)
 Mar 1994. Harbison Cello Concerto open reh, Killian Hall, MIT, Cambridge, MA.
1993. *Shepherd on the Rock* by Schubert (with Eran Egozy, cl, and Alice Lin, sop)
Sonata for clarinet and piano (1962) by Poulenc (with E. Egozy)
 Dec 2 1993. MIT Chamber Music Society, Killian Hall, MIT, Cambridge, MA.
 Oct 28, 1993. MIT Council for the Arts, Killian Hall, MIT, Cambridge, MA.
1993. *Contrasts for violin, clarinet and piano* (1938) by Bartok
 with Eran Egozy, cl, Donald Yeung, vln
 May 1993. MIT Chamber Music Society, Killian Hall, MIT, Cambridge, MA.
1993. *Concerto for Clarinet* by Nielsen (with Eran Egozy)
Sonata for clarinet and piano Op.167 by Saint-Saëns (E. Egozy)
 Feb 1993. Advanced Music Performance Recital, Killian Hall, MIT, Cambridge, MA.
1992. *Quintet for piano, two violins, viola and cello in A major, Op. 81*, by Dvorak
 (with Conroy Lee & Roy Seto, vlns, Richard Olson, vla, Leonard Kim, cello)
 Dec 1992. Killian Hall, MIT, Cambridge, CA.
1992. *Trio in F minor Op.65* by Dvorak (with Mari Shimizu, vln, and Tim Hawks, cello)
 May 1992. Campbell Recital Hall, Stanford University, Stanford, CA.
 Apr 1992. Campbell Recital Hall, Stanford University, Stanford, CA.
1991. Vocal music by Purcell, Schumann, Debussy (with Elaine Romanelli, sop.)
 Oct 1991. Campbell Recital Hall, Stanford University, Stanford, CA.
1989. *L'Histoire du Soldat* by Stravinsky
Trio in G minor for clarinet, violin and piano (1932) by Khachaturian
Sonata for clarinet and piano (1962) by Poulenc
Clarinet Concerto in A major, K622, by Mozart
Grand Duo Concertant for clarinet and piano in Eb major, Op. 48, by Weber
 with Annisa Tai and Soon Woon-Kuo
 Jun 1989. National Music Competition, Goethe Institute, Singapore.
 Jul 1989. Natl Mus Comp Prizewinner's concert. Victoria Concert Hall, Singapore.
 Aug 1989. Outreach Concert at Pei Dao Secondary School, Singapore.
 Aug 1989. Noon Concert Series, British Council, Singapore.
1987. Vocal music by Debussy, Fauré, Ravel etc
 with Canadian opera singers Bruno Laplante and Brigitte Toulon
 Jan 1987. Recital hosted by Jean-Claude Bailly, GM of Le Meridien Singapore.
1986. Valse Duet: I Love You So, from (the Merry Widow) operetta Act 3
 with Canadian opera singers Bruno Laplante and Brigitte Toulon
 Dec 31, 1986. New Year's Eve Community Chest TV Concert, Kallang Theater,
 Singapore.
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Photo Exhibitions

- SNAP-TO-GRID Los Angeles Center for Digital Art, Los Angeles, CA.
Sep 13 – Oct 7, 2006. One print titled *mangosteen*.
Sep 9 – Oct 1, 2004. Three digital collages, two of which were selected for the show's online promotional poster, see <http://www.lacda.com/exhibits/september.html>
Pictures archived at <http://www-rcf.usc.edu/~echew/photography/LACDA2004>
- IMPRESSIONS Exhibitions in conjunction with lecture-recitals of the same name, consisting of 40 photographs from my field study on contemporary Chinese piano music in Beijing.
Feb 2001. Lehigh University Art Gallery, Bethlehem, PA.
May 1999. Singapore Embassy, Washington D.C.
Feb 1998. Lincoln Laboratories, Lincoln, MA
Feb 1998. Stratton Student Center Art Gallery, MIT, Cambridge, MA