CHING-HUA CHUAN

Associate Professor • University of North Florida
School of Computing
1 UNF drive, Building 15, 3224, FL 32224, USA
c.chuan@unf.edu • *www.unf.edu/~c.chuan/*
Phone (904) 620.2985 • Fax (904) 620.2988

PROFESSIONAL PREPARATION

National Taiwan University, Electrical Engineering, B.S., 1999
National Taiwan University, Electrical Engineering/Computer Engineering, M.S., 2001
University of Southern California, Computer Science, Ph.D., 2008

APPOINTMENTS

Associate Professor, School of Computing, University of North Florida	2016–present
Assistant Professor, School of Computing, University of North Florida	2010–2016
Assistant Professor, Dept. of Mathematics and Computer Science, Barry University	2008–10
Research Assistant, Dept. of Computer Science, University of Southern California	2003–08
Teaching Assistant, Department of Computer Science and Information Engineering, National Taiwan University	2002–03
Software Engineer, Research and Design Division, VIA Technology	2001–02

AWARDS AND HONORS

- Outstanding Undergraduate Teaching Award, University of North Florida, 2014
- Best New Investigator Paper Award, Grace Hopper Celebration, 2010
- Membership in USC's Phi Kappa Phi honor society, 2008
- Digital Dissertation Fellowship, the Graduate School, University of Southern California, 2007 - 2008

FUNDING HISTORY

- "Evaluation of Incident Response Improvements for Statewide Application: Learning from the New Regional Traffic Management Center in Jacksonville, FL," PI: Thobias Sando, Co-PIs: **Ching-Hua Chuan** and Priyanka Alluri (FIU), Florida Department of Transportation ($180,393), 2017
- "Developing and Piloting a Sign Language Learning App for Children who are Deaf and their Families," PIs: **Ching-Hua Chuan** and Caroline Guardino, Faculty Scholarship Development Grants, University of North Florida, 2016 ($20,000)
- "Creating SmartSignPlay: An Assistive Technology App for Learning American Sign Language," PIs: **Ching-Hua Chuan** and Caroline Guardino, Academic Technology Grant, University of North Florida, 2016 ($2,000)

- "Mobile Applications for gFPS and eDHR2 – Phase 2," PI: **Ching-Hua Chuan**, Vistakon, Division of Johnson & Johnson Vision Care, 2015 ($73,076)
- "Developing an Interactive American Sign Language Recognition App to Engage Children who are Deaf and their Families in Early Communication," PIs: Caroline Guardino and **Ching-Hua Chuan**, Faculty Proposal Development Grants, University of North Florida, 2015 ($20,000)
- "Mobile Applications for gFPS and eDHR2," PI: **Ching-Hua Chuan** and Co-PI: Sanjay Ahuja, Vistakon, Division of Johnson & Johnson Vision Care, 2014 ($73,117)
- "Undergraduate Research Conference Travel Support," Transformation Learning Opportunities (Special Request), Office of Undergraduate Studies, University of North Florida, 2014 ($500)
- "Creating User-Centered Interactive Systems for Music and Computing Education," Office of Research & Sponsored Programs, University of North Florida, 2013 ($8,160)
- "Redesigning Botball: An UNF Experience in Educational Robotics," Transformational Learning Opportunities, University of North Florida, 2013 – 2014 ($5,500)
- "Web Technology Development for Community Organization," PIs: Karthikeyan Umapathy and **Ching-Hua Chuan**, Transformational Learning Opportunities, University of North Florida, 2013 – 2014 ($5,000)
- "Osprey Flight Path: A Web-based Mobile Guiding Application on Campus," Student Mentored Academic Research Team (SMART) Grants, Office of Undergraduate Research, University of North Florida, 2012 ($1,500)
- "Interactive and Individualized Music Analysis and Synthesis: A Proposal for National Science Foundation Faculty Early Career Development (CAREER) Program," Faculty Proposal Development Grants, University of North Florida, 2012 ($7,500)
- "A Pilot for School of Computing Transformational Learning Opportunity (TLO) Internship Program," PIs: Karthikeyan Umapathy and **Ching-Hua Chuan**, Transformational Learning Opportunities, University of North Florida, 2012 ($10,000)
- "Conference Experience: Validating and Empowering Graduate Students," Transformational Learning Opportunities (Special Request), University of North Florida, 2011 ($500)
- Intellectual Life Grant, Office of Undergraduate Research, University of North Florida, 2011 ($900)

UNFUNDED PROPOSALS

- "Exploring the Language and Communication Benefits of an Interactive American Sign Language Teaching Application for Families with Children who are Deaf or Hard of

Hearing: SmartSign 2.0," PI: Caroline Guardino, co-PI: **Ching-Hua Chuan**, Special Education Research Grants, Institute of Education Sciences, 2015 ($1,492,110).

- "CAREER: Computational Thinking through Music-Making: A User-Centered Style-Specific Composition System for STEM Education," PI: **Ching-Hua Chuan**, Faculty Early Career Development Program, National Science Foundation, 2015 ($573,519).
- "PFI:BIC Florida's First Coast Smart Healthcare Innovation Partnership," PI: Daniel J. Cox, Co-PIs: Kevin D. Calloway, **Ching-Hua Chuan**, and Lori J. Lange, Partnership for Innovation Program, National Science Foundation, 2014 ($798,797).
- "CAREER: In Support of User-Centered Music-Making: A Statistical Learning Approach Using Scalable Music Information Retrieval," PI: **Ching-Hua Chuan**, Faculty Early Career Development Program, IIS – Information and Informatics, National Science Foundation, 2014 ($567,614).
- "SCH:INT:RUI: Florida's First Coast Smart Healthcare Innovation Partnership," PI: Daniel J. Cox, Co-PIs: **Ching-Hua Chuan** and Lori J. Lange, IIS – Smart and Connected Health Program, National Science Foundation, 2014 ($1,009,472).
- "CAREER: A User-Centered Style-Specific Composition System for Computing and Music Education," PI: **Ching-Hua Chuan**, Faculty Early Career Development Program, IIS – Human-Centered Computing, National Science Foundation, 2012 ($559,240).

INVENTION DISCLOSURES

- *SmartSignPlay*: An interactive mobile game for children who are deaf and their families to learn American Sign Language, University of North Florida, 2017.
- Automatic Style-Specific Accompaniment System, University of Southern California, 2008

EDITED PROCEEDINGS VOLUMES

- *Proceedings of the 2nd International Conference on Mathematics and Computation in Music*: E. Chew, A. P. Childs, and **C.-H. Chuan** (eds), Springer: Berlin, Heidelberg, Communications in Computer and Information Science (CCIS) Volume 38, 2009, ISBN: 978-3-642-02393-4.

REFEREED JOURNAL PUBLICATIONS

- Herremans, D., **Chuan, C.-H**., and Chew, E., "A Functional Taxonomy of Music Generation Systems," *ACM Computing Surveys*, 2017 (under review).
- Charapko, A., and **Chuan, C.-H.**, "Indexing Musical Sequences in Large Datasets Using Relational Databases," *International Journal of Multimedia Engineering and Management*, 6(2), pp. 1-18, 2015.
- **Chuan, C.-H.**, and Chew, E. "The KUSC Classical Music Dataset for Audio Key Finding," *International Journal of Multimedia & Its Applications*, 6(4), pp. 1-18, doi: 10.5121/ijma.2014.6401, 2014.

- **Chuan, C.-H.**, and Charapko, A. "Predicting Key Recognition Difficulty in Music Using Statistical Learning," *International Journal of Multimedia Engineering and Management*, 5(2), pp. 54-69, 2014.
- Smith, J., **Chuan, C.-H.**, and Chew, E. "Audio Properties of Perceived Boundaries in Music," *IEEE Transactions on Multimedia*, 16(5), pp. 1219-1228, 2014.
- **Chuan, C.-H.,** "Audio Classification and Retrieval Using Wavelets and Gaussian Mixture Models," *International Journal of Multimedia Data Engineering and Management*, 4(1), pp. 1-20, 2013.
- **Chuan, C.-H.** and Chew, E., "Generating and Evaluating Musical Accompaniments that Emulate Style," Douglas Keislar (ed), *Computer Music Journal*, 35 (4), pp. 64-82, MIT Press, 2011.
- **Chuan, C.-H.** and Chew, E., "Audio Key Finding: Considerations in System Design, and Case Studies on 24 Chopin's Preludes," George Tzanetakis (ed)., *EURASIP Journal on Applied Signal Processing*, Special Issue on Music Information Retrieval. doi:10.1155/2007/56561, 2007.

REFEREED CONFERENCE PROCEEDINGS PAPERS

- Herremans, D., and **Chuan, C.-H.** , "A Multi-modal Platform for Semantic Music Analysis: Visualizing audio- and score-based tension," in *proceedings of the 11th IEEE International Conference on Semantic Computing* (ICSC), January 30-Feburary 1, San Diego, California, 2017.
- **Chuan, C.-H.** , and Chew, E., "An Optimization-based Approach to Key Segmentation," in *proceedings of IEEE International Symposium on Multimedia* (ISM), December 11-13, San Jose, California, 2016.
- **Chuan, C.-H.**, "An Active Learning Approach to Audio-to-Score Alignment Using Dynamic Time Warping," in *proceedings of the 15th International Conference on Machine Learning and Applications*, December 18-20, Anaheim, California, 2016.
- **Chuan, C.-H.**, and Guardino, C., "Designing SmartSignPlay: An Interactive and Intelligent American Sign Language App for Children who are Deaf or Hard of Hearing and their Families," in *Proceedings of the 21st ACM conference on Intelligent User Interfaces*, March 7 – 10, Sonoma, California, 2016.
- Wang, D.-Y., Jimison, Z., Richard, D., and **Chuan, C.-H.**, "Effect of Listening to Music as A Function of Driving Complexity: A simulator study on the differing effects of music on different driving tasks," in *Proceedings of the 8th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*, June 23 – 24, Salt Lake City, Utah, 2015.
- **Chuan, C.-H.**, Regina, E., and Guardino, C., "American Sign Language Recognition Using Leap Motion Sensor," in *Proceedings of the 13th International Conference on Machine*

Learning and Applications, a special session on Machine Learning Applications in Education, December 3 – 5, Detroit, Michigan, 2014.

- **Chuan, C.-H.**, Dinsmore, D., Schmuller, J., and Morris, T., "An Intelligent Tutoring System for Argument-Making in Higher Education: A Pilot Study," in *Proceedings of the 13th International Conference on Machine Learning and Applications*, a special session on Machine Learning Applications in Education, December 3 – 5, Detroit, Michigan, 2014.
- Charapko, A., and **Chuan, C.-H.**, "Indexing and Retrieving Continuations in Musical Time Series Data Using Relational Databases," in *Proceedings of the IEEE International Symposium on Multimedia* (ISM 2014), December 10-12, Taichung, Taiwan, 2014.
- **Chuan, C.-H.,** and Charapko, A., "Predicting Key Recognition Difficulty in Polyphonic Audio," in *Proceedings of the IEEE International Symposium on Multimedia* (ISM 2013), December 9-11, Anaheim, California, 2013.
- **Chuan, C.-H.,** "A Multimodal Approach to Song-Level Style Identification in Pop/Rock Using Similarity Metrics," in *Proceedings of the IEEE 12th International Conference on Machine Learning and Applications,* Special Session on Machine Learning with Multimedia Data, December 4 – 7, Miami, Florida, 2013.
- **Chuan, C.-H.**, "A Temporal Multi-View Approach for Audio Key Finding Using AdaBoost," in *Proceedings of the 2013 IEEE International Conference on Multimedia and Expo*, July 15 – 18, San Jose, California, 2013.
- **Chuan, C.-H.**, Vasana, S, and Asaithambi, A., "Using Wavelets and Gaussian Mixture Models for Audio Classification," in *Proceedings of the IEEE International Symposium on Multimedia* (ISM 2012), December 10-12, Irvine, California, USA, 2012.
- **Chuan, C.-H.** and Chew, E., "Creating Ground Truth for Audio Key Finding: When The Title Key May Not Be The Key," in *Proceedings of the 13th International Society for Music Information Retrieval Conference*, October 8 – 12, Porto, Portugal, 2012.
- **Chuan, C. H.**, "A Comparison of Statistical and Rule-Based Models for Style-Specific Harmonization," in *Proceedings of the 12th International Society for Music Information Retrieval Conference*, October 24 – 28, Miami, USA. ISBN: 978-0-615-54865-4, 2011.
- Aspillaga, F. X., Cobb, J., and **Chuan, C.-H.**, "MixMe: A recommendation system for DJs." In *Proceedings of the 12th International Society of Music Information Retrieval Conference*, Miami, FL.
- **Chuan, C.-H.,** "Harmonic Style-Based Song Retrieval Using N-Gram," in *Proceedings of the 1st ACM International Conference on Multimedia Retrieval*, April 17 – 20, Trento, Italy. ISBN: 978- 1-4503-0336-1, 2011.

- **Chuan, C.-H.,** "Hybrid Methods for Generating and Evaluating Style-Specific Accompaniment," (Best New Investigator Paper Award), the Grace Hopper Celebration, September 28 – October 2, Atlanta, Georgia, 2010.
- **Chuan, C.-H.** and Chew, E., "Quantifying the Benefits of Using an Interactive Decision Support Tool for Creating Musical Accompaniment in a Particular Style," in *Proceedings of the 11th International Society for Music Information Retrieval Conference*, August 9 – 13, Utrecht, Netherlands, 2010. ISBN 978-90-393-53813.
- Bertino, F., **Chuan, C.-H.**, and Peroune. J., "The Musical Gene: Generating Harmonic Patterns from Sequenced DNA of E.coli Bacteria to Compose Music," in *Proceedings of the 12th Biennial Symposium on Arts and Technology*, March 4 – 6, Connecticut College, Connecticut, 2010.
- **Chuan, C.-H.**, "Pop/Rock Musical Style as Defined by Two-Chord Patterns at Segmentation Points in the Melody and Lyrics," in *Proceedings of the IEEE International Symposium on Multimedia* (ISM 2009), December 14 – 16, San Diego, 2009. ISBN 978-0-7695-3890-7.
- **Chuan, C.-H.**, "Supporting Compositional Creativity Using Automatic Style-Specific Accompaniment," Computational Creativity Workshop, parts of CHI 2009 Conference, April 4 – 9, Boston, 2009.
- **Chuan, C.-H.** and Chew, E., "Evaluating and Visualizing Effectiveness of Style Emulation in Music Accompaniment," in *Proceedings of the 9th International Society for Music Information Retrieval Conference*, Philadelphia, Sep 14-18, 2008. ISBN 978-0-615-24849-3.
- **Chuan, C.-H.** and Chew, E., "A Dynamic Programming Approach to the Extraction of Phrase Boundaries from Tempo Variations in Expressive Performances," in *Proceedings of the 8th International Society for Music Information Retrieval Conference*, Vienna, Austria, Sep 23-27, 2007. ISBN 978-3-85403-218-2.
- **Chuan, C.-H.** and Chew, E., "A Hybrid System for Automatic Generation of Style-Specific Accompaniment," in *Proceedings of the 4th International Joint Workshop on Computational Creativity*, (JIWCC'07), 17-19 June, 2007, London.
- **Chuan, C.-H.** and Chew, E., "The Effect of Key and Tempo on Audio Onset Detection Using Machine Learning Techniques: A Sensitivity Analysis," in *Proceedings of the IEEE International Symposium on Multimedia* (ISM 2006), San Diego, 2006. ISBN: 0-7695-2746-9.
- **Chuan, C.-H.** and Chew, E., "Fuzzy Analysis in Pitch Class Determination for Polyphonic Audio Key Finding," in *Proceedings of the 6th International Society for Music Information Retrieval Conference*, London, UK, September 2005. ISBN: 0-9551179-0-9.

- **Chuan, C.-H.** and Chew, E., "Polyphonic Audio Key Finding Using the Spiral Array CEG Algorithm," in *Proceedings of 2005 IEEE International Conference on Multimedia & Expo*, ICME, Amsterdam, the Netherlands, July 2005. ISBN: 0-7803-9331-7.
- **Chuan, C.-H.** and Kuo, S. Y., "Cache Management of Dynamic Source Routing for Fault Tolerance in Mobile Ad Hoc Networks," in *Proceedings of the IEEE 8th Pacific Rim International Symposium on Dependable Computing*, PRDC 2001, Seoul, Korea, December 17 – 19, 2001. ISBN: 0-7695-1414-6.

CONFERENCE PROCEEDINGS ABSTRACTS

- **Chuan, C.-H.** and Chew, E., "Learning Harmonic Syntax to Generate Style-Specific Pop/Rock Accompaniment," Music, Language & the Mind – A conference in celebration of the 25th Anniversary of Fred Lerdahl and Ray Jackendoff's A Generative Theory of Tonal Music, Tufts University, Boston, MA, July 10-13, 2008.
- **Chuan, C.-H.** and Chew, E. "A Dynamic Programming Approach to the Extraction of Phrase Boundaries from Tempo Variations in Expressive Performances." Joint Mathematics Meeting: the 113rd Annual Meeting of the American Mathematical Society (AMS), New Orleans, LA. Special session on Mathematical Techniques in Musical Analysis, 2007.
- **Chuan, C.-H.** and Chew, E., "Audio Key Finding using FACEG: Fuzzy Analysis with the CEG Algorithm," Extended abstract of the 1st Annual Music Information Retrieval Evaluation eXchange (MIREX 2005), held in conjuction with ISMIR 2005, London, UK.
- **Chuan, C.-H.** and Chew, E., "Applying the Spiral Array Key-finding Algorithm to Polyphonic Audio," In Proceedings of the 9th INFORMS Computing Society Conference (invited sessions on Music, Computation and AI), Annapolis, MD, Jan 5 –7, 2005.

GRADUATE RESEARCH/THESIS ADVISED

- James Blair (Software Engineering, University of North Florida, Fall 2015 – present). Thesis title: Architectures for Real-Time Automatic Sign Language Recognition on Resource-Constrained Devices.
- Spencer Southard (Computer Science, University of North Florida, Fall 2015 – present). Thesis title: Designing 2D Interfaces for 3D Gesture Retrieval Using Deep Learning.
- Aleksey Charapko (Computer Science, University of North Florida, Fall 2014 – Spring 2015). Thesis title: Time Series Similarity Search in Distributed Key-Value Data Stores Using R-trees. Aleksey received the Presidential Fellowship from the Computer Science PhD program at State University of New York at Buffalo, starting in Fall 2015.
- Jaime Kaufman (Software Engineering, University of North Florida, Fall 2013 – Fall 2014). Thesis title: A Hybrid Approach to Music Recommendation: Exploring collaborative music tags and acoustic features.

ADVISED UNDERGRADUATE PUBLICATIONS AND PRESENTATIONS

- Regina, E., "Computer Vision and American Sign Language Recognition Research," ACM student club, School of Computing, University of North Florida, April 22, 2015.
- Regina, E., "Support Vector Machine for American Sign Language Recognition Using Leap Motion Sensor", CCEC Colloquium, November 14, 2014.
- Feldman, E., "MIDI Music Model," in *Proceedings of the IEEE SoutheastCon 2015*, Fort Lauderdale, Florida, April 9 – 12, 2015.
- Regina, E., "American Sign Language Recognition Using Leap Motion Sensor," the 13th International Conference on Machine Learning and Applications, a special session on Machine Learning Applications in Education, December 3 – 5, Detroit, Michigan, 2014.
- Tran, J. and Germain, B., "Facial Recognition with Neural Networks," the 3rd Annual Florida Undergraduate Research Conference, University of Florida, February 22 and 23, 2013.
- Charapko, A. and Repper, S., "Optimal UNF Shuttle Routes", the 3rd Annual Florida Undergraduate Research Conference, University of Florida, February 22 and 23, 2013.
- Douglas, E., Mazour, M., and Goswami, N., "Osprey Flight Path: a Mobile Guiding Application on Campus," the 2nd Annual Florida Undergraduate Research Conference, Stetson University, DeLand, March 16-17, 2012.
- Bertino, F, "The Musical Gene: Generating Harmonic Patterns from Sequenced DNA of E.coli Bacteria to Compose Music," the 12th Biennial Symposium on Arts and Technology, March 4 – 6, Connecticut College, Connecticut, 2010.

PRESENTATIONS

- Invited presentation on "Mobile Applications for gFPS and eDHR2" in the 4th annual College of Computing, Engineering and Construction (CCEC) Dean's Leadership Council Showcase, University of North Florida, April 7, 2015.
- Conference presentation on the paper "Indexing and Retrieving Continuations in Musical Time Series Data Using Relational Databases" in the 10th IEEE International Workshop on Multimedia Information Processing and Retrieval, December 10, Taichung, Taiwan, 2014.
- Conference presentation on the paper "An Intelligent Tutoring System for Argument-Making in Higher Education: A Pilot Study" in the 13th International Conference on Machine Learning and Applications, December 5th, Detroit, Michigan, 2014.
- An invited talk on "Intelligent Systems for Music Recommendations" for Joe Berg Seminar of Jacksonville (a prestigious academic seminar series for outstanding high schools students), Museum of Science and History, April 8, 2014.

- Conference presentation on the paper "Predicting Key Recognition Difficulty in Polyphonic Audio" in the 9th IEEE International Workshop on Multimedia Information Processing and Retrieval, December 11, Anaheim, California, 2013.
- Conference presentation on the paper "A Multimodal Approach to Song-Level Style Identification in Pop/Rock Using Similarity Metrics" in the 12th International Conference on Machine Learning and Applications, December 7th, Miami, Florida, 2013.
- An invited talk on "Collaboration in Interdisciplinary Research: Experiences and Challenges", CCEC Research Colloquium Series, University of North Florida October 25, 2013.
- An invited spotlights presentation on "Gaming and Mobile App Development with Students", the Academic Technology Innovation Symposium, University of North Florida, October 2nd, 2013.
- Conference presentation on the paper "A Temporal Multi-View Approach for Audio Key Finding Using AdaBoost" in the IEEE International Conference on Multimedia and Expo, July 10, San Jose, California, 2013.
- An invited talk on "Music Computation and Cognition: Human-centered approaches towards music analysis and synthesis," Academia Sinica, June 13, Taipei, Taiwan, 2013.
- Invited presentation on "Computing and Engineering Approaches to Music Information Retrieval" in the 2013 CCEC Dean's Leadership Council Showcase, University of North Florida, April 2, 2013.
- Conference presentation on the paper "Using Wavelets and Gaussian Mixture Models for Audio Classification," in the 8th IEEE International Workshop on Multimedia Information Processing and Retrieval, December 10, Irvine, California, 2012.
- A Panelist (with Peter Bacopoulos, Nick Hudyma, and Don Resio), "Maintaining a Research Program/Agenda at a Teaching Institution: Challenges and Opportunities," CCEC Research Colloquium Series, Office of Research and Sponsored Programs, November 30, 2012.
- An invited talk on ""Music Computation and Cognition: Finding ground truth for evaluating computational music algorithms," Music Dynamics Laboratory, the Center of Complex Systems and Brain Sciences, Florida Atlantic University, November 2, 2012.
- An invited talk on "Computing and Engineering Approaches to Music Information Retrieval," CCEC Research Colloquium Series, University of North Florida, October 19, 2012.
- Conference presentation on the paper "Creating Ground Truth for Audio Key Finding: When the title key may not be the key," in the 13th International Conference on Music Information Retrieval, October 10, Proto, Portugal, 2012.

- An invited talk on "Computational Music Research: How mathematics and AI is not part of your everyday musical experiences" for Joe Berg Seminar of Jacksonville (a prestigious academic seminar series for outstanding high schools students), Museum of Science and History, January 24, 2012.
- Conference presentation on the paper "A Comparison of Statistical and Rule-Based Models for Style-Specific Harmonization" in the 12th International Conference on Music Information Retrieval, October 25, Miami, Florida, 2011.
- Conference presentation on the paper "Harmonic Style-Based Song Retrieval Using N-Gram" in the 1st ACM International Conference on Multimedia Retrieval, April 19, University of Trento, Italy, 2011.
- Conference presentation on the paper "Hybrid Methods for Generating and Evaluating Style-Specific Accompaniment" in the 2010 Grace Hopper Celebration for Women in Computing, September 29, Atlanta, Georgia, 2010.
- An invited seminar presentation titled "Modeling Compositional Choices: Learning and creating musical accompaniments in a particular style", Industrial and Systems Engineering, University of Florida, September 23, 2010.
- Conference presentation on the paper "Quantifying the Benefits of Using An Interactive Decision Support Tool for Creating Musical Accompaniment in A Particular Style" in the 11th International Conference on Music Information Retrieval, August 12, University of Utrecht, Netherlands, 2010.
- Presentation on Automatic Style-Specific Accompaniment and the Musical Gene undergraduate research project, School of Computing, University of North Florida, March 2, 2010.
- Conference presentation on the paper "Pop/Rock Musical style as Defined by Two-Chord Patterns at Segmentation Points in the Melody and Lyrics" in the 1st International Workshop on Advances in Music Information Research, in conjunction with the IEEE International Symposium on Multimedia, December 16, San Diego, California, 2009.
- An invited talk on Automatic Style-Specific Accompaniment in Music Engineering, Frost School of Music, University of Miami, February 20, 2009.
- Conference presentation on the paper "Evaluating and Visualizing Effectiveness of Style Emulation in Music Accompaniment" in the 9th International Conference on Music Information Retrieval, September 15, Drexel University, Philadelphia, 2008.
- Presentation on Hybrid Methods for Music Analysis and Synthesis in the Department of Mathematics and Computer Science, Barry University, May 22, 2008.
- Conference presentation on "Harmonizing Radiohead's *Creep* Using Automatic Style-Specific Accompaniment System in The Style of Fiona Apple's *Never Is A Promise*" in the

Graduate Student Workshop on The Tonal Systems of Rock at the University of Michigan, part of the Conversations 2008: Music Scholarship in Dialogue conference, February 8, 2008.

- Workshop presentation on "A Hybrid System for Automatic Style-Specific Accompaniment" in the inaugural meeting of the New England Music Information Special Interest Group, Columbia University, January 25, 2008.
- Conference presentation on the paper "A Dynamic Programming Approach to The Extraction of Phrase Boundaries from Tempo Variations in Expressive Performances" in the 8th International Conference on Music Information Retrieval, September 25, Vienna, Austria, 2007.
- Conference presentation on the paper "A Hybrid System for Automatic Generation of Style-Specific Accompaniment" in the 4th International Joint Workshop on Computational Creativity, Goldsmiths, University of London, June 18, London, 2007.
- Conference presentation on "Applying Dynamic Programming to The Extraction of Phrase Boundaries from Tempo Variations in Expressive Performances" in the 113rd Annual Meeting of the American Mathematical Society, a special session on Mathematical Techniques in Music Analysis, January, New Orleans, 2007.
- Conference presentation on the paper "The Effect of Key and Tempo on Audio Onset Detection Using Machine Learning Techniques: A sensitivity analysis" in the 2nd IEEE International Workshop on Multimedia Information Processing and Retrieval, December 13, San Diego, California, 2006.
- Conference presentation on the paper "Fuzzy Analysis in Pitch Class Determination for Polyphonic Audio Key Finding" in the 6th International Conference on Music Information Retrieval, September 14, London, 2005.
- Conference presentation on the paper "Polyphonic Audio Key Finding Using The Spiral Array CEG Algorithm" in the 2005 IEEE International Conference on Multimedia & Expo, July 6, Amsterdam, Netherlands, 2005.
- Conference presentation on the paper "Cache Management of Dynamic Source Routing for Fault Tolerance in Mobile Ad Hoc Networks" in the IEEE 8th Pacific Rim International Symposium on Dependable Computing, Seoul, Korea, December 17 – 19, 2001.

TECHNICAL REPORTS

- **Chuan, C.-H.**, and Chew, E., "Audio Onset Detection Using Machine Learning Techniques: The Effect and Applicability of Key and Tempo Information," Computer Science Technical Report #08-895, February 2008, University of Southern California.

- **Chuan, C.-H.**, and Chew, E., "Polyphonic Audio Key Finding Using The Spiral Array CEG Algorithm," IMSC Technical Report #05-001, January 2005, University of Southern California.

PRESS (ABOUT MY WORK)

- Academic Minute (2014). "Ching-Hua Chuan, University of North Florida – Composing with Computers". *http://academicminute.org/2014/09/ching-hua-chuan-university-of-north-florida-composing-with-computers/*
- Joanna Norris (2014). UNF On The Record, "Style Identification in Pop and Rock Music." *http://www.unf.edu/publicrelations/media_relations/news/radio/2014/Style_identification_in_pop_and_rock_music.aspx*
  http://unf.sharestream.net/ssdcms/i.do?u=d4c7d258b8d34e2
- Julianna M. Klose (2009). The Great Gig - Dr. Ching Hua Chuan is creating a software program that will make things a lot easier for aspiring rock stars everywhere, the cover story on Barry Magazine, Spring 2009.
  http://www.barry.edu/barrymagazine/2009spring/spotlights/chuan.htm
- Ingebretsen, Mark (2009). In the News: AI Heralds a New Musical Age, IEEE Intelligent Systems Magazine, January/February, 24 (1), pp. 8-11. *doi: 10.1109/MIS.2009.11*
  http://dl.acm.org/citation.cfm?id=1512232&CFID=678831766&CFTOKEN=71514340
- Lotfy, Sara (2009). Barry Professor Creates Artificial Intelligence Software for Music Composition, News and Events, Barry University, January 2009.
  https://www.barry.edu/computer/highlights.html
- Ra College Notes, School Scene, The Miami Herald, December 25 2008.
- Policelli, Lorenzo (2008). Tailor Your Backup Band – More Technology Coming, Lorenzo Policelli's Songwriting Blog, September 30, 2008. http://*blog.lorenzopolicelli.com/?p=406*
- Modern Computers Have an Ear for Music, finding Dulcinea – Librarian of the Internet: Technology, September 30, 2008.
  http://www.findingdulcinea.com/news/technology/September-October-08/Modern-Computers-Have-an-Ear-for-Music.html
- ASSA offers Radiohead harmonies at the touch of a button, The Music Ally Weblog: Digital Music News, September 30, 2008. *http://musically.com/blog/2008/09/30/assa-offers-radiohead-harmonies-at-the-touch-of-a-button*
- Hsu, Jeremy (2008). Musical Computer Writes Accompaniment to Fit Melodies. FoxNews: SciTech, September 24 2008. *http://www.foxnews.com/story/0,2933,427123,00.html*
- Hsu, Jeremy (2008). Better than 'Guitar Hero'? Rock on! – New computer program can create a harmony tailored to a band's style, msnbc.com, September 23, 2008.
  http://www.msnbc.msn.com/id/26859600/wid/21370087

- Hsu, Jeremy (2008). You Write the Melody, Computer Handles Harmony, September 23, 2008. *http://www.livescience.com/technology/080923-computer-musician.html*
- New Software Harmonizes In The Style Of Radiohead, U2, Synthtopia: Music News, September 22, 2008. *http://www.synthtopia.com/content/2008/09/22/new-software-harmonizes-in-the-style-of-radiohead-u2*
- New Music Software Can Create Accompaniment To Any Melody, In Style Of Any Artist, Science Daily: Science News, September 17, 2008. http://*www.sciencedaily.com/releases/2008/09/080915143320.htm*
- Irvine, Chris (2008). Sofware system 'can mimic any band', Telegraph.co.uk, September 16, 2008. http://*www.telegraph.co.uk/scienceandtechnology/3358467/Sofware-system-can-mimic-any-band.html*
- Harris, Mark (2008). Music generator gives you Radiohead for, er, free – New software can learn downbeat style from a single song, techradar.com, September 15, 2008. http://*www.techradar.com/news/software/applications/music-generator-gives-you-radiohead-for-er-free-464694*
- Mankin, Eric (2008). Music, CompuMaestro – Like Radiohead, Please… : Viterbi grad student creates automatic style-specific musical accompaniment system, Viterbi News, September 17, 2008. http://*viterbi.usc.edu/news/news/2008/music-compumaestro.htm*

PROFESSIONAL SERVICES

- Organizing Committee, the 4th International Conference on Applied Mechanics, Mechatronics and Intelligent System, March 17-19, Sanxia, China, 2017.
- Program Committee, the 12th IEEE International Workshop on Multimedia Information Processing and Retrieval, December 11-13, San Jose, CA, USA, 2016.
- Program Committee, the 11th IEEE International Workshop on Multimedia Information Processing and Retrieval, December 14-16, Miami, FL, USA, 2015.
- Program Committee, the 16th International Society for Music Information Retrieval Conference (ISMIR 2015), October 26-30, Malaga, Spain, 2015.
- Scholarship Committee Member, the 2015 Grace Hopper Annual Conference, October 14 – 16, Houston, TX, 2015.
- Program Committee, the 5th International Conference on Mathematics and Computation in Music, June 22 – 25, London, UK, 2015.
- Program Committee, the 15th International Conference on New Interfaces for Musical Expression (NIME 2015) Scientific Program, Louisiana State University, May 31 – June 3, 2015.
- Scientific Advisory Committee, Music Similarity: Concepts, Cognition and Computation workshop, Lorentz Center, January 19 – 23, Leiden, Netherlands, 2015.

- Session Chair, International Conference on Machine Learning and Applications, Detroit, Michigan, December 3-5, 2014.
- Program Committee and Session Chair, the 10th International Workshop on Multimedia Information Processing and Retrieval, December 10 – 12, Taichung, Taiwan, 2014.
- Program Committee and the Publication Chair, the 15th International Society for Music Information Retrieval Conference, October 27 – 31, Taipei, Taiwan, 2014.
- Program Committee, the 22nd ACM Multimedia track on Speech, Audio, and Music Processing and Technical Demo Program, November 3 – 7, Orlando, Florida, 2014.
- Program Committee, the 14th International Conference on New Interfaces for Musical Expression, June 30 – July 3, London, UK, 2014.
- Program Committee, the 21st ACM Multimedia track on Speech, Audio, and Music Processing, October 21 – 25, Barcelona, Spain, 2013.
- Session Chair, the 8th IEEE International Workshop on Multimedia Information Processing and Retrieval, December 10 – 12, Irvine, California, 2012.
- Program Committee, the 2nd International ACM Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM'12), November 2, Nara, Japan, 2012.
- Founder of the Society of Women in Music Information Retrieval, 2011.
- Program Committee, the 1st International ACM Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM'11), November 28 – December 1, Scottsdale, Arizona, 2011.
- Program Committee and Publication Chair, the 12th International Conference on Music Information Retrieval, October 24 – 28, Miami, Florida, 2011.
- Program Committee and Publication Chair, the 2nd International Conference of the Society for Mathematics and Computation in Music, June 19 – 22, Connecticut, 2009.
- The proposer and organizer of the key-finding competition (audio and symbolic) and its evaluation strategies for the 2nd Annual Music Information Retrieval Evaluation eXchange, London, September 2005.

TECHNICAL REVIEWS

- Paper reviewer, the 16th International Society for Music Information Retrieval Conference (ISMIR 2015), October 26-30, Malaga, Spain, 2015.
- Paper reviewer, the 5th International Conference on Mathematics and Computation in Music, June 22 – 25, London, UK, 2015.
- Paper reviewer, the 15th International Conference on New Interfaces for Musical Expression (NIME 2015) Scientific Program, Louisiana State University, May 31 – June 3, 2015.
- Ad hoc paper reviewer, IEEE Transactions on Human-Machine Systems (Guest editor: Shu-Ching Chen), 2015.
- Ad hoc paper reviewer, IEEE Transactions on Multimedia (Guest editor: Shu-Ching Chen), 2015.

- Paper reviewer, the 10th International Workshop on Multimedia Information Processing and Retrieval, December 10 – 12, Taichung, Taiwan, 2014.
- Paper reviewer, the 15th International Society for Music Information Retrieval Conference, October 27 – 31, Taipei, Taiwan, 2014.
- Paper reviewer, the 22nd ACM Multimedia track on Speech, Audio, and Music Processing, November 3 – 7, Orlando, 2014.
- Paper reviewer, the 22nd ACM Multimedia Conference Technical Demos, November 3 – 7, Orlando, 2014.
- Paper reviewer, the 14th International Conference on New Interfaces for Musical Expression, June 30 – July 3, London, 2014.
- Reviewer for Academic Technology Innovation Symposium, University of North Florida, 2014.
- Panel reviewer, Human Center Computing, National Science Foundation, 2013.
- Paper reviewer, the 14th International Society for Music Information Retrieval Conference, November 4 – 8, Curitiba, Brazil, 2013.
- Paper reviewer, the IEEE Southeast Conference, April 4 – 7, Jacksonville, Florida, 2013.
- Ad hoc reviewer, IEEE Transactions on Audio, Speech and Language Processing (Editor: Emmanuel Vincent), 2013.
- Paper reviewer, the 21th ACM International Conference on Multimedia, October 21 – 25, Barcelona, Spain, 2013.
- Paper reviewer, the 2nd International ACM Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM'12), November 2, Nara, Japan, 2012.
- Paper reviewer, the 13th International Society for Music Information Retrieval Conference, October 8 – 12, Porto, Portugal, 2012.
- Ad hoc reviewer, IEEE Transactions on Audio, Speech and Language Processing (Editor: Emmanuel Vincent), 2012.
- Ad hoc reviewer, IEEE Transactions on Multimedia (Editor: Echehard Steinbach), 2012.
- Paper reviewer, the 50th ACM Southeast Conference, March 29 – 31, Tuscaloosa, Alabama, 2012.
- Paper reviewer, the 1st International ACM Workshop on Music Information Retrieval with User-Centered and Multimodal Strategies (MIRUM'11), November 28 – December 1, Scottsdale, Arizona, 2011.
- Paper reviewer, the 12th International Society for Music Information Retrieval Conference, October 24 – 28, Miami, Florida, 2011.
- Paper reviewer, the 3rd International Conference on Mathematics and Computation in Music, June 15 – 17, Paris, France, 2011.
- Paper reviewer, the 11th International Society for Music Information Retrieval Conference, August 9 – 13, Utrecht, Netherlands, 2010.

- Paper reviewer, the 10th International Society for Music Information Retrieval Conference, October 26 – 30, Kobe, Japan, 2009.
- Paper reviewer, the 2009 International Computer Music Conference, August 16 – 21, Montreal, Quebec, Canada, 2009.
- Paper reviewer, the 2nd International Conference of the Society for Mathematics and Computation in Music, June 19 – 22, Connecticut, 2009.
- Ac hoc reviewer, the Journal of New Music Research, 2008.
- Paper reviewer, the 9th International Society for Music Information Retrieval Conference, September 14 – 18, Philadelphia, 2008.
- Paper reviewer, the 8th International Society for Music Information Retrieval Conference, September 23 – 27, Vienna, Austria, 2007.

UNIVERSITY COMMITTEES

- Faculty Association Research Committee/Council, UNF (2015 – 2017)
- Faculty Association Campus Technology Committee, UNF (2015 – 2017)
- Faculty Association Academic Program Committee, UNF (2013 – 2014)
- Faculty Association Support Services Committee, UNF (2012 – 2014)
- Provost Special Task Force for Strategic Planning, UNF (2014)
- College of Computing, Engineering, and Construction Technology Committee, UNF (2014 – present)
- Computing Resources Standing Committee, School of Computing, UNF (2011 – present, Chair: 2014 – present)
- Graduate Standing Committee, School of Computing, UNF (2015 – 2017)
- Director's Advisory Committee, School of Computing, UNF (2014 – present)
- School of Computing Symposium Committee, UNF (2011 – present)
- Scholarship Selection Committee, School of Computing, UNF (2010 – 2015)
- Computing Assessment Committee, School of Computing, UNF (2013 – 2014)
- Suspension Review Committee, School of Computing, UNF (2010 – 2011)
- Faculty Search Committee, School of Engineering, UNF (2014)
- Instructor Search Committee (Chair), School of Computing, UNF (2013)
- Faculty Search Committee, School of Computing, UNF (2012)
- Recruitment and Retention Task Force, Department of Mathematics and Computer Science, Barry University (2009)
- Coordinating Committee, Master of Arts in Liberal Studies, Barry University (2009)

COURSES TAUGHT

University of North Florida (average ISQ scores on all items)

- COP2220 Computer Science I
    - Fall 2012: 4.6/5.0
- COP2551 Introduction to Object Oriented Programming

    - Spring 2012: 4.5/5.0
- CAP4630/5630 Introduction to Artificial Intelligence
    - Fall 2014: undergraduate: 4.58/5.0, graduate: 4.7/5.0
    - Fall 2013: undergraduate: 4.13/5.0, graduate: 4.7/5.0
    - Fall 2012: undergraduate: 4.2/5.0, graduate: 5.0/5.0
    - Fall 2011: undergraduate: 4.1/5.0, graduate: 4.7/5.0
- COP4813/5819 Internet Programming (Spring 2012/2013/2014/2015, Fall 2015)
    - Spring 2015: undergraduate: 4.23/5.0, graduate: 3.88/5.0
    - Spring 2014: undergraduate: 4.43/5.0, graduate: 4.63/5.0
    - Spring 2013: undergraduate: 4.49/5.0, graduate: 4.3/5.0
    - Spring 2012: undergraduate: 4.2/5.0, graduate: 5.0/5.0
- COT4470/5471 Introduction to Music Informatics (Spring 2011/2012/2013/2014/2015)
    - Spring 2015: undergraduate: 4.42/5.0
    - Spring 2014: undergraduate: 4.36/5.0, graduate: 5.0/5.0
    - Spring 2013: undergraduate: 4.54/5.0, graduate: 4.57/5.0
    - Spring 2012: undergraduate: 4.03/5.0, graduate: 4.45/5.0
    - Spring 2011: undergraduate: 4.1/5.0, graduate: 4.93/5.0
- CEN4535C Development of Gaming and Mobile Applications (Fall 2012/2013/2014/2015)
    - Fall 2014: 4.09/5.0
    - Fall 2013: 4.63/5.0
    - Fall 2012: 4.27/5.0
- COP4610/5615 Operating Systems (Fall 2010/2011)
    - Fall 2011: undergraduate: 4.0/5.0, graduate: 4.3/5.0
    - Fall 2010: undergraduate: 4.2/5.0, graduate: 4.6/5.0
- COP4640 Operating Systems Environment (Fall 2010, Spring 2011, Spring 2015)
    - Spring 2015: 4.13/5.0
    - Spring 2011: 4.3/5.0
    - Fall 2010: 4.6/5.0
- CIS4930 TLO-Website & App Development (co-teach with Karthikeyan Umapathy)
    - Spring 2014: 4.98/5.0
- CAP6671 Intelligent Systems (Fall 2015)

Barry University

- CS211 Computer Programming I (Spring 2009, Spring 2010)
- CS212 Computer Programming II (Fall 2009)
- CS232 Computer Science II (Fall 2008)
    - Courses: 5.0/6.0; Instructor: 6.0/6.0; Content: 5.67/6.0
- CS477 Computer Security (Fall 2008)
    - Courses: 5.14/6.0; Instructor: 5.43/6.0; Content: 5.43/6.0
- CS453 Artificial Intelligence (Spring 2010)

- CS406 Operating Systems Environment (Fall 2009)

OUTREACH ACTIVITIES

- Botball Educational Robotics Program (2012–present)
- University of North Florida liaison, Expanding Your Horizons North Florida, STEM conference for middle school girls, 2013.
- Keynote speaker, Joe Berg Seminar of Jacksonville (a prestigious academic seminar series for outstanding high school students), Museum of Science and History, 2012 and 2014.
- Keynote speaker on teaching gaming and mobile app development using the flipped classroom approach, UNF spotlights in the academic technology innovation symposium, 2013.
- STEM Fellow, community-based learning seminar, sponsored by Florida Campus Compact, 2012.

PROFESSIONAL SOCIETY MEMBERSHIPS

- Association for Computing Machinery (ACM), IEEE Computer Society, Society for Music Information Retrieval, Society of Mathematics and Computation in Music.

COLLABORATORS AND OTHER AFFILIATIONS

- Collaborators (last 48 months): Elaine Chew (Queen Mary, University of London), Dorien Herremans (Queen Mary, University of London), Caroline Guardino (Deaf Education, UNF), Daniel Dinsmore (Education, UNF), Daniel Cox (Mechanical Engineering, UNF), Lori Lange (Psychology, UNF), Patrick Kreidl (Electrical Engineering), Debbie Wang (Psychology, UNF), Thad Starner (Georgia Tech), Harley Hamilton (Georgia Tech), Joseph Schmuller (Psychology, UNF), Jordan Bennett Louis Smith (National Institute of Advanced Industrial Science and Technology/AIST, Japan).
- Graduate/undergraduate Advisees: Aleksey Charapko (Computer Science, UNF), Jaime Kaufman (Software Engineering, UNF), James Blair (Software Engineering, UNF), Tyler Morris (Computer Science, UNF), Eric Regina (Mathematics, UNF), Elizabeth Feldman (Mathematics, UNF), Fred Bertino (Medical School, St. George's University).
- PhD Advisor: Elaine Chew (Queen Mary, University of London); M.S. Advisor: Sy-Yen Kao (National Taiwan University).