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EDUCATION

- Ph.D. 2011 Northwestern University (Music Theory and Cognition)
Dissertation: Tonality in music arises from perceptual organization (adviser: Robert Gjerdingen)
- M.M. 2002 Seoul National University, South Korea (Music Theory)
- B.M. 2000 Seoul National University, South Korea (Music Theory)
- B.S. 1996 Seoul National University, South Korea (Physics)

PROFESSIONAL EXPERIENCE

- 2015– Chief Science Officer
Oscilloscope, LLC, East Hartford, Connecticut (formerly Circular Logic, LLC)
- 2013– Postdoctoral Fellow (adviser: Edward W. Large)
Department of Psychological Sciences, University of Connecticut
- 2011–2013 Postdoctoral Research Associate (adviser: Edward W. Large)
Center for Complex Systems and Brain Sciences, Florida Atlantic University

TEACHING EXPERIENCE

Courses Taught

- 2013 Signal Processing in Neural Oscillators (graduate course in Complex Systems and Brain Sciences)
Florida Atlantic University, co-instructed with Edward Large and Felix Almonte
- 2007–2008 Music Theory I, II, & III (core curriculum for freshman music majors)
Northwestern University
- 2007 Music Cognition (elective course for non-music majors)
Northwestern University

Guest Lectures

- 2017 Dynamical systems approach to music cognition
Music, Mind and Brain, Northeastern University
- 2015 Pitch dynamics in tonal melody: Oscillatory neural network model
Seminar in Music Psychology, University of Connecticut
- 2007 Neurobiology of tonality, Temporal dimension of tonality
Perception of Tonality, Northwestern University

AWARDS & HONORS

- 2014 New Scholar Prize (Best Paper), Cognitively Based Music Informatics Research 2014 Meeting
- 2011 Inductee, Pi Kappa Lambda National Music Honor Society
- 2008–2009 Dissertation Year Fellowship, Northwestern University
- 2003–2007 Graduate School Fellowship, Northwestern University

PUBLICATIONS

Peer-Reviewed Articles

- Kim, J. C.**, & Large, E. W. (under revision). Establishing tonal stability in time: The dynamics of melodic steps and leaps. *Music Perception*.
- Lerud, K., **Kim, J. C.**, Almonte, F. V., Carney, L. H., & Large, E. W. (under revision). A canonical nonlinear cochlear model.
- Kim, J. C.** (2017). A dynamical model of pitch memory provides an improved basis for implied harmony estimation. *Frontiers in Psychology*, 8:666. (Invited contribution to the Research Topic: Bridging Music Informatics with Music Cognition)
- Large, E. W., **Kim, J. C.**, Flaig, N. K., Bharucha, J. J., & Krumhansl, C. L. (2016). A neurodynamic account of musical tonality. *Music Perception*, 33, 319–331.
- Kim, J. C.**, & Large, E. W. (2015). Signal processing in periodically forced gradient frequency neural networks. *Frontiers in Computational Neuroscience*, 9:152.
- Lerud, K., Almonte, F. V., **Kim, J. C.**, & Large, E. W. (2014). Mode-locking neurodynamics predict human auditory brainstem responses to musical intervals. *Hearing Research*, 308, 41–49.
- Kim, J. C.** (2006). Temporal structure of tonality: A music psychological perspective. *Journal of Music and Theory*, 11, 151–174. In Korean.
- Kim, J. C.** (2003). A study of pitch space using auditory perception model and artificial neural networks. *Nangman Quarterly*, 15(2), 21–80. In Korean.

Book Chapters

- Large, E. W., & **Kim, J. C.** (under review). Musical Expectancy. In P. J. Rentfrow & D. J. Levitin (eds.), *Foundations in Music Psychology: Theory and Research*. Cambridge, MA: MIT Press.
- Kim, J. C.** (2005). Multidimensional studies of musical timbre. In S. W. Yi (Ed.), *Perception and Cognition of Music I*. Seoul: Eumak Sekye. In Korean.

Software

- Large, E. W., **Kim, J. C.**, Lerud, K., & Harrell, D. (2014). GrFNN Toolbox (for MATLAB). Available at <https://github.com/MusicDynamicsLab/GrFNNToolbox>

MANUSCRIPTS IN PREPARATION

- Kim, J. C.**, & Large, E. W. (book in preparation). *Signal processing, plasticity, and pattern formation in networks of neural oscillators*.

CONFERENCE PRESENTATIONS

- Kim, J. C.**, & Large, E. W. (2017). Dynamics of melodic embellishment: Pitch interaction in steps and leaps predicts implied harmony in tonal melodies. Society for Music Perception and Cognition 2017 meeting, San Diego, CA.
- Kim, J. C.**, & Large, E. W. (2017). Entrainment of canonical oscillators to complex rhythms: Temporal receptive field revisited. Poster presented at Society for Music Perception and Cognition 2017 meeting, San Diego, CA.
- Kim, J. C.**, & Large, E. W. (2017). Harmonic templates emerging in gradient frequency neural networks with Hebbian plasticity. Poster presented at The Neurosciences and Music VI, Boston, MA.
- Kim, J. C.**, & Large, E. W. (2017). Synchronization of canonical oscillators to syncopated rhythms: The effect of temporal receptive field. New England Sequencing and Timing 2017, Storrs, CT.
- Kim, J. C.**, & Large, E. W. (2016). A gradient frequency neural network model of auditory scene analysis. Poster presented at Neuroscience 2016, San Diego, CA.

CONFERENCE PRESENTATIONS (continued)

- Kim, J. C., & Large, E. W.** (2016). Multiple F0 estimation by gradient frequency neural networks. The 6th Annual Seminar on Cognitively Based Music Informatics Research, New York, NY.
- Kim, J. C., & Large, E. W.** (2016). A nonlinear dynamical systems approach to auditory scene analysis. Poster presented at the 14th International Conference for Music Perception and Cognition, San Francisco, CA.
- Kim, J. C., & Large, E. W.** (2015). Nonlinear resonance and plasticity as a basis for musical consonance. Poster presented at Neuroscience 2015, Chicago, IL.
- Kim, J. C., & Large, E. W.** (2015). Consonance, harmonicity and neural synchronization. Society for Music Perception and Cognition 2015 meeting, Nashville, TN.
- Lerud, K., **Kim, J. C.**, Almonte, F. V., Carney, L. H., & Large, E. W. (2015). A canonical nonlinear cochlear model. Poster presented at the 38th Annual MidWinter Meeting of Association for Research in Otolaryngology, Baltimore, MD.
- Kim, J. C.** (2014). Pitch dynamics in tonal melody: The role of melodic step and leap in establishing tonal stability. Poster presented at the 18th Annual Meeting of American Musicological Society and the 37th Annual Meeting of Society for Music Theory, Milwaukee, WI.
- Kim, J. C.** (2014). Melodic pitch reduction and chord recognition in an oscillatory neural network model. The 4th Annual Seminar on Cognitively Based Music Informatics Research, Toronto, ON.
- Kim, J. C., & Large, E. W.** (2014). Pitch dynamics on multiple time scales in a neurodynamic model of melodic perception. The 13th International Conference for Music Perception and Cognition and the 5th Conference of Asia-Pacific Society for the Cognitive Sciences of Music, Seoul, South Korea.
- Kim, J. C., & Large, E. W.** (2013). Oscillatory neurodynamics explain perceptual differences between melodic steps and leaps. Society for Music Perception and Cognition 2013 meeting, Toronto, ON.
- Large, E. W., **Kim, J. C.**, Flaig, N. K., Bharucha, J. J., & Krumhansl, C. L. (2013). Neurodynamic constraints on musical languages. Society for Music Perception and Cognition 2013 meeting, Toronto, ON.
- Lerud, K., **Kim, J. C.**, & Large, E. W. (2013). Auditory brainstem EEG, residue pitch, and nonlinear dynamical systems. Society for Music Perception and Cognition 2013 meeting, Toronto, ON.
- Large, E. W., & **Kim, J. C.** (2013). A Universal 'Grammar' for Music. In symposium: Music cognition: Bridging computation and insights from cognitive neuroscience. CogSci 2013: The Annual Meeting of the Cognitive Science Society, Berlin, Germany.
- Kim, J. C., & Large, E. W.** (2012). Stability of consonant pitch intervals in a nonlinear oscillator network model. Poster presented at Neuroscience 2012, New Orleans, LA.
- Lerud, K., **Kim, J. C.**, & Large, E. W. (2012). A nonlinear dynamical systems approach to pitch perception. Poster presented at Neuroscience 2012, New Orleans, LA.
- Flaig, N. K., Large, E. W., **Kim, J. C.**, & Krumhansl, C. L. (2012). Cultural applications of an auditory neurodynamics model. Poster presented at Neuroscience 2012, New Orleans, LA.
- Kim, J. C.**, Large, E. W., & Flaig, N. K. (2011). Learning musical sequences in a simulated auditory system. Poster presented at Neuroscience 2011, Washington, DC.
- Kim, J. C.** (2011). A critical examination of the theory of tonal hierarchy and arguments for a new theoretical framework for explaining tonality perception. Poster presented at Society for Music Perception and Cognition 2011 meeting, Rochester, NY.
- Kim, J. C.** (2010). Tonal stability as an emergent property in low-level perceptual organization. Poster presented at the 11th International Conference on Music Perception and Cognition, Seattle, WA.
- Kim, J. C.** (2010). Perceptual grouping and tonal stability: A bottom-up factor in tonality perception. 2010 Indiana University Symposium of Research in Music Theory, Bloomington, IN.

CONFERENCE PRESENTATIONS (continued)

- Kim, J. C.** (2009). Tonality perception as auditory object perception. Poster presented at Society for Music Perception and Cognition 2009 meeting, Indianapolis, IN.
- Kim, J. C.** (2007). Temporal structure of tonality perception. Society for Music Perception and Cognition 2007 meeting, Montreal, QC.
- Kim, J. N., & **Kim, J. C.** (2007). Cues for key modulation detection: New scale tones vs. cadence in a new key. Society for Music Perception and Cognition 2007 meeting, Montreal, QC.
- Kim, J. C.**, & Gjerdingen, R. O. (2004). The music-cognition classroom: Using Todd's model for rhythm. The 8th International Conference on Music Perception and Cognition, Evanston, IL.

JOURNALS REFEREED

Journal of the Acoustical Society of America
Music Perception
AVANT. Trends in Interdisciplinary Studies (published in Poland)
Journal of Music and Human Behavior (published in South Korea)

PROFESSIONAL MEMBERSHIPS

Society for Music Perception and Cognition
Society for Neuroscience
Society for Music Theory

REFERENCES

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