

# THE ELECTROACOUSTIC BARN DANCE

Paper V  
University of Mary Washington  
Department of Music  
304 Pollard Hall  
November 9, 2013  
7:30 PM

*Interactive Musical Partner: A Look at the Components of a Human/Computer  
Duo Improvisation System*

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## Abstract

The Interactive Musical Partner (IMP) is software designed for use in duo improvisations, with one human improviser and one instance of IMP, focusing on a freely improvised duo aesthetic. IMP has Musical Personality Settings (MPS) that can be set prior to performance, and these MPS guide the way IMP responds to musical input from the human. The MPS also govern the probability of particular outcomes from IMP's creative algorithms. The IMP uses audio data feature extraction methods to listen to the human partner, and react to, or ignore, the human's musical input, based on the current MPS. This paper is an excerpt of my dissertation and describes the components of IMP and their implementation. This lecture demonstration will outline the basic structure of the synthesis module, musical personality settings, generative algorithm, decider mechanisms in IMP, and machine learning implementation for timbral control, as well as give the attendees the opportunity to hear the author perform with IMP.

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**Jeff Albert** is a musician, music technologist, and educator. He is an Assistant Professor of Music Industry Technology at Loyola University New Orleans, and in May of 2013, he became the first graduate of the PhD program in Experimental Music and Digital Media at Louisiana State University, where his teachers included Stephen David Beck and Jesse Allison. He also holds degrees from Loyola University - New Orleans, and the University of New Orleans, and has served on the faculty of Xavier University of Louisiana and the University of New Orleans. Jeff's areas of research include the intersections of improvisation and technology, performance paradigms for live computer music, and audio pedagogy.

Albert was named a Rising Star Trombonist in the 2011 & 2012 Downbeat Critics Polls, and performs regularly in the New Orleans area, and throughout the US and Europe. In 2013, the Paris based record label Rogue Art released his CD, *The Tree on the Mound*, which features Kidd Jordan, Hamid Drake, and Joshua Abrams. In addition to leading the Jeff Albert Quartet, Jeff is a member of Hamid Drake's Bindu-Reggaeology band, and co-led the Lucky 7s with fellow trombonist Jeb Bishop. Jeff has performed

with many great improvisers, including Georg Graewe, Tobias Delius, Dave Rempis, Jeff Parker, and many others. He has been a member of the bands of New Orleans greats George Porter and Wardell Querzergue, backed artists like Stevie Wonder and Bonnie Raitt, and performed with the Louisiana Philharmonic Orchestra, and the New Orleans Opera.

Jeff has given presentations at the conferences of the Society for ElectroAcoustic Music in the United States, the Symposium for Laptop Ensembles and Orchestras, the International Society for Improvised Music, the Guelph Jazz Festival Colloquium, and the inaugural Symposium on Integrated Composition Improvisation and Technology. His article "Improvisation as Tool and Intention: Organizational Approaches in Laptop Orchestras and Their Effect on Personal Musical Practices" was published December of 2012 in *Critical Studies in Improvisation/Études critiques en improvisation*.

Jeff is the founder and curator of the Open Ears Music Series, a board member of the New Orleans International Sound Exchange, and writes the blog *Scratch My Brain*.