

# THE ELECTROACOUSTIC BARN DANCE

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Department of Music  
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*eMotion: Plug-and-Play Wireless Sensing Solutions*

Chett Udell

## Abstract

It is well documented that ever since consumer electronics emerged on the market, musicians interacting with live electronic music and retrofitting instruments with the latest technology have never been content with off-the-shelf solutions. Nicolas Collins, Reed Ghazala, and the ensuing circuit bending movement is one popular example (Collins 2008). There are a plethora of do-it-yourself solutions, perhaps more than ever, for employing sensor technology in electronic music. However, technical barriers still persist that limit the activity of this growing community to a particular group capable of learning skillsets far removed from one's artistic craft, including programming, microprocessors, and circuits.

This paper details some of the issues the broader community faces when employing sensor technology and proposes a broad framework and technology toward a new solution. Leveraging some of the latest ultra-low power microprocessor and radio frequency (RF) wireless technology to date, I designed a novel mesh wireless sensor network (WSN) for musical instruments called eMotion. It is my hope this system will enable a broader population of musicians and artists to participate in the exciting activities of the DIY community while requiring no knowledge of microprocessors, circuits, or programming.

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From the ancient cypress swamps of Wewahitchka, Florida, **Chett Udell** serves as instructor of music technology at the University of Oregon. He received his Ph.D. in Composition with focus in electrical engineering from the University of Florida. His dissertation research on musical interface design resulted in a registered U.S. patent (pending) and a technology startup company. His creative interests encompass electroacoustic and acoustic music composition, designing new wireless gestural control interfaces for musical instruments, using mobile performance technologies, and constructing autonomous robotic musical agents (robots).