

Report

RECENT COLLABORATIONS AND COMPOSITIONS

Michael Pounds
Ball State University

ABSTRACT

Michael Pounds is an Associate Professor and Assistant Director of Music Technology at Ball State University. After a brief discussion of the studios and educational programs at Ball State University, a number of Pounds' recent compositions and multidisciplinary collaborations are discussed. A longtime interest in extending the resources of traditional instruments has led to the use of recordings of traditional Japanese instruments, the koto and shamisen, as source material for fixed audio media compositions. In addition, field recordings gathered in Japan have provided a rich supply of sonic material for two other compositions, as well as a collaborative, interactive installation.

1. STUDIOS AND PROGRAMS AT BALL STATE UNIVERSITY

1.1. Educational Programs

Ball State University has a number of degree offerings related to computer music. These include Bachelor of Music degrees in composition and music technology, a Master of Music degree in composition, and a Doctor of Arts degree in music with emphasis in composition. Students earning a Bachelor of Fine Arts degree in Electronic Art and Animation also take a course in computer music. In addition, faculty from the Music Technology department teach a sound design course as part of the Digital Media Minor program.

The Music Technology program [1] is especially noteworthy. Roughly 25 percent of the undergraduate music students at Ball State are Music Technology majors. The program grew out of the composition program, beginning in the 1970s, and the degree was first offered as an independent major in Music Engineering Technology in 1989. In 2004 the program curriculum was revised significantly to allow more options, and the name of the program was changed to Music Technology. The Music

Technology curriculum consists of: all of the core music classes, including music theory and history, orchestration and composition, instrumental lessons and ensembles, acoustics, recording, computer music, electronics and studio maintenance, and electives that may include music perception and a history/repertoire course. Each student also completes one minor, choosing from applied physics/electronics, computer science, or digital media.

1.2. Facilities

One of the most noteworthy resources at Ball State is the Music Instruction Building, where the Music Technology Studios are located. Completed in 2004, the building includes a 600-seat performance hall, ensemble rehearsal spaces, faculty studios, practice rooms, and the facilities for the Music Technology program. The studios include six recording spaces, three large recording control rooms, five digital audio workstation rooms, an eleven-workstation computer lab, a human-computer interface lab, a room for critical listening of stereo and multi-channel audio and video, and an office/workshop for a systems engineer. More information can be found here: <http://www.bsu.edu/musictech/>.

1.3. Institute for Digital Intermedia Arts

Recently Michael Pounds has been a fellow at Ball State's Institute for Digital Intermedia Arts (IDIA). This is one of three Immersive Learning Institutes that are part of the Center for Media Design, along with the Institute for Digital Fabrication and the Institute for Digital Entertainment and Education. The IDIA is an interdisciplinary, collaborative research and studio environment that explores intersections between art and technology. The students and faculty associated with this institute work with a variety of cross-disciplinary digital media projects, often involving virtual reality, human computer interface, interactive art installations, and other innovative uses of technology. There are many

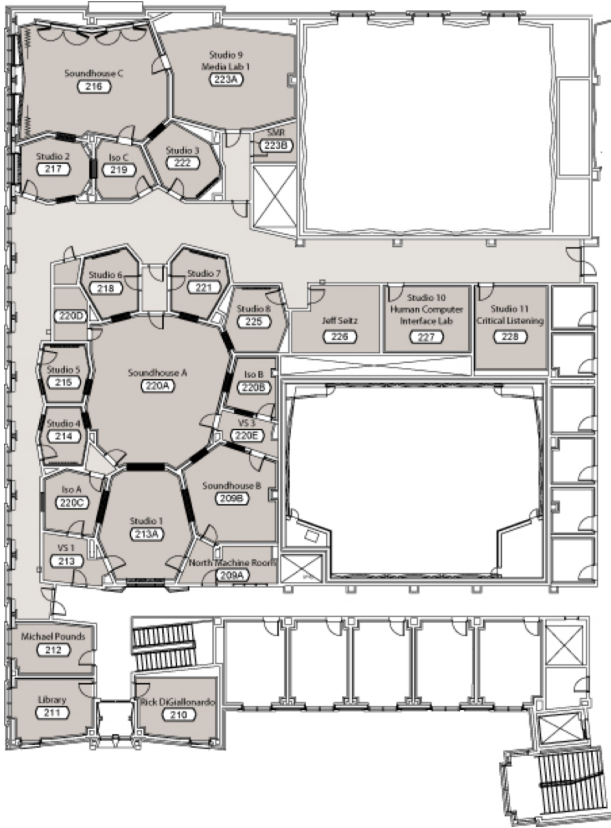


Figure 1. Music Technology Studios floor plan.



Figure 3. Soundhouse A.

2. USE OF TRADITIONAL JAPANESE INSTRUMENTS

2.1. Earlier Use of Instrumental Resources

Earlier compositions that combined instruments with electroacoustic resources began an ongoing interest in exploring the extension of musical instrument sounds using computer processing. Examples of these earlier works include *Cry Out* for trumpet and fixed media [2], and *Release* for percussion and fixed media [3]. Both of these compositions made extensive use of recordings of the instruments as source material for computer processing, though in *Cry Out* the concept of “instrument” was extended considerably through the use of found objects as percussion instruments. My composition *Still*, for a mixed ensemble (violin, cello, flute, bassoon, trumpet, trombone, and percussion) and fixed media, used instrumental sounds as source material exclusively. This piece was especially noteworthy because the processed audio material was later used for a different composition, *Still Transformations*, a work for audio only (no live instruments). This concept of working with instrumental sounds but excluding the live instrumental performance is something I continue to explore.



Figure 2. Studio 1.

opportunities for music technology and composition students to be involved with the IDIA and the Center for Media Design. More information about the IDIA can be found here: <http://idiarts.org/>.

2.2. Meiso (Meditation)

In the creation of *Meiso (Meditation)*, I was interested in exploring the sounds of the koto, extending those sounds beyond the limitations of the instrument. Prior to composing the piece, I had been listening to recordings of traditional Japanese music, and was especially interested in shakuhachi music, with its expressiveness and meditative qualities. I appreciated how each note

on the instrument has a life of its own, with its own characteristic attack, development and release. This kind of music invites the listener to pay attention to all of the subtle details of the sounds as they unfold. I hoped that some of these qualities might be present in Meiso (Meditation).

The piece was started in the recording studio, where Yoshiko Kendall played her koto. She played some traditional music as well as a number of different sounds, including non-traditional playing techniques, that I could later process and mix in my composition. Several different microphones and microphone placements were used, taking advantage of the extensive microphone collection and acoustics of the recording studios at Ball State University. Stereo pairs of microphones were placed close to the instrument, in a coincident stereo pattern roughly a meter in front of the instrument, and in a spaced pair further away in the room. This resulted in a variety of sounds with which I could work.

The source recordings were sometimes used in their unprocessed state, allowing the beauty of the instrument to be fully appreciated. Many of the sounds were created by processing the source recordings using a variety of techniques, such as convolution, filtering with delays, granular processing, pitch shifting, time stretching, and combinations of these processes. The natural resonances of the strings and wood of the instrument color the overall sound, and the piece generally has a relaxed, dreamy, harmonious quality that is somewhat uncharacteristic compared to many of my other compositions.



Figure 4. Yoshiko Kendall in the studio for a koto recording session.

2.3. Hajiki (Pluck)

Hajiki (Pluck) seems to be a natural companion piece to Meiso (Meditation), though there are some important differences. This piece relies on recordings of the shamisen for its source material. For the recording session, Kyoko Kidd played her shamisen in the studio, and the microphones and acoustic space were used in ways similar to the earlier koto recordings.

For this piece too, the motivation for the composition was to explore the character of the instrument. Since the shamisen has different properties and playing techniques compared to the koto, the resulting composition has a somewhat different character. Also, for this piece, I decided to process the sounds more extensively in general, exploring the instrument in a more abstract way. There are only a small number of sounds that are left unprocessed and clearly recognizable as shamisen sounds. Organizationally, the piece is loosely structured around the idea of a plucked string, with its excitation and resolution as a metaphor for life experience. In different places in the composition, different aspects of the instrument are explored. For example, different sections focus more on the transient components of the sound, the rhythmic aspects of the playing technique, or the resonances of the instrument. Technically, many of the computer-processing techniques are similar to those used for the koto piece. However, for this piece, more radical processing was done using GRM Tools plug-ins and the Hipno plug-ins from Electrotap.

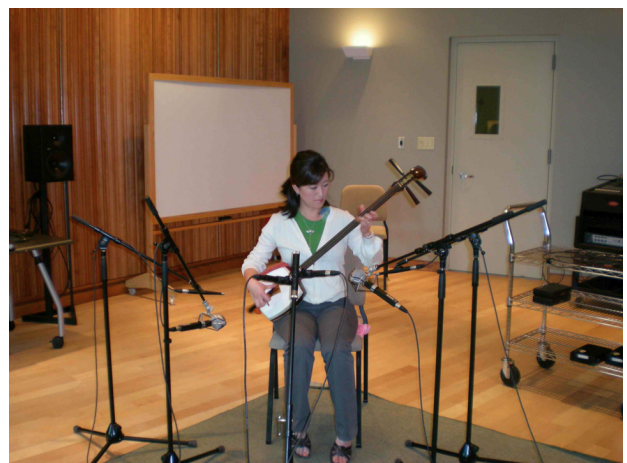


Figure 5. Kyoko Kidd in the studio for a shamisen recording session.

3. USE OF FIELD RECORDINGS

3.1. Collection

When I began traveling in Japan, I gathered nearly 100 field recordings using a portable recorder (Edirol R-1). These recordings included nature sounds, such as cicadas and forest soundscapes. The recordings also included sounds at temples and shrines, urban sounds, and many other “found sounds” that I encountered. This resulted in a very rich collection that inspired multiple projects. The first project was a composition entitled *Collection*, for fixed audio media.

Walking around with a recorder always ready in one’s pocket is a great way to study a place or culture from an aural perspective. This particular collection of recordings reveals Japan as a fascinating place with many contrasting aspects. For example, the quiet environment of a mountainside forest or a Buddhist temple differs dramatically from the often noisy and energetic urban soundscapes. In creating this composition, I wanted to explore these contrasts.

Originally, I was only going to do one piece with these recordings, and when I began the piece, I wanted to present many of these interesting sounds in their unprocessed form, but I also wanted to explore sounds that were created by processing these recordings in more abstract ways. With such a rich palette of sounds available, it became apparent that there was too much for one composition, so I decided to create two separate pieces. In *Collection*, the majority of the sounds were presented with minimal processing, mainly including noise reduction, filtering, and some reverb. Thus the composition activity became a process of orchestration, amplitude shaping, and mixing. In many places the sounds were layered and juxtaposed to create more complex textures and gestures. I had a particular interest in layering sounds in different frequency ranges to create a more complex whole.

3.2. Recollection

Recollection, for fixed audio media, was the second project based upon these field recordings. It was commissioned for a CD celebrating the 50th anniversary of the Experimental Music Studios at the University of Illinois [4]. In creating this piece, I wanted to revisit the same source material, but this time with much more processing and abstraction. The title makes obvious reference to



Figure 6. Michael Pounds recording in the field.

the sounds used in the earlier piece, but also to the idea that memory generally involves some transformation, some filtering through our personalities, desires, and views of the world, and through interaction with our other experiences.

The sounds for this piece were essentially all processed to some degree. Often the processing techniques included spectral processing using Fourier-transform-based techniques, as well as the common pitch-shifting, time-stretching, and filtering techniques. In assembling and mixing this piece, less attention was paid to the context and meaning of the sound sources, but rather the sounds were placed and layered freely according to their sonic properties and the overall flow of the piece.

3.3. Displaced Resonance

Displaced Resonance is the third project created using the field recordings gathered in Japan. The final version was created in collaboration with Jesse Allison and John Fillwalk from the Institute for Digital Intermedia Arts. It is an interactive installation that consists of sixteen sculptural forms containing pieces of tubing of different lengths (the longest roughly ten feet, folded) mounted on boxes with internal loudspeakers driving sound through the tubes. Each tube filters the sound according to its resonant frequencies. A computer system tracks the movement of spectators and responds by controlling the distribution of sound to the tubes, while also controlling LED lighting associated with the sculptural forms. Sounds played through the tubes consist of several field recordings from Japan. The title of the installation refers to removal of the sounds from their original physical and cultural contexts, and the imposition of new physical and

cultural resonance.

The original version was designed by me, and it consisted of only eight tube structures, with no lighting. The tracking of spectators was accomplished using infrared sensors mounted below each tube. For the later version, it was found that tracking the scene using a video camera and infrared lighting and filters was much more effective. The earlier sensors had been somewhat difficult to trigger successfully. Programming was done using the Max/MSP/Jitter environment.

The sculptural forms in the final version of the installation were designed by John Fillwalk in collaboration with the Institute for Digital Fabrication at Ball State University. The design process included several versions based on the original functional structure that I had built. Fillwalk then interpreted the spatial interaction of the structure in a virtual version in the online virtual world of Second Life, where the sculpture interacted with avatar proximity and presence. The interactive functionality in Second Life was scripted by Jesse Allison, who also worked on the video tracking in physical reality. After several virtual iterations, the form was re-interpreted and fabricated to have a physical form and be interacted with in a public context. In the future, it will be possible to link the physical version with the virtual installation in Second Life, and control the physical installation through interaction with avatars in Second Life.



Figure 7. Second Life version of Displaced Resonance.

4. CURRENT AND FUTURE PROJECTS

Currently, I am continuing to develop technological possibilities for interactive installations, in collaboration with the Institute for Digital Intermedia Arts and with Andrew Ayers, an undergraduate assistant. Areas of interest include the use of transducers to create sound by resonating flat panels, and touch-screen interactivity



Figure 8. Displaced Resonance at the 2009 SEAMUS national conference.

combined with video projection. I am also collaborating with poet and Ball State faculty member Matthew Mullins to create interactive environments, both on-line and in physical installations, that will combine poetry with sound and video art. I have been recording Mullins, who is also a musician, playing electric guitar, electric bass, and drums. These recordings will be used as sound source material for these current and other possible future projects. Another project in the planning stages is a piece for accordion (to be performed live) and live computer processing and/or fixed audio media.

5. REFERENCES

- [1] Kothman, KeithMichael Pounds and Jeff Seitz. "Studio Report: The Music Technology Program at Ball State University, Muncie, Indiana," in *Proceedings of the International Computer Music Conference, Miami, USA, 2004*.
- [2] Pounds, Michael. *Cry Out. On Passages (CD)*. Urbana, Illinois: *Experimental Music Studios*, 1999.
- [3] Pounds, Michael. *Release. On Music from SEAMUS volume 9 (CD)*. Los Angeles: *SEAMUS*, 1998.
- [4] Pounds, Michael. *Recollection. On In Celebration of the 50th Anniversary of the University of Illinois Experimental Music Studios (1958-2008) (CD)*. Urbana, Illinois: *School of Music, University of Illinois*, 2008.

6. AUTHOR'S PROFILE

Michael Pounds

After completing a Bachelor of Science degree in mechanical engineering, Michael Pounds worked for four years at the National Aeronautics and Space Administration (NASA). He left NASA to continue his education, studying music composition with an emphasis in music technology and computer music. He attended Bowling Green State University before earning master's degrees at Ball State University and the University of Birmingham in England. He completed a Doctor of Musical Arts degree at the University of Illinois. At the University of Illinois, his minor field of study was ethnomusicology, including courses covering European folk music and the music of Japan, Korea, China, Mongolia, and Tibet. His awards include the ASCAP/SEAMUS Student Commission Award, a Residence Prize at the Bourges International Electroacoustic Music Competition, and a Rotary Foundation Ambassadorial Scholarship for studies in England. His music has been performed throughout the United States and in Canada, Mexico, England, Ireland, France, Spain, Austria, Korea, Australia and New Zealand. He was a co-host of the 2005 national conference of the Society for Electro-Acoustic Music in the U.S. (SEAMUS). Michael is currently an Associate Professor of Music Composition and Theory and the Assistant Director of the Music Technology program at Ball State University, where he teaches courses in composition, acoustics, music perception, recording and computer music.