

Sound Lanterns

Scott Smallwood

<http://silvertone.princeton.edu/~skot/>



Sound Lanterns is an interactive sound installation that is powered by the sun, and emits sounds based on the amount of sunlight available, as well as on the amount of light that falls on light sensors on each of the four lanterns themselves. Listeners can change the nature of the sound by casting shadows over the solar panel, or over individual sound lanterns. The piece relies entirely on sunlight available in the moment. In most PV applications, the solar panel is actually supplying current to a battery or a capacitor, thus "buffering" the power. In this piece, I wanted to experiment with using the sun's raw energy directly, without regulating the voltage in any way. Therefore, these sound makers go through many changes as the sunlight waxes and wanes. Each lantern features a slightly different sound-making circuit, thus the four voices are unique and, when sounding together, create a chorus of sun-powered chattering, squealing, buzzing, and humming. Listeners should feel free to "play" the lanterns together by casting shadows, touching the solar panels, or slightly tilting the panels.

The performance of these devices is variable and depends upon the amount of sunlight available: if it is dark, they make no sound; in dim light, sound is non-existent, or very soft and subtle. In bright sunlight, they scream and wail loudly.

Artificial Analog Neural Network

Phillip Stearns

<http://www.art-rash.com/pixelform/installation/AANN>



Artificial Analog Neural Network (AANN) is an interactive, handmade electronic sculpture that responds to environmental stimuli in a display of light and sound. AANN's structure is a skeletal point-to-point soldered network of analog electronic components designed to approximate biological neural network behavior. The sculpture is a 45 neuron network whose form was influenced in part by multi-layered network models used in neural computing, and by the Fibonacci based branching of natural systems. During the design process, studies of early marine and plant life became the primary inspiration for AANN's final form. AANN is situated at the intersection of art and science, making physical the abstract processes used by computer scientists in pattern recognition. As guests speak or cast shadows on AANN the abrupt changes in sound and light cause the network to react by producing a series of swoops and chirps, and by illuminating LEDs on active neurons; sounds are converted into chirps and twitters, made visual by the LEDs indicating activity in the network. What is heard and seen are the actual pulse streams being transmitted from one neuron to the next throughout the entire network.



Interactive Sound Installations

An Exhibition at the Ninth Conference on
New Instruments for Musical Expression
Regina Gouger Miller Gallery
Carnegie Mellon University
June 4-6, 2009, Noon-6pm

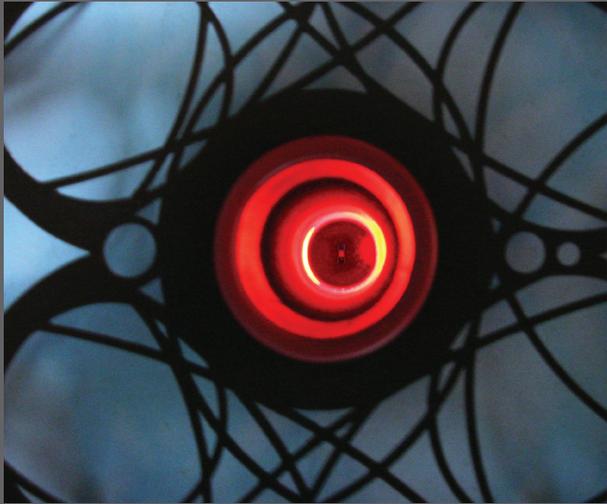
Featuring works by Ivica **Bukvic** and Eric **Standley**; Steve **Bull** and Scot **Gresham-Lancaster**; Dan **Overholt**, Byron **Lahey**, Anne-Marie Skriver **Hansen**, Winslow **Burleson**, and Camilla N. **Jensen**; Scott **Smallwood**; and Phillip **Stearns**.
Selection Committee: R. Luke **DuBois** and Golan **Levin**.
Installations Chair and Exhibition Coordinator: Golan **Levin**.



Made possible with support from the CMU School of **Music**; the **STUDIO** for Creative Inquiry; the Regina Gouger **Miller Gallery** at CMU; and the CMU Schools of **Art** and **Architecture**. Special thanks to: the **artists**; Zach **Ali**, Jennifer **Brodth**, Margaret **Cox**, Jeremy **Ficca**, Ross **Garin**, Rich **Kawood**, Bob **Kollar**, David Calman **Lasky**, Erin **Pischke**, Kristi **Ries**, Astria **Suparak**, RJ **Tripodi**, and Noel **Zahler**.

Elemental & Cyrene Reefs

Ivica Bukvic and Eric Standley
<http://ico.bukvic.net/>



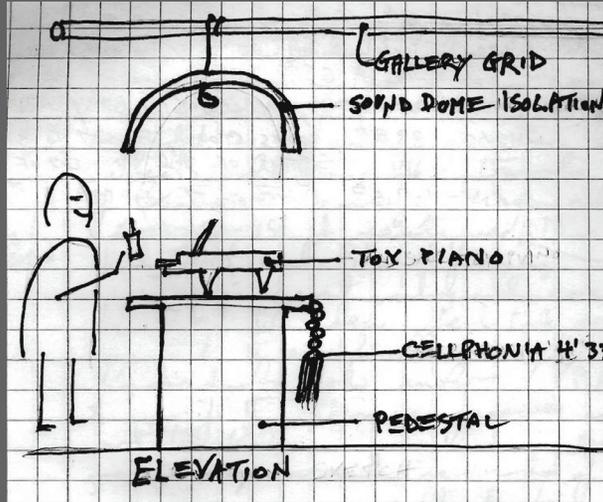
The **Revo:over** installation is a collection of six co-located installations exploring multimodal interaction, self-evolving audiovisual fabric, integration of architectural space, and the notion of communal art. The interactive soundscape **Elemental** and the sculpture entitled **Cyrene Reefs** are the core aural components of the overall exhibit, exploring the notions of a musical instrument, traditional performance practice, and their ties to the tactile and visual domains.

Using motion tracking in conjunction with an overhead speaker array, **Elemental** harvests the motion of visitors in the exhibit space and augments their location and trajectory with water ripples, thus generating a surreal sensation of traversing waist-deep water. As an acknowledgment of visitors' communal presence, the collisions among individual ripples produce algorithmically synthesized aural fireworks, resulting in an ever-changing soundscape that transforms architectural space into a musical box of infinite possibilities.

Cyrene Reefs complements **Elemental** as an intricate mythical instrument. Populated with holes and fissures resembling stops of a woodwind instrument, the Reef begs to be explored by hands. Akin to the notion of virtuosity, the Reef reveals little of its true potential to the impatient, rewarding only those who choose to persist.

Cellphonia: 4' 33"

Steve Bull and Scot Gresham-Lancaster
<http://www.cellphonia.org/>



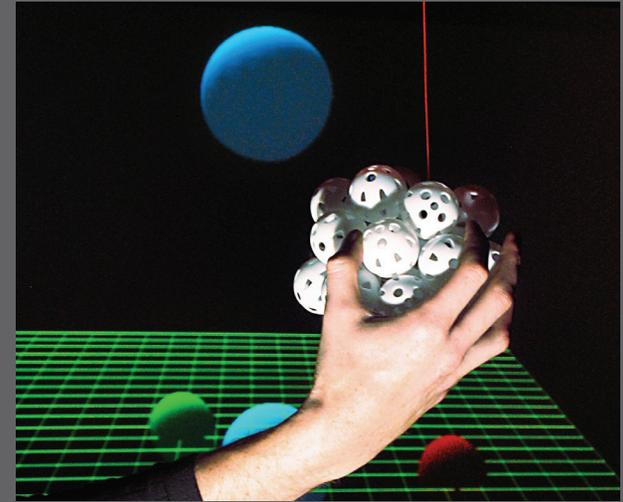
Cellphonia:4'33" is a tribute to the concept embodied in John Cage's landmark piece, *4'33"*. It is a structural and aesthetic construct that is a formal expansion of the piece. Technology is used to examine the sounds around us, but also to include those parts of our personal sound scape that are augmented by technology, by the addition of the cellphone to our acoustic world.

There are two distinct audio elements. The first is a "bed" created by an ambient microphone. This recording is regeneratively looped at intervals that coincide directly to the timings of Cage's original score. Changes are injected in key parameters of the "looping" to perturb and rearrange the material already captured in the previous section.

The second element is the "cellphone opera" score that takes input from participants and redistributes the audio material from the calls to specific slots in a prearranged "score". Each new call rearranges the entire score as the recordings move to a new temporally ordered location in the 4 minute and 33 second time frame. "At the beep" participant callers are prompted to respond to randomly chosen requests. "Make the sound of a radio out of tune" "Tell us about Cage's 4'33" performance." "What is your mother's name?" "Did David Tudor like mushrooms?" Each cellphone call will be recorded for 4 seconds and 330 milliseconds.

Pendaphonics

Dan Overholt, Byron Lahey, Anne-Marie Skriver Hansen, Winslow Burleson, Camilla N. Jensen
www.pendaphonics.com



Pendaphonics consists of 8 interactive sonic pendulums with sensors measuring the x-y-z coordinates of their motion. Participants manipulate a spatialized soundscape that is directly controlled by the positions and motions of the pendaphones. Each of the pendaphones can be raised and lowered in height, and the trajectory of a swing directly controls the sounds emanating from a loudspeaker mounted above. The pendaphones are attached to spring-retracting cords that pull them toward the ceiling, and are counter-weighted by their interaction nodes at the bottom in order to attain neutral buoyancy. Multiple channels of loudspeakers spatialize the generated sounds, enhancing the sense of physical immersion in the piece.

Pendaphonics focuses on explorative, collaborative performance, combining artistic qualities with social activities and play. Visitors playing the pendaphones evoke a soundscape through ensemble interaction, producing a wide range of musical sounds via the many different combinations of inputs. One mode allows each pendaphone to control a large virtual turntable that allows scratching and other DJ type effects, while another enables control of a virtual Tibetan bowl in which audio is generated through physical modeling synthesis. Other playful sounds encourage sonic games involving bouncing, pulling, pushing, swinging in circles and collaborating with other users to generate sounds of trembles, shudders, shakes, and collisions that can be enjoyed by participants and observers alike.

