bioSound

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Introduction

bioSound is a project loosely described in the project description for my doctorate studies at Malmö Academy of Music. The idea behind *bioSound* is to use input from unpredictable sources, much in the same way I did in a previous, and related, project *etherSound*, to generate and control sound and image output. Where etherSound was geared towards new communications technology in the digital domain, *bioSound* is intended to deal with meteorological events in the analog domain. Within the frame of my doctoral studies I will use the data collected from both of these two projects, compare them and make models of them.

Following is a short and preliminary description of my intentions of *bioSound*. However, it is important to understand that what is described here is a concept of a work. The realization of *bioSound* should be a collaborative effort.

The elements

The event generation

The sound source for *bioSound* are large glass tubes (I will consistently refer to these as tubes, however it does not have to be tubes at all, as long as the shapes has decent acoustical properties), hung vertically in an outdoors location. By filling these with water, the tubes are initially tuned in a pre-conceived harmonic scale. Each tube has a small hammer and a microphone attached to it. The hammers are controlled by an electric motor powered by a solar cell.

The tuning of the tubes will slowly deviate from the original tuning as rain will fill them or heat will cause evaporation. The tubes (no less than 12 all together) should be placed in a manner so that this effect is not uniform (some more exposed to sun than others, etc).

By the use of a solar cell, the sun will in a very direct way control the impetus of the sounds; the stronger the sunlight is, the more power will the solar cell transmit to the control interface, and the more often will the hammers strike the tubes. All the tubes will have a slightly different threshold for its hammer so that the likelihood of two hammers striking simultaneously is minimized.

The event processing

All the microphones of all the tubes are connected to a computer for sound processing and recording. A new set of control signals are then generated based on the past and current input to the system (change of pitch and time since last stimuli). These control signals manipulate the spatialization and processing of the input, which will be monitored through a multi-speaker system along with a real time video feed (perhaps also slightly processed) of the tubes (or of something related).

Layout

bioSound is a sound installation that can be experienced in several different formats and temporal layers.

- The first and most fundamental layer is where the control signals are generated and sound is produced. The audience is part of the same system as the one causing the sound.

- The second layer is the processing of the sound events in real time. This layer can also include video streams. The audience is *not* part of the same system and the sounds and images are distorted, but time is constant.

- The third layer is a processed version of a recording of the sounds and images produced in non real time. This can be, depending on the circumstances, an additative work which contracts the last 24 hours to fifteen minutes and adds it to the previously contracted day of sound and video. This layer could be posted on a web page, thus adding a third physical layer to the work. At this layer, the receiver has no connection to the origin of the sounds and images, and time is distorted.

- A fourth layer can be added which draws freely on data collected over a month or more.

All the layers may also include additional live performances adding more complexity to the temporal and physical layers.

Collaboration

Apart from myself, this project should include one or several visual artists, for the video part but also for the design and placement of the tubes (*bioSound* can be conceived of as a sound sculpture). As pointed out earlier, the general staging of the project should be a collaborative effort. I have not yet aproached any visual artists with this project. .

Technical requirements

The costs involved in realizing this project can be divided in reusable hardware (computers, speakers, video equipment, etc) and non-reusable (production of glass tubes, electric motors, etc).

Reusable hardware

- 1 computer with multi channel sound card for sound processing and difussion.

- 4-6 loudspeakers with amplification.

- 1 or preferably 2 video cameras.

- video projector and screen.

- 1 computer for video processing.

Project specific equipment

For each of the glass tubes:

- 1 pick-up microphone.

- 1 electric motor.

- wiring.

- material for the hammers and for the construction.

- components for the control interface of the hammers.

Additionally, a set of solar panels.

Physical requirements

The glass tubes should, as mentioned above, be exposed outdoors, preferebly in a yard or a similarly protected space. In connection to this, a space for the projection and the loudspeakers is needed. The size and shape of this space in not vital.