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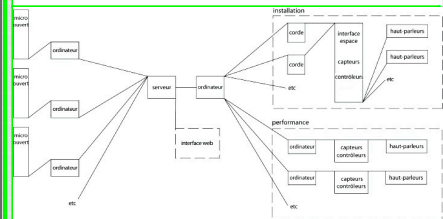
LOCUS SONUS LAB | project coordination : Peter Sinclair & Jérôme Joy | France | LOCUSONUS.ORG

BACKGROUND

Locus Sonus is a research group specialized in audio art, as such it is officially recognized and receives funding from the French Ministry for culture. It is organized as a post graduate course by the Art Schools of Aix-en-Provence (Ecole Supérieure d'Art d'Aix-en-Provence) and Nice (Ecole Nationale Supérieure d'Art Villa Arson Nice), France.

Two main thematics define our research - audio in it's relation to space and networked audio systems.

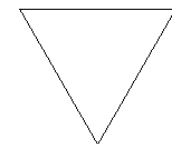
Over the last 18 months the Locus Sonus Lab has been focusing on a process which revolves around a network of audio streams. The audio source for each stream is simply an open microphone which continually uploads chosen soundscapes or sound environments, as playable material. We have now established a worldwide community of streamers each person being responsible for the installation and maintenance of his mike. Several different art forms have developed from this project - A dynamic world map which allows access to the streams online an Installation where visitors are invited to traverse the different audio streams by sliding a ball along a 150-ft wire, various performances and concerts and most recently we created an interface allowing access to the streams in second life. Unadulterated physical world sound pierces the virtual world creating an almost John Cageian perception where the act of listening is modified by the cumulated real and virtual distance. Increasingly interested by these notions of space and distance we now wish to pursue this research by increasing the porosity between the physical and virtual world.



DESCRIPTION OF THE PROJECTS CORE CONCEPT 'Locus Sonus in Second Life' (category 'VR'S VIRTUAL')

Locus Sonus, has set up an extension to its physical world lab in second life, with an aim to experiment with permutations between the physical and the virtual world using audio as the main vector.

We are currently developing physical modeling techniques as a way of making virtual spaces acoustically resonant and using streaming techniques to port audio from the virtual to the physical world and visa versa. To present this work we are proposing a gallery show installation which will reproduce, using deliberately lightweight materials, a decor from our space in second life. Visitors to this "physical" space will be incarnated in second life as avatars (using video tracking techniques) and the manipulation and moving of sound objects (physical sculptures modeled from an audio wave) will cause the corresponding sound to resonate within the virtual volume. Visitors could also talk and hear their voices reverberate synthetically within the virtual volume. There will be no (audio) barrier between virtual and physical visitors, so avatars visiting from second life side will also be able to manipulate sound objects. In the gallery the virtual



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acoustics will be reproduced using spatialization techniques, second life sounds (footsteps etc) will also be spatialized. Although a virtual world can respond to the physical world by simple imitation it is also possible to construct from abstract or impossible conditions. One of the things which we wish to verify is the way that physically impossible resonant spaces will influence and mix with the local acoustic space leading to a paradoxical hybridization possibly placing the user in both places simultaneously since the synthetic acoustic space will exist as sound waves in three dimensions within the installation.

**DETAILS OF HOW THE PROJECT WILL BE REALIZED**

Audio capabilities in Second Life are relatively limited, beyond spatialization and file playback there is little else, certainly no possibility for sound synthesis or serious audio manipulation. We are currently working in collaboration with SAIC (School of Arts Institute Chicago) to develop an audio server using Super Collider version 0.1 which, when given the dimensions and other descriptive details (surfaces etc) of a given virtual space, will generate, the corresponding resonance using physical modeling techniques. The resulting audio signal will then be "streamed" into second life

The basic concept would be - URL requests sent from SL as PHP commands -> PHP to OSC -> to audio engine (SC/Max/PD) -> Icecast/OGG -> SL streaming + installation streaming.

The generated audio signal will be experienced within the virtual space but also in the physical world (being presented alongside our open microphones for example).

Spatialization techniques which will be used in the installation result from an ongoing collaboration between Locus Sonus and the GMEM, and appear as a collection of objects for PureData version 0.39.2 or Max MSP version 4.6.

We are already familiar streaming techniques and have access to a server with no limits on bandwidth. Custom streaming software will be built using PureData. The decor representing the second life environment will be printed onto plastic canvas then stretched on frames.



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**NAMES OF COLLABORATORS AND THEIR SPECIFIC AREAS OF EXPERTISE**

**Locus Sonus**

- Jerome Joy (Professor ENSAN, Composer)
- Peter Sinclair (Professor ESAA, Digital media and Sound artist)
- Samuel Bordreuil (Professor CNRS/MMSH/LAMES Univ. de Provence, Sociologist)
- Anne Roquigny (Administration)
- Nicolas Bralet (Artist, Musician)
- Sabrina Issa (Artist, Philosopher)
- Nicolas Maigret (Media Artist, Assistant EBAB)
- Esther Salmona (Landscape Architect, Artist)
- Lydwine Van der Hulst (Musician, Composer)

**Collaborators**

- SAIC (The School of the Art Institute of Chicago)
- Robb Drinkwater (Professor, Sound - Super Collider, Linden Scripting)
- Ben Chang (Virtual Reality)
- Brett Balogh (Artist, Sound, Engineering)
- GMEM (Groupe de Musique Expérimentale de Marseille)
- Charles Bascou (Software Developer, Max MSP Pure Data)
- ENSAN (Ecole Nationale Supérieure d'Art de Nice - La Villa Arson)
- Jean Louis Paquelin (networks and systems administrator)

**Independants**

- Stephane Cousot (PHP development)
- Creacast / Gilles Misslin (streaming server)
- nujus.net (PHP, MySQL, web server)



**LOCUS SONUS IN SECOND LIFE | PROJECT**



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Peter Sinclair (Professor ESAA, Digital media and Sound artist) - Site

Jerome Joy (Professor ENSAN, Composer) - Site

Robb Drinkwater (Professor, Sound - Super Collider, Linden Scripting) - CV

Ben Chang (Virtual Reality) - CV

Brett Balogh (Artist, Sound, Engineering) - CV

Nicolas Maignet (Sound Artist, Assistant EBAB) - Site



EXAMPLES OF PRIOR WORK

- LOCUSTREAM PROJECT

- LOCUSTREAM TUNER

- LOCUSTREAM MAP

THE LOCUSTREAM PROJECT | 2005...

In the fall of 2005 The lab started work on a group project with the aiming to involve the various different members of the group in a way, loose enough, to not stifle individual creativity, while still providing a firm basis for comunal experimentation and exploration.

Locus sonus is inherently nomadic in nature, shared between 2 institutions separated by several hundred Kms, we travel regularly to meet and work together in and from different locations.

It was decided to set up some live audio streams, basically open microphones which upload a given soundscape or sound environment continuously to a server and from there available from anywhere via the WWW. Our intention being to provide a permanent (and somewhat emblematic) resource to tap into as raw materiel for our artistic experimentation.

After setting a first permanent stream (outside Cap15 a artists studio complex in Marseille) we started by using the stream in a performance / improvisation type mode using the, now standard, laptop and MIDI controller with homemade patches



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to reinterpret the stream in real time. This proved to be somewhat problematic because often nothing in particular would be happening on the stream at a given time when we were intending to work with it. This led us to follow various leads:

The first was to develop a stream which using a denoiser and a sampler continuously renewed a data base of the "best of" current sound events or "objects". Although this made the stream much more listenable to (and usable as musical material) it did pose some conceptual problems, in that the sound was, pre-composed at its source and with the development of the project it has now disappeared to be replaced with the unadulterated "open mike" once again.

Other developments included an activity developed by one member of the group (Nicolas Bralet) which he calls "mémoires de stream". It consists of listening to the streams on a regular basis from where ever he happens to be at the time and producing a short composition using a mixture of sounds gleaned from the stream and those of the local environment, simultaneously a idealised projection of the remote site and a reflection on the schizophrenic\* aspects of the whole project. At the same time another member of the group (Ester Saloma) conducted a similar activity but in this time in a literary mode, listening to and describing the streams as she switches from location to location, a sort of laptop tardis with which she could make instantaneous hops (without stumbling around every time she lands) ex of text.

Our main efforts have gone into the development of a spatial form proposing a suitable interpretation of the streams in the local environment. The first attempts involved using resonating wires - long piano wires strung from wall to wall were set into vibration using piezo transducers at one end the resulting modified sound being captured at the other end using guitar pickups. This set up allowed us to perform the streams by touching the piano wires and thus modifying their resonant qualities. Using a I/O board we increased the effect by detecting when a specific wire was touched and increasing the amplitude of the audio signal in that wire. By this time we had three streams up and running (Marseille, Aix en Provence and Chicago) in this first version we used the wires to map out the virtual network, pointing the wire in the direction corresponding to its provenance with an angle that represented relative distance.

A discussion that followed this presentation led us to believe that it was necessary to define the protocol (sound capture/network/local form) that we were employing more precisely. One of our problems was the choice of the stream emplacement - should this be made in relation to geographical location or sound quality or some kind of political or social situation... The decision was made to leave this up to other people, a partly practical and partly ideological choice. At this point we tidied up our Pure Data streaming patch so that other people could implement it without too much difficulty, boosted the number of streams which could be accepted simultaneously by our server, and started stripping down our ideas for installations, confident that the worldwide audio art community (with a little help from our friends) would respond to our call, which they did.

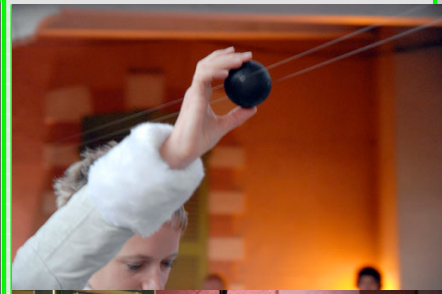
### LOCUSTREAM TUNER

In its present version, the installation with which we present the streaming project, consists of a pair of wires stretched the length of the exhibition space with a small ball threaded on them. The position of the ball can be altered by the public acting like a tuner, an audio promenade where users slide their way through a series of remote audio locations. Multiple loudspeakers enable us to spatialise the sound of the streams creating so that each different audio stream selected on the wire emanates from a new position in the local space.

In order to make the installation function efficiently we were obliged to incorporate a system allowing us to interrogate our server and update the list of current streams (people go away or use their streaming computer for a concert or a machine crashes...) we use the list to provide visual feedback by projecting names of the places the streams are coming from.

### LOCUSTREAM MAP

At one point it seemed necessary to provide the "streamers" (as we have come to call the musicians and artists who've responded to our call) with the possibility to access the streams themselves, not only to hear their own stream but also those provided by other people. Our website now offers an animated map which shows



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the location of all the streams and indicates those which are currently active with a blinking light. By clicking on a chosen location one can directly listen to the OGG Vorbis stream in a browser.



**Post-grad partners :** Ecole Supérieure d'Art d'Aix-en-Provence (School of Arts), Ecole Nationale Supérieure d'Art de Nice Villa Arson (School of Arts), in association with CNRS/IRRSI/LAMES Lab Univ. de Provence (Samuel Bordreau, Sociology Research Lab).

**Coordination :** Jérôme Joy, Peter Smolár.

**Administrative coordination :** Anne Rouquay.

**2006 / 2007 Locus Sonus Lab:** Nicolas Boleo, Sabrina Issa, Jérôme Joy, Nicolas Meunier, Esther Salmons, Peter Smolár, Lydwine Van der Noot.

**Consult Scientific 2006 / 2007 :** Samuel Bordreau, Philippe Franck, Bastien Gallet, Christophe Kéno, Bernard Stiegler, Raphaël De Vloo, Michel Waisvitz.

**Webmaster :** Locus Sonus lab.