

# NETWORKED SONIC SPACES

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## ABSTRACT

Since it was launched in 2004, the research group Locus Sonus<sup>1</sup> has been working on artistic possibilities arising from the intersection of networked and acoustic or local audio spaces. The first projects, *Locustream* & *Wimicam*, were developed from experimentation using audio streaming techniques [9], and engage with problematic related to the use of flux for artistic purposes (flux understood here as a continually updating medium) in local and networked environments. Today our research is grouped under two main headings *Field Spatialization* and *Networked sonic spaces*. Our research is fundamentally practice based aiming to create a corpus of artistic experimentation around a common problematic. The forms emanating from this activity are « verified » essentially through their presentation in public contexts. The choice of implementing this research within the art education environment is prompted by the current renewal of techniques and art-forms which are at the intersection of the visual arts and music.

## 1. SOUND / SPACE

The marriage of sound and space (sound problematized by space and visa versa) is at the heart of our research and experimentation, the main pivot of our investigations. A number of different forms are experimented within the group, ranging from concert/performance, through installation to web-based projects. The elaboration of these different types of proposition implies the development of appropriate systems for the restitution and diffusion of acoustic and electronic sound, of apparatus and devices such as instruments, computer programs, interfaces and the invention of processes, protocols and concepts. The main part of our current investigation concerns the transport of sound (and sound ambiances) which has led to the construction of streaming systems as well as sensorial and experiential environments which favour different listening experiences, synchronous and asynchronous, local, distant, geographically identified, « autophone » and « chronotope »: the networked sonic spaces. Our use of streaming technology is unusual in that it consists of a network of « open mikes » (web-mikes) which continuously transmit the unadulterated (in so far as that is possible) sound of the environment in which they are placed: sounds which carry with them the sense of the space in which they propagate not so much sound sources as sound « reservoirs » [3] [11]. In all cases the

question is one of « sounding out » spaces and the perception of their site-specific (in-situ) and time-specific (in-tempo) nature - atmosphere, architecture, expanse, contextualization, soundscape, perceptual appropriation - are some of the elements taken into account in the setting up of these microphones. This multiplicity of constituents and instances unfolds as different facets of our experimentation<sup>2</sup> : resonance (single spaces and relayed spaces), transmission and diffusion (transporting the atmosphere of one sound into another space), spatialization (virtualization, composition of space), temporality, multiplicity viewpoints (or rather of listening points), comparison of one sound space with another.

These different approaches are further multiplied by the different sensibilities of the individual artists/researchers taking part in the project. Beyond the simple demonstration of techniques and of media technologies the laboratory's interest lies in the developing methods which, unlike « traditional » use of these techniques, take into account their power to modify space and practice.

## 2. EXPERIMENTS WITH CORRELATED SPACES

The systems developed by Locus Sonus make use of interactions, interferences and correlations between local and distant spaces, between virtual and physical spaces. Attention is paid to the subsequent modifications of the said spaces whether from an acoustic, perceptive or sociological point of view. These experiments are being conducted through the following means:

- An evolving network of permanently open microphones producing multiple audio streams, relayed by the internet and by a specifically programmed server. These open microphones are spread around the globe and maintained by a large number of collaborators providing live sound material for subsidiary projects, (*Locustream*)<sup>3</sup>
- The conception and construction of dynamic, automated online interfaces permitting live audition of our « open mike » streams, (*Locustream SoundMap*, *Locustream Tardis*)<sup>4</sup>
- The realization of sound installations, sound spatialization systems and mixed reality installations using acoustic and virtual spaces. These installations have

<sup>1</sup> Locus Sonus Lab 2007/2008 : Julien Clauss, Alejo Duque, Scott Fitzgerald, Jérôme Joy, Anne Roquigny, Peter Sinclair.

<sup>2</sup> In collaboration with STEIM Amsterdam, CRiSAP London, SAIC Chicago, GMEM Marseilles, and with CNRS sociology and architecture labs: LAMES Aix en Provence, CRESSON Grenoble, LTCI/ Laboratoire des Usages Paris/Nice Sophia Antipolis.

<sup>3</sup> Icecast2, PureData, ogg vorbis (next research : full access and raw audio).

<sup>4</sup> PHP, MySQL.

resulted in listening experiences which implicate the listener through their ambulation in the local or virtual space as well as shared experiences, (*Locustream Tuner*, *Locustream Promenade*, *LS in SL – Second Life -*)

- The development of mobile, autonomous apparatus for the capture and interpretation of live sound (*Wimicam*), coupled with streaming interfaces for duplex or multiplex performance,

- The development of an autonomous « *LocustreamBox* » - a small computer dedicated to task of streaming audio and configured to connect automatically to our server and related systems such as online interfaces or setups for installations<sup>1</sup>.

Within the research group these systems are articulated in different ways, between installations and performances, between online interfaces and physical spaces, between manipulation and audition, interrogating relationships between form and practice. These interrogations offer a seminal space for the development of projects initiated not only by the members of the research group but also by collaborators and partners (such as SARC<sup>2</sup>).

### 3. ISSUES AND PERSPECTIVES

As we have seen, our current questioning of networked sound spaces is centered on modification of perception and usage of space, the conditions which these modifications require or imply and the way that these conditions are implemented into systems which interact with a place or several places simultaneously. The artistic dimension of this networking of spaces refers not so much to existing forms such as remote concerts, or remote interactive systems [2], as to the social dimensions inherent to the creation of a « circle » (i.e. a social circle [10]) or the participation in a game. If the expression « networked » commonly implies a multi-site distribution of points of transmission and of reception and realtime simultaneous interactions between these sites we are more specifically interested by mediation, interlocution, transportation and translation as forms of composition (*live composition*), interpretation, instrumentation (*collective instrument*) and listening (i.e. the modification of the way that an audience perceives the sound relevant to the system which transports and presents it - *shared audiences -*) : How is it possible to « play » these streams, flux of continuous material, factual and unpredictable sound from a distant context ? What kind of organology is applicable to this meta-/multi-/remote-instrument « autophone » and these (communal) playable interfaces innervated with distant sound flux ? How does the agogic<sup>3</sup> dimension (due to latency within the network), audibly perceptible as one « plays » with an online networked system, become a part of the compositional spacial process [1] ? How can the interaction and the influences between remote acoustic spaces, which is only possible through a networked system [8] offer new possibilities for live performance and composition ?

<sup>1</sup> Linux Xubuntu, nano-pcs, Pd, Max/MSP, Holospat, Junxtion.

<sup>2</sup> Sonic Art Research Center, Belfast.

<sup>3</sup> Time fluctuations.

To avoid abandoning ourselves to the fluidity of the flux of streamed sound and to our (recently developed) listening habits various lines of research have been developed : remote acoustics<sup>4</sup> (*LS in SL*, *Espaces Chantants* and *LAPS* by Nicolas Maigret), remote soundscapes and listenings (*Locustream*), remote sound recording and post-recording (*Journal de Streams* by Esther Salmona, *Streams Fictions* by Nicolas Bralet), inter-modulated soundscapes, re-composed/improvised soundscapes and remote performances (*Concert Sympathique Mondial* by Sabrina Issa, *Sobralasolas !* and *nocinema.org* by Jérôme Joy<sup>5</sup>, *Autosync* by Peter Sinclair<sup>6</sup>).

The instrument (*organon*) becomes the networked system with it's inputs and outputs which can be stimulated from the outside, programmed or processed to produce modulations, inter-modulations and acoustical artifacts, controllable, composable and interpretable by public and authors alike through interfaces and systems which hybridize local and remote spaces. It allows for multiple recurrent or permanent operations (performing, playing, participating) within a coherent system, an apparatus which proposes to be experienced as an art work. This leads us to find possible forms and practices which « compose » with the system which we are developing: gesture, notation, drifting, participative and interactive listening<sup>7</sup>, atmosphere and imagination (*Cagean listening*), a continual redefining of roles between author and listener<sup>8</sup>.

As a consequence and a prolongation of this project our explorations which continue under the heading of *Field Spatialization* include practices related to multi-scaled sound spaces (*Networked sonic spaces*) which could imply the use of streaming, natural acoustics, telecommunications, radio, and virtual spaces, it also implies mapping or referencing of existing sound spaces, studying the mobilization of personal sound spaces – *locative and variable media -*. (*Net\_Derive* Atau Tanaka, *Silophone The User*, *City Links* Maryanne Amacher, *Variations VII* John Cage, *RadioNet* Max Neuhaus, *Sound Island – Landscapes Soundings* Bill Fontana, *Netrooms* Pedro Rebelo) [4]

Critical analysis plays a large part in our research, and has largely developed through exchanges with researchers working close to us in the areas of sociology, epistemology, esthetics and sound anthropology<sup>9</sup>. One of the notions which has developed out of these collaborations is that of *Audio Extranauts*. The notion

<sup>4</sup> Remote acoustics is the phenomenon of using a remote site as acoustic chamber for a sound source [8]

<sup>5</sup> <http://jeromejoy.org/>

<sup>6</sup> <http://nujus.net/peterhomepage/autosync/autosync.html>

<sup>7</sup> RadioMatic/Streaps (2001) Jérôme Joy & Radiostudio Bauhaus Universität Ralf Homann.

<sup>8</sup> PicNIC (2002) Jérôme Joy / Quatuor Formanex, Festival Résonances, Nantes.

<sup>9</sup> Samuel Bordreuil (LAMES), Jean-Paul Thibeau (CRESSON), Marc Relieu (LTCl), Bastien Gallet (ESBA Montpellier), Christophe Kihm (Le Fresnoy), Jean Cristofol (ESA Aix en Provence).

of extranaut, loosely defined, describes an individual or a community moving freely between online and offline spaces or activities - *hybridization / immersion* - it also implies manifestations of projects which are essentially web based in physical space or again social behavior which finds its origins in an online situation and which extends this behavior into physical space. This notion allows us to tackle in a more precise and communal manner issues related to forms of public reception and attention such as: the displacement of "ambiances" and sensibilities, experimental forms of flux as art, real time or organization of time, open source or other cooperative models [6].

This exploration of networked spatial systems reveals and clarifies the context in which new audio practices are developing between physical and virtual spaces [5] while offering a new experimental dimension in audio art and music.

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