Romain Barthélémy • Frauke Behrendt • Justin Bennett • Elena Biserna • Xavier Boissarie
Joel Cahen • Aisen Caro Chacin • Jean Cristofol • Owen Chapman • Laurent Di Biase
Samuel Bordreuil • Emmanuel Guez • Steve Jones • Jérôme Joy • Fabrice Métais
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Jessica Thompson • Aline Veillat

LOCUS SONUS

Laboratoire de recherche en art audio

Symposium #8

Audio mobilité

Proceedings

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Locus Sonus
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École supérieure d'Art
Aix-en-Provence
ÉCOLE NATIONALE SUPÉRIEURE D'ART DE BOURGES

LOCUS SONUS
8th International Symposium

AUDIO MOBILITY

16-18th of April 2014
Aix en Provence
http://locusonus.org/

Scientific committee: Richard Kronland-Martinet (LMA - CNRS), Samuel Bordreuil (AMU/CNRS-LAMES), Jean-Paul Thibaud (CRESSON- CNRS), Jacques Sapiega (AMU - ASTRAM), Angus Carlyle (CRISAP), Jean Cristofol (ESAA), Peter Sinclair (ESAA - Locus Sonus), Jérôme Joy (ENSAB - Locus Sonus), Anne Roquigny (Locus Sonus), Elena Biserna, Marie Muller, Laurent Di Biase, Fabrice Métais.

PROGRAMME

Mercredi 16 Avril 2014 @ AMU/LAMES MMSH - Salle Duby

8h30 : Accueil
9h00 : Discours de bienvenue

SESSION 1 : GPS, Geolocalisation and Soundwalks.
Modérateurs : Elena Biserna & Marie Muller

9h15 Placed Sound(s). The Sound of Locative Media,
Frauke Behrendt
9h45 Walking with Ghosts,
François Parra
10h15 Mediated Listening Paths: Breaking the Auditory Bubble,
Elena Biserna
10h45 Walking, Telling, Listening. Audio Walks,
Justin Bennett

11h15 Pause

11h35 Mapping the Iceberg: An Attempt to Model the City of Aix-en-Provence as 3D Sound Mapped on a Real Space,
Marie Muller
11h45 Perspectives on Sound Based Augmented Reality Theatre,
Joel Cahen
12h15 De l'oreille à l'oeil. Des conditions d'une écriture située,
Emmanuel Guez & Xavier Boissarie

12h45 Pause déjeuner

SESSION 2 : Mobile Microphones and Remote Listening.
Modérateurs : Laurent Di Biase & Jérôme Joy

14h30 Visiting, Weaving, and Modulating Sonic Expanses and Rythms -Tuning, Improvisation, and Environmental Aesthetics, Jérôme Joy
15h00 Ecotones, Eco-territories and the Sonic Relationality of Space: An audio investigation of Montreal's 'Falaise St. Jacques', Owen Chapman
15h30 Public Ringtones / Sonneries Publiques,
Matthieu Saladin
16h00 Sound Geofiction and Mobile Interaction: The Sound in the Environement as Support of Composition,
Laurent Di Biase

16h20 Pause

16h30 Débat autour des thèmes abordés dans les sessions 1 & 2

Jeudi 17 Avril 2014 @ ESAAix - Amphithéâtre

8h30 : Accueil

SESSION 3 : Sounding Sensing and Sonification.
Modérateur : Peter Sinclair

9h00 Inside Zeno's Arrow: Mobile Capture and Sonification,
Peter Sinclair
9h30 Augmented Topography By Sound,
Aline Veillat
10h00 Navigating by sound in my SmartCity+,
Romain Barthélémy
10h30 The Carry Principle: Strategies for Mobile Music Practice,
Steve Jones
11h00 Acoustic Localisation Techniques for Interactive and Locative Audio Applications,
Dom Schlienger

11h30 Pause

11h40 Mobile Sound and (Re)Making Place,
Jessica Thompson
12h10 Débat autour des thèmes abordés dans la session 3

13h00 Pause déjeuner

POSTERS : Performances, Démos, Installations
@ Seconde Nature

14h00 POSTERS
- The Carry Principle, Steve Jones
- Murmures urbains, Emmanuel Guez & Xavier Boissarie
- Four Mobiles Tracks - Aix en Provence (Field Fiction), Laurent Di Biase
- AudioMobile: Locate, Listen, Share, Owen Chapman
- Echolocation Headphones, Aisen Caro Chacin
- Smart City +, Romain Barthélémy
- Sonneries Publiques, Mathieu Saladin
- One Missed Call / Un appel en absence, Fabrice Métais
- Cartographier l'Iceberg, Marie Muller
- Triangulation Device, Jessica Thompson
- RoadMusic, Peter Sinclair
- Augmented Topography, Aline Veillat

15h00 CIRCUIT (école d'art, centre ville, seconde nature)
19h30 Four Mobiles Tracks, concert-performance de Laurent Di Biase à Seconde Nature

Vendredi 18 Avril 2014

@ ESAAix - Amphithéâtre

8h30 Accueil

SESSION 4 Mobility and (Audio) Perception.
Modérateur Fabrice Métais

9h00 Map and Probe in a Multidimensional Space,
Jean Cristofol
9h30 Echolocation Headphones: Seeing Space with Sound,
Aisen Caro Chacin
10h00 The Process of Sonification Design in the Case of Guiding Tasks,
Gaëtan Parseihian
10h30 Of God's Word Terrestrial Acoustics : A Missed Call,
Fabrice Métais
11h00 «In Between Marching Band and Sound Walk» : Space, Mobility /Sonic Mobilization and their Concrete Coordinates, Samuel Bordreuil
11h30 Pause
11h40 Débat autour des thèmes abordés dans la session 4
13h00 Pause déjeuner

PERFORMANCES, DEMOS, INSTALLATIONS
@ ESAAix
14h00 Installations
18h00 Fin du Symposium

Infos pratiques :

AMU/LAMES MMSH - 5, rue du Château de l'Horloge, 13094 Aix-en-Provence
http://lames.mmsh.univ-aix.fr/
Seconde Nature - 27 Rue du 11 Novembre, 13100 Aix-en-Provence
http://www.secondenature.org/
ESAAix – rue Émile Tavan, 13100 Aix-en-Provence
http://www.ecole-art-aix.fr/

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INTRODUCTION

AUDIO MOBILITY

The fact that computers have become truly portable (smart phones) while being powerful enough to perform complex calculations in real-time is a very recent phenomenon. If a system capable of generating and capturing audio can share a user's mobility, is the status of that audio changed? Can there be new forms of audio art that result from mobility?

We propose to consider mobile audio-technology from two points of view. These can be assimilated to maps and sounding. In the case of maps, we project space and trajectory through schematic representation while in the case of sounding, we activate the environment around us and in so doing collect information about it through feedback. A traditional way of considering these two approaches to audio mobility might be that of experiencing audio phenomena we encounter as we cross a landscape (insect sounds, running water, or a noisy bar and the sound of traffic) versus hearing the ever changing sound of our own footsteps as they encounter different surfaces (gravel, leaves or a polished floor) and activate different resonant spaces or reflective surfaces (an empty hall, a carpeted room, a forest or a cliff face).

In terms of audio technology these two poles are epitomized by Locative Media on the one hand and sensor based computing on the other. In reality, the line we can draw between these two models is not so clear-cut: radar, a sounding-technology, is used to make projections or charts and we can ping the network from our laptops to see if we are present (as a node on the network) and hybridization of these approaches might offer considerable creative possibilities. However, we consider these two poles as significant in this research into an art of audio mobility.

Mobile audio-device listening (ipods, smartphones) can be considered negatively since they tend to isolate the user from his or her naturally occurring sound environment. They can also be considered positively, as a way of recuperating for the user, an otherwise unpleasant sound space (when traveling in a saturated urban environment for example). Our hypothesis is that by incorporating information emanating from the environment itself, either through sensing or through localisation, the negative aspects of mobile listening might be reduced and the positive aspects augmented.

LOCUS SONUS

Locus Sonus audio in art, is a research group whose main aim is to explore the, ever evolving, relationship between sound, place and usage. In an Art/Science tradition our research involves experimentation with emerging audio technologies particularly those relating to sound transmission, mobilization or spatialisation. Maintained by the art schools of Aix en Provence and Bourges in France, Locus Sonus is concerned with practice driven research and transdisciplinary approachs to the arts of sound.

http://locusonus.org/

LOCUS SONUS SYMPOSIUMS

From the outset in 2005 Locus Sonus Symposiums have maintained an exceptionally high standard in both artistic and scientific content. Deliberately restrained in regards to the number of participants they have succeeded, for each edition, in uniting international experts and generating lively discussion around a specific question or topic. The Locus Sonus Symposiums are organized in partnership with the Aix-Marseille University (AMU)'s sociology lab LAMES and regularly include collaborations with research groups such as IMéRA, CRESSON, CRiSAP UAL, SARC Queen's University Belfast, SAIC Chicago, Laval's University Quebec to mention just a few. The symposium is funded by the French ministries for culture and research.

The **AUDIO MOBILITY** symposium is organised by Locus Sonus (Schools of Arts Aix en Provence & Bourges) and by LAMES MMSH (Laboratoire Méditerranéen de Sociologie - Sociology research lab),with the partnerships of Seconde Nature and Fondation Vasarely (Aix en Provence), with the help and support of the Research Agency & French Ministry of Culture framework agreement.

AUDIO MOBILITÉ

Le fait que les ordinateurs soient devenus réellement portables et suffisamment bon marché pour être dédiés à une tâche spécifique tout en étant assez puissants pour accomplir des calculs complexes en temps réel, est un phénomène très récent. Si un système capable de générer et de capter de l'audio peut partager la mobilité des utilisateurs, le statut de l'audio produit est-il modifié ? Peut-il y avoir une ou des formes nouvelles d'art audio qui découleraient de cette mobilité ?

Nous proposons de considérer les technologies audio-mobiles de deux points de vue qui peuvent être illustrés par les notions de cartographie et de sondage. Dans le cas des cartes, nous nous projetons dans le cadre d'une représentation (schématique et abstraite). Dans le cas du sondage, nous activons l'environnement autour de nous et nous récoltons ce faisant des informations sur cet espace. Une façon plus traditionnelle de considérer ces deux approches de la mobilité audio pourrait être de comparer la manière dont nous percevons les phénomènes sonores que nous rencontrons : d'une part, notre disposition d'écoute lorsque nous traversons un paysage et un environnement sonore (sons d'insectes, d'eau courante ou d'un bar bruyant et le bruit de la circulation), et, d'autre part, le fait d'entendre le son continuellement varié de nos propres pas rencontrant différentes surfaces (gravier, feuilles ou un plancher poli) et activant différents espaces résonants ou surfaces réfléchissantes (une salle vide, une salle couverte de moquette, une forêt ou une falaise).

En réalité, la ligne que nous pouvons tracer entre ces deux modèles n'est pas aussi évidente. Le radar, par exemple, est une technologie de sondage utilisée pour réaliser des projections ou des cartes et, autre exemple, nous pouvons "pinger" le réseau à partir de notre ordinateur portable pour savoir si nous sommes présents (en tant qu'adresse ip connectée à ce réseau). Cependant nous considérons ces deux pôles, cartographie et sondage, comme significatifs lorsque nous nous posons la question d'un art de la mobilité audio.

Nous pouvons considérer aujourd'hui que nos appareils portables participent à nous isoler de manière néfaste de l'environnement sonore autour de nous (coupure), ou au contraire, qu'ils permettent la réappropriation d'un espace sonore urbain devenu saturé et l'augmentation de notre espace personnel d'écoute (couture). Notre hypothèse est que, en intégrant les informations émanant de l'environnement lui-même, soit par le biais de la captation soit grâce à la géolocalisation, les aspects négatifs de l'écoute mobile pourraient être réduits et les aspects positifs augmentés.

LOCUS SONUS

Locus Sonus est un laboratoire de recherche dont l'objectif principal est d'explorer la relation (constamment fluctuante) entre, le son, l'espace et les usages. Située dans la lignée Arts/Sciences, notre recherche implique l'expérimentation avec les technologies émergentes relatives au son et notamment liées à la transmission, à la mobilité et à la spatialisation audio. Le laboratoire est soutenu par l'École Supérieure d'Art d'Aix en Provence et l'École Nationale Supérieure d'Art de Bourges. Il comprend une recherche pratique de création et une approche transdisciplinaire des arts du son.

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LES SYMPOSIUMS LOCUS SONUS

Depuis 2005 les symposiums Locus Sonus, ont permis de faire converger un réseau international de chercheurs et d'artistes dont les activités sont à la pointe des thématiques posées. Le nombre restreint de participants permet de générer des échanges et des débats fructueux et constructifs et de répondre à des questions très précises sur un domaine de recherche donné. Les symposiums sont basés sur une collaboration étroite avec nos partenaires scientifiques (LAMES Aix-Marseille Université, CRESSON, CRiSAP UAL, l'IMéRA, SARC Queen's University Belfast, SAIC Chicago et l'Université Laval Québec, ainsi que d'autres collaborations ponctuelles scientifiques). Les symposiums sont financés par des contrats de recherche, annuels et pluri-annuels (Accord cadre CNRS/Ministère de la Culture, DRAC PACA).

*Le symposium **AUDIO MOBILITÉ** est organisé par Locus Sonus (École Supérieure d'Art d'Aix en Provence, École Nationale Supérieure d'Art de Bourges) et par le LAMES MMSH (Laboratoire Méditerranéen de Sociologie),en partenariat avec Seconde Nature et la Fondation Vasarely (Aix en Provence), dans le contexte de l'accord-cadre CNRS/Min de la Culture.*

SESSION 1: GPS, Geolocalisation and Soundwalks. Wednesday April 16th

Moderators: Elena Biserna & Marie Muller

Frauke Behrendt (D/UK)
Lecture, Session nr. 1

Placed Sound(s) - The Sound of Locative Media

Frauke Behrendt
Researcher, University of Brighton
www.brighton.ac.uk
www.fraukebehrendt.com

Abstract:
This talk develops a sonic perspective that pays particular attention to the temporal, situated and embodied aspects of locative media. It introduces the concept of 'Placed Sounds' for a detailed analysis of locative sound experiences. This framework for analysis considers how locative sound engages with the auditory aspects of our spatial perception and how immersion operates for locative media and sound. Furthermore, it considers the role of situated experience, the role of walking as remixing, and how agency and exclusion operate in locative sound. The concept and this talk draw an extensive archive of examples of locative sound from art, design, education and industry.

Biography:
Dr Frauke Behrendt is Senior Lecturer at the University of Brighton and her research interests include the areas of digital cultures, sound studies, mobility, sustainable media and smart cities. She leads the 3-year Research Council UK funded 'Smart e-bikes' research project (http://www.smart-ebikes.co.uk) that aims to understand how people engage with electrically-assisted cycling and the issues for policy, design/product development and research that could lead to a higher uptake of e-bikes in the UK. The project is trialling a fleet of 35 e-bikes in Brighton and has developed a standalone open-source monitoring system - using mobile media, GPS and sensors for monitoring usage and giving feedback to riders. Frauke is member of Theatrum Mundi (a new urban forum that seeks to understand what brings life to a city, particularly in its public places and asks how these might be better designed), was on the Steering Committee of the European COST Action on 'Sonic Interaction Design', curated an exhibition on 'Sonic Interaction Design' and organised the International Workshops of Mobile Music Technology. Previously, Frauke held posts as Research Fellow at the Cultures of the Digital Economy Research Institute (CoDE) and as Assistant Professor at the Rhode Island School of Design (US).

François Parra (FR)
Lecture, Session 1

Walking with Ghosts

Marcher avec des fantômes

François Parra
Artist, Researcher
Association Sonoscaphes.
http://www.sonoscaphes.com

Abstract:
Technical developments of the twentieth century allowing us to produce and hear non-haptic sounds have radically altered the usual categories of sound distribution, and thus their uses and the places where they are heard.
More recently, the instrument has been extended to the interface, allowing data manipulation; the data flow being organized as networks. These changes have renewed modes of writing, production and dissemination of sounds. Data is taking the place of notes and recorded sounds have become part of music theory, blurring the boundaries between sound and music.
How can we give form to all the data we traverse as we roam the place of that data? Can we turn these places of wandering into listening places and restore to the territory its mission of rendering the experience of a collective memory?
I will take as an example those headphoned walkers, who, following the rhythm of their audioguide, roam the cities along new paths. Will they become one of the new figures of urbanity?

Résumé :
Les évolutions techniques du XX ème siècle ont permis de produire et entendre des sons non haptiques qui ont radicalement bouleversé les catégories distribuant usuellement les sons, donc l'emploi de ces derniers ainsi que leurs lieux d'écoute. Plus récemment, l'instrument s'est étendu à l'interface, permettant la manipulation de données, les données s'organisant en flux et réseaux.
Ces mutations ont renouvelé les modes d'écritures, de production, de diffusion des sons, la donnée prenant la place de la note, le son enregistré se faisant élément d'un nouveau solfège, brouillant les frontières entre son et musique.
Comment aujourd'hui donner forme(s) à toutes les données qui nous traversent lorsque nous arpentons même lieux qu'elles? Comment transformer ces lieux de déambulation en lieux d'écoute et rendre au territoire sa vocation à distribuer l'expérience d'une mémoire collective?
Je prendrai comme exemple possible ces marcheurs casqués qui, au rythme de leur audioguide, arpentent les villes selon de nouvelles trajectoires. Seront-ils amenés à faire partie des nouvelles figures de l'urbanité..?

Listening in walk (soundwalk or audio walk) is an experience at the intersection of body,

landscape and sound. This practice has some characteristics that strongly differentiates it from installation, concert, radio, cinema, in the way that the body of the listener / walker participates to the sound itself. The body produces its own sounds, since it becomes a part of which is heard. Breath, heartbeat, fatigue (sometimes coming as a filter) are parameters inducing a time and a type that differs a lot from other forms of listening.

We can give to hear surrounding sounds through a protocol, or produce some in a studio. But they probably won't easily operate during the walk. There is in this case, a regular back and forth relation to establish between the gesture of the editor and those of the listener/walker. A third way, made possible by the evolution of digital technologies is to transform or produce sounds while walking.

Another characteristic, inseparable from the audio walk one, is headphone as a means of listening. It was already used in the studio or plugged in a walkman, but it generates a new use since it is the tool of dissemination of a landscape within the landscape. It also becomes a listening singular tool among the other walkers or bystanders.

Then what shall we listen and how will we listen in such a context?

I will try to answer this question by analyzing four components of listening in walk, namely:

I - walking as a form

II - captation / sound production instruments

III - site data

IV - listening territory and its use.

I - WALKING AS A FORM

One could consider the act of walking far away from modernity or totally tied to daily contingencies. In *Marcher une philospohie*, Frederic Gros demonstratres that the figure of the walker appears in both the history of thought (Nietzsche, Rimbaud, Rousseau, Thoreau, Nerval, Kant) as primal experience or even as a working process for many artists. The introduction of the a cinéplastique concept allows us to consider walking as a practice or as a full form. In *Marcher, Créer* (Davila 2002: 42) Catherine Malabou try to define it:

> [...] Such is the cinéplastique, a way to set in motion, move to produce, invent sur-prises and to fracture reality, open it to a new invention. One way to draw paths to shape mobility and circumstances, to inform the movement. Not an analysis of circulation systems that enable course and that shape geographies, not a odologie ... but a motion capture as a means of production and vision, as a tool of invention […]

We understand why the walking practice has been a starting point for a large number of artists (i think about the Dérives Situationistes, Stalker collective, Robert Smithon, Gabriel Orozco, Francis Alys, Hamish Fulton, Max Neuhaus, Christina Kubisch, Janet Cardiff) as a means of producing independent and alternative forms, even if they eventually will find later a place within the institution.

We find many contemporary resurgences in collective practices (Ici-même collective, Mu collective OTERP project,Tourist Agency, Promenades-sonores, GR 13). It would be interesting to analyze the conditions of its emergence to understand how necessary it meets with artists or groups who practice it.

Walking is a voluntary act. Motion induces a temporality, a serie of situations leading to structural choices. A way to build a form while walking. This form can be experienced alone, collectively, in the moment, or give rise to subsequent release. So, if the question isn't walking in a functional sense, then how, why and where do we walk?

In *Marcher, Créer* (Davila 1991: 40) Thierry Davila enounces the following proposition:

> […] Today the city / nature opposition no longer exists as such. The ubiquity of the metropolis in the fields of culture has transformed the world into "ready made" gear in which it is to navigate by drawing and inventing trips in which nature is no longer dominant but actually patchy or residual […]

Far from thinking that the issue of walk is limited solely to urban areas , all examples of listening in walk which I refer here are deployed in urban or peri-urban areas. Perhaps because we do not walk in nature for the same reasons and in the same way that we would in a city. But also maybe we do not listen in the same way in both environments.

Although in both cases, we listen to some sounds as signals for us to move but also to

measure time, urban areas are also those that reveal more dense human activity, its traces, its buildings, many additional layers to listen, accidents or stories in which up our journey.

As noted by Hildegard Westerkamp, go walking in the countryside will probably not stated as such as it's a part of daily activities. But walking in urban areas is part of a deliberate decision, it may let us invest in another sense the territory of our daily commute.

If listening is the goal of it, and that is our assumption, we'll now examine some evolutions of instruments and listening devices.

II - CAPTATION/SOUND PRODUCTION INSTRUMENTS

Here I would like to know if the instruments we have in listening in walk activity can register (or not) in a tradition close to the instrumental one. If I rely on a given JC Risset definition of the art of instrument maker as "one who by taking into account the rules of sound as well as those modes of perception of the audience builds machines to convert the gestures of interpreter into perceptible acoustic energy "listening in walk instruments can't be set in this field.

If we observe the evolution of traditional instruments, there is a mutation in the twentieth century by the introduction of mechanics and electricity, to non-haptic ones:

- I take for example the first Theremin, invented by a telecommunications engineer in which the gesture is no longer bound to the touch but the exploration of space around the instrument. The audience will be able change its characteristics by its presence.
- A second example is the sampler, introduced in the early 1960s, the purpose of which is to reproduce stored sounds, so re-play memory. In this case, we can associate all physical interfaces than gestures that one wishes to control to perform these sounds. We went from the instrument concept to the concept of interface.
- A third example is the synthesizer that before keyboard become a great partner for public dissemination is controlled by buttons and knobs. In this case, there is transformation of a gesture but certainly no attention to the touch.

A further step is taken with the ability to digitize and manipulate the audio signal by a

processor (already part of the sampler concept). On equipment for researchers , these processors equip first studios, home studios and then laptops, tablets, phones, micro-controllers ... making them easily reproducible and totally nomadic.

These processors (while incorporating the principles of the synthesizer or sampler) moved imperceptibly the concept of musical instrument to the measuring instrument through software developed for this purpose. They are now included on interfaces with sensors that process a large amount of data both from physical world or various networks. These "instruments" become, as well as the walker, sensitive to their environment.

III - SITE DATA

The primary source of data used in the context of listening in walk, of course are the surrounding sounds. These sounds are sometimes perceived through a microphone. This microphone can already be considered as an instrument of perception, but also able to transform sounds according to its use, either in real-time or not.

In an audio walk made for Promenades-sonores project framework, I have experienced various types of microphones (canon, binaural head) that enlarge space or exaggerate some of its aspects and thus begin to create an in-situ fiction. The next step is to balance the level between recorded sounds and real ones, which the headphone creates distortions without cause visually noticeable. This principle falls within the “audio-vision” conception developed by Michel Chion.

When trying to work with the same technology, but real-time processed, is added as essential given time signal processing. This latency between the signal source and its perception, is itself a fictional principle justifying a number of walks. But signals perceived are mostly those produced by our body. This use of sound won't allow us to listen to the place.

Another type of data are those from the mobile accelerometers. But those they allow to integrate essentially rhythm or sound of walking in the sound processing As the body's sounds are already strongly present in the microphone, the use of these data does not match a topographic concern.

Closer to a use from site data, GPS coordinates allow both mapping processes that combine to places and therefore specific moment of the walk. It is also possible to use some parameters of the pictures coming from the onboard camera.

But what seems the most important source in terms of data, since we can be connected to a network is the ability to access site data (memory) that can use in a speculative dimension. From this point, we won't walk alone anymore.

The first thing I did when building the audio walk mentioned above was to search the web for information on the site I walked past few weeks. Hunters, the only walkers that I met there did not help me a lot. I found the story of a man who lived there during the Second World War. Reading this story has definitely changed my perception of the place. Wishing to share these new feelings, I let read and record this story by an actor whose film identity is associated with that territory. His voice returning in-situ this story seems me to produce this reality fracture mentioned earlier, putting in perspective the entire listening before it.

This type of "collage" of data is one of the possibilities that will grow up with exponential contents on mobile networks. This example (a cinematic one) tries to describe this feeling of “walking with ghosts” that I associate with listening in walk. Walking on a site surrounded by related or generated data leads to a solitary but inhabited listening.

IV - THE TERRITORY OF LISTENING AND ITS USE

This territory is the catalyst for listening in walk. It beats it, excites instruments, distributes and agency data. Without it nothing really happens. It offers, as the landscapes in which we live, the ability to project ourselves in it, to abstract ourselves, there stand still, which is in itself a form of kinesthetic. You can always listen to an audio walk at home but this is a non sense, at least if it was designed as such.

This territory is not necessarily known to us in advance. We can explore it without a map or even reading a label that could help us. We traverse it exploring the subjectivity of someone else, which greatly expanded the signs that are emerging.

I mentioned in the introduction to this text that the walkman could be the closest device to what I'm talking about. But I never had fun walking with a walkman because it's not natural to me to combine a studio produced music, to the space in which I walk. My ears always focus more on what's going on here than on recorded sounds. The sounds produced by the place are richer because unexpected and my position determines a part of the mix.

Having regularly attended soundwalk or audio urban walk, I found a walking pace

completely inherent in these forms. The reflection of the group that I was join in the mirror of a bar sent me the singularity that emerges from these headphoned walkers whose sometimes follow any indication of direction, sometimes stops at an injunction heard by them only. This creates a sort of singular ballet which rhythms are understandable only by its own participants.

This is the place assigned to the body by the listening in walk device that seems new and the figure of the headphoned walker could potentially be added to those of modernity. This body does not walk only following indications provided by its path but surrounded by data (memory) organized in layers. He's permanently immersed in the flow of information. Some are visible, others are not. The fact is not new. Part of these information, such as mapping, urbanism, radio, or other means to locate in an area are not recent. But being able to locate a walk and then leave the path accessible to someone else through online mapping tools seems to me to change the way we project our body in the territory. The ability to be a part of it in the moment or leave its trace incite walker to move from an information layer to another. This generates the rhythmic variations of the walker/listener .

There has in listening in walk practices a series of perceptions, conceptualization, and some representation of the territory that involves more that a single listening question.
Traditional listening situations that relegated us to a stationary body mass now unfolds in space where it used to do it in time. But this dynamic newfound physical freedom opposes some slowdowns or accelerations may be due to an ever increasing densification if sounds and information that surround us, as instruments (measuring or music?) that we own transcribe from a stream becoming more dense. We walk in a memory field more provided and more accessible. Perhaps it is "walking with ghosts"?

Bibliography

Davila, Thierry. *Marcher, Créer.* Paris: Regards, 2002.

Chion, Michel. *L'audio-vision.* Nathan-Université, 1991.

Gros, Frédéric. *Marcher une philosophie.* Carnets nord, 2009.

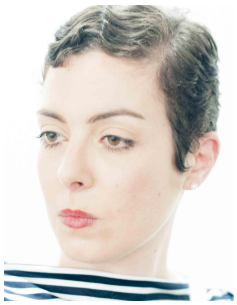
Risset, Jean-Claude. *Music : Ars bene movendi.* Keynote CMMR, 2013

Biography

Born in 1968, lives in Marseille. François Parra studied visual arts. He experiments with sound in its relationship with space. He constructs sound production interfaces, controlled by his body, and subsequently allows these interfaces to evolve into autonomous instalations. He learned sound technologies at the GMEM studios in Marseille, where he met many different composers. This lead to his interest for composition, although he has always maintained a visual component in his work. Sound is for him a way to infinitely rebuild space and time around us, and to modify our social relationships. As electronic and networking technologies expand possibilities, he proposes works of art where the public can manipulate software that records sounds for use in algorithmic compositions, utilising both physical sensors and interfaces designed for the web. He's or has been member of several collective projects, Daisy-chain, NøDJ/NøVJ, Cap-15. He teaches sound technologies at the Aix-en-Provence School of Art, and works often in projects for theatre, dance, radio, and video.

Biographie

Né en 1968, vit à Marseille. François Parra a une formation de plasticien. Dès le départ, il travaille le son dans son rapport à l'espace. Il réalise d'abord des interfaces de production sonores liées à son corps, jusqu'à ce que celles-ci occupent progressivement l'espace de manière autonome. Formé aux techniques de l'audionumérique dans les studios du GMEM, à Marseille, les rencontres avec certains compositeurs l'amènent à se préoccuper de questions d'écriture temporelle, tout en conservant un vocabulaire de plasticien. Le son est avant tout pour lui un matériau restructurant indéfiniment l'espace, et donc modifiant notre rapport social. Avec l'évolution des technologies, il propose au public de manipuler, d'abord par l'usage de capteurs gestuels, puis par l'utilisation d'interfaces conçue pour le web, des programmes qui captent certains types de sons et les intègre dans des compositions. Il est ou a été membre de plusieurs collectifs d 'artistes, Daisychain, NøDJ/NøVJ, Cap15. Il enseigne l'audionumérique à l'école des Beaux-Arts d'Aix-en-Provence et travaille régulièrement pour le spectacle vivant, la radio, la vidéo.



Elena Biserna (I)
Lecture, Session 1

Mediated Listening Paths: Breaking the Auditory Bubble

Elena Biserna
Researcher in residence
Locus Sonus

Abstract:
This paper and my residency at Locus Sonus are part of a wider research project that aims to explore peripatetic sound projects and the relationship between walking, wandering, listening, and producing sounds in the contemporary arts, with an emphasis on urban space. Given the theme of Locus Sonus' research project – *Audio Mobility* – during the residency I focused on a particular area inside this broader field, trying to study how everyday walking is redefined by portable audio technologies and, above all, how artists have reshaped everyday mediated listening practices on the move since the 1980s. In recent decades, in fact, mobile technologies have entered our daily rituals, acquiring a substantial role in both our auditory urban culture and our ways of navigating the environment and redefining our relationship with the city. According to recent literature in sound and media studies, portable audio technologies produce a constant oscillation between a shared space-time and a private one – a process of multiple dwelling in which mediated and contextual experience interfere and hybridize. Since the 1980s, these devices have also become a platform for artistic experimentation, a means to create listening paths, walks and dispositifs often involving the listener in first person. By discussing different examples, I suggest that many of these projects infiltrate the dynamics between walker and urban space precisely by acting on the interference and hybridization between contextual and mediated experience. In particular, I propose three possible "tactics" – "revelation," "overwriting" and "interaction" – as permeable and overlapping ways to establish alternative behaviour, spaces and times that reinforce the potentialities associated with walking by creating micro-practices of aesthetic inhabitation of ordinary spaces.

Since the beginning of 20th Century, urban walking and wandering have become pervasive practices in visual arts and literature (Arasse 2000, Davila 2002, Careri 2006, Coverley 2012). From the first dadaist excursions to the surrealist strolls, from the situationist *dérive* to the current nomadic practices by artists such as Gabriel Orozco and Francis Alÿs, walking has emerged as a critical way of engaging the urban and everyday reality (in their many layers),

while crossing disciplinary boundaries and redefining the artistic praxis and contexts. The same happened in the field of music when Max Neuhaus stamped the world "LISTEN" on the hands of the audience as they arrived for his concert and lead them, walking through Manhattan (*Listen*, 1966) thereby inaugurating a long tradition of artist-led listening walks.

In the arts, but also in theoretical thinking, walking is often understood as a way to establish a privileged and dialectical relation with the mobility of the city itself, of its physical and intangible transformations. The micro-practice of walking creates a constellation of relational possibilities. It allows to observe urban becoming (Benjamin 1982) but also to rewrite and redefine its structure (Barthes 1985, de Certeau 1980, Augoyard 1979, Paquot 2008). It establishes an embodied and situated exchange with the environment (Sansot 2000, Le Breton 2000, Thibaud 2008, Thomas 2010), while providing an opportunity to participate in the public sphere and to encounter otherness (Jacobs 1961, Solnit 2001, La Cecla 1988).

On the other hand, sound is a mobile figure par excellence: as Jean-Luc Nancy argued, sound "is first of all presence in the sense of a *present* that is not a being […] but rather a *coming* and a *passing*, an *extending* and a *penetrating*" (Nancy 2002: 13). Sound is transient, vibratory, in a constant state of displacement and dispersal. Thus, auditory knowledge emphasizes the movement and becoming of reality, its (connective, transitive) process of appearance and disappearance. Moreover, it is embodied, situated and relational – the listening subject is always part of a vibrational process with the environment and the other subjects (Connor 1997, Nancy 2002, LaBelle 2006, 2010).

Today urban walking is progressively becoming defined through mediated listening experiences. Sound and music organize and demarcate urban space (Sterne 2005) creating an "ecology of sound" (Atkinson 2007) according to social, cultural and functional patterns. Urban soundscapes are generated through negotiation between these collective systems and individual practices (Arkette 2004, LaBelle 2010), shifting continually in relation to our behaviour.

In the last decades, personal audio technologies have provided a powerful way to reconfigure these auditory dynamics between subjects and shared spaces. They have entered our daily rituals, acquiring a substantial role in both our urban culture and our ways of navigating the environment. Not only does the use of these devices re-contextualize mediated listening in the growing mobility of daily life, it also redefines our interaction with the city in general.

On the one hand, we can superimpose our own sound track on the surrounding

environment customizing the acoustic form of the city. This allows us to control, organize, aestheticize and, ultimately, re-write of our urban experience (Thibaud 2003, Bull 2007, Hosokawa 1984, Weber 2009, LaBelle 2010).

On the other hand, such a superimposition of audio space over physical space becomes an instance of privatization and erosion of our participation, contributing towards a "schizophonic" attitude (Murray Schafer 1977) to our everyday mobility. Listening to MP3 players wraps us into "communication bubbles" (Flichy 1991), isolating us from the contingency and unpredictability of urban experience, from fortuitous encounters with strangers as well as from the media saturation of our cities. Transferring a private listening mode to the public space, the user is placed in an "other space," an island of solipsistic listening that extends the "territory of the self" to the detriment of shared territories, thus reshaping the geography of urban space and its meaning (Bull 2007).

From this perspective, mediated listening on the move seems to undermine many of the potentialities associated with walking mentioned above and especially its embodied and contextual nature as well as its serendipitous and intersubjective possibilities.

However, according to some of the literature in sound and media studies, rather than isolating us from our context, headphone listening produces a constant cognitive ambivalence between physical and acoustic space, between a shared space-time and a private one. It establishes a process of multiple dwelling in which mediated and contextual experience interfere and hybridize (Thibaud 2003, Beer 2007, Pecqueux 2009).[1]

Jean Paul Thibaud, in particular, underlines three main interferences between headphone listening and the urban milieu (2003: 335-37). The first one is the "interphonic knot," "the point of convergence between two sonic spaces of a different nature – that of the walking listener and that of the street." The headphones don't make us completely impervious to the outside world, the environmental sounds infiltrate our listening experience and, depending on the situation, we can adjust the volume to select the sounds that we deem relevant or, conversely, to blanket the shared soundscape. The second polarity is the "topophonic knot," "the interference point between media listening and architectural space." Radio listening, for example, is physically influenced by the urban fabric and our position in the city becomes fundamental to the reception of sound. The last interference is defined as "visiophonic knot," the point of convergence

1 This oscillation is then multiplied by current networked mobile platforms that establish a continuous

between what we see and what we hear, determined by subjective cultural associations and projections between visual and aural landscape.

Starting from these analysis, I suggest that many artistic projects that use portable audio technologies to involve the public in listening paths intervene on the dynamics between walker and urban space precisely by acting on these interferences and hybridizations. In other words, they aim at breaking the "auditory bubble" described by Flichy and Bull according to different approaches.

In particular, I propose to look at artistic practice starting from the points of convergence underlined by Thibaud. This suggests three different but osmotic directions, that I call "revelation", "overwriting" and "interaction". Rather than categories, these directions are conceived of as recurring, permeable and often overlapping "tactics," reconfiguring the relationship between the walker and the urban. They traverse different technological platforms (from Walkman, MP3 players, portable radio to current mobile devices), display modes and categories. More often that not, they converge and co-exist in the same project.

REVELATION: AUGMENTED SOUNDWALKS

Many projects aesthetically invest the contextual sound environment by simply "revealing" and underlining it through a "poetics of noticing" (Johnstone 2008) that brings attention to the ever changing sound events and rhythms in the spaces we traverse. Although present in many projects, this direction is particularly evident in works focused on soundscape that, following the tradition of soundwalking, propose listening on the move as an aesthetic experience in itself, as an embodied and situated way of participating in the environment and as a tactic of perceptual re-orientation with respect to the prevalence of vision in everyday experience (Westerkamp 1974).[2] In recent years, this tradition has been "augmented" (Manovich 2006) through mobile devices either by processing environmental sound in real time or by creating field recording compositions to be listened *in situ*.

A clear example is *Ambient Addition* by Noah Vawter realized at MIT Media Lab in 2006: a simple device made up of headphones, binaural microphones and a portable *digital signal processing* unit that analyses, manipulates, and replays environmental sound in rhythmical

2 For a historical overview on soundwalking see McCartney 2010, Drever 2009.

forms.[3] Today, these possibilities have already been absorbed by mobile phone applications such as RjDj, that allows to process the soundscape via "scenes" corresponding to different sound effects.

In other projects, instead, the artist composes a track from field recordings of the area and creates a sound path that the listener is invited to retrace.[4] An example is *Untitled #290* (2012), an audio walk by Francisco Lopez commissioned by Soundtrackcity in Rotterdam, that overlays a route with five sound compositions created from field recordings collected in the same locations as those where the listener is invited to walk. As in soundwalking, the movement of the listener in space and his/her interaction with the environment become means to orchestrate auditory experiences that welcome the randomness and temporary nature of sound events, but that are also based on their contextual character linked to the acoustic and architectural qualities as well as the social, cultural and functional connotations of each area. Thus the compositional process takes into account the sonic patterns present in each location and aims to create a track that is complete only if listened to while walking along the route and integrated with the environmental sounds.

By replacing music with compositions based on field recordings or by allowing the listener to directly process the soundscape, these projects force the permeability of the headphones – Thibaud's "interphonic knot" – emphasizing the process of interpenetration between mediated and environmental sound and, more broadly, the relationship between the walker and the space he/she traverses through listening. Paradoxically, our focus on listening and our attention to and interaction with soundscapes is thus underlined through a technologically mediated aural practice.[5]

OVERWRITING URBAN SPACE: BETWEEN "AUDIO DIRECTED THEATRE,"

3 One of the first projects in this field is *Sonic Interface* by Akitsugu Maebayashi (1998), then other projects processing soundscape in real time on the move were developed. Among them: Florian "Floyd" Mueller and Matthew Karau's *Transparent Headphones* (2002) and *Sonic City* by Lalya Gaye, Ramia Mazé, Margot Jacobs, Daniel Skoglund (2002-04).

4 One of the first field recording audio walks is probably Cilia Erens' *China Daily*, 1987 (Erens 2013), although in this work the artist overlays a completely different soundscape on the physical context.
On the use of field recording compositions *in situ* see also Kaye 2013.

5 In Droumeva Andrisani 2011, the authors comment on the increasing difficulty, for the new generations, to focus on unmediated experience precisely in relationship with acoustic ecology's practices of *soundwalking* and *ear-cleaning*: "As generations of consumers are increasingly accustomed to experiencing their own physicality through mediated aural practices, the contemporary listening subject now seeks both comfort and solace in the experience of mediated aurality."

"EMBODIED CINEMA" AND AURAL MEMORIALS

Many projects overwrite the environment by superimposing a narrative acoustic time-space over the physical one. By doing so, they "dramatize" everyday reality immersing the walker in urban adventures, in cinematic experiences on the move, or in a multiplicity of stories, testimonials and interpersonal traces left by the inhabitants of the area returning a fragmented and manifold "image" of the city.

Overwriting takes advantage of the possibilities of "aesthetic colonization" (Bull 2007) of everyday life granted by mobile media. The interference between what you hear in your headphones and what you see in the environment – the "visiofonic knot" mentioned by Thibaud – is emphasized through contextual narratives that reinforce the process of projection of the imagination related to the track being heard in the places being traversed (and vice-versa).

A specific practice of headphone listening, the audioguide, is one of the targets of several of these projects. Thay disrupt its narrative strategies and its "heroic" or didactic perspective on the world, by directing our attention to more mundane aspects of places, to hidden layers of history or by disorienting, rather than guiding, the listener. Nevertheless, the audio guide format – the sense of proximity of the guiding voice and its peculiar discursive modalities that address the listener in the first person and invite him to act – is often exploited, linking these projects with a longer genealogy of artistic appropriations of the guided tour practice such as the dadaist excursion to Saint-Julien-le-Pauvre in Paris (1921) or the *Free Fluxus Tours* (1976).

By 1981 – that is, just two years after the launch of the Walkman into the market – these potentialities were already being exploited by the Dutch Fluxus artist Willem de Ridder. His project *The Walk* comprised three audiotapes and a booklet sold at De Appel Foundation in Amsterdam, that would lead the listener to wander the entire country following the artist's instructions recorded on a soundtrack that overlaid music, voice and story telling. Interestingly, De Ridder connects this work to the performing arts, and in particular to his "Audio Directed Theatre Events" – projects that, through audio recordings or radio transmissions, invited the public to stage liberating actions, micro-performances or to explore the space in random ways on foot, by car or on public transport.

Since then, many interdisciplinary artists have used mobile audio technologies to involve the listener in a narrative, to transform him/her into a performer – or, using a term by Debord

(1963), in a *viveur* – in his everyday sphere.

By combining field recordings, narrating voices, music and sound effects like in a soundtrack, these projects suspend the walker between real and imaginary and, in the best cases, transform ordinary places into a set where we can act in first person. Urban space is thus reinvented and overwritten – mundane places become venues of extraordinary events and clues of possible stories activating processes of defamiliarization that renew our physical, psychic and interpretative relation with the environment.

One of the most recognized artists in this field is Janet Cardiff who, starting from 1991, has produced with George Bures Miller a long series of audio walks conceived both for museum spaces and urban areas immersing the viewer in what she calls a "physical cinema" (Schaub 2005: 100).

Since the end of the 1990s, several artists have started to overwrite urban space through interactive non linear narrative structures by using locative media and GPS (see Behrendt 2010: 49-54, Farman 2013). Others are working on less individual processes by creating collective performances and flash mob formats, an example being Circumstance – a group of artists who, for several years, have been developing "subtlemobs," urban performances enacted by groups of strangers transformed into participants and lead by a downloadable audio track.

Yet other projects use the potentials of overwriting to inscribe *in situ* "counter-histories" or "micro-histories" that create a supplement to official or established narratives of urban space by lending voice to the inhabitants and by collecting memories, testimonies or simple traces. Many of these projects aim to bring personal, forgotten or deliberately deleted stories into view, or to create an image of the urban as a palimpsest – a layering of histories, anecdotes and micro-occurrences – where the past is experienced "almost as if" it was present.

Linked, for example, commissioned in 2003 by the Museum of London, is a project by theater director Graeme Miller staged in the outskirts of London, between Hackney Wick and Redbridge. It's a site-specific audio walk that makes use of twenty radio transmitters installed along the way to bring back to life the history of the neighborhood before the contested construction of the M11 ring road in the early 1990s. The fragmented narrative of *Linked* is the result of interviews with residents and local groups, an aural monument to the families forced to move and the expropriated homes. The discrepancy between the visible landscape and the memories heard creates a collision of past and present in which the voices of the witnesses haunt

a completely transformed landscape.

INTERACTION: BODILY IMPROVISATION DEVICES

A third direction is the intensification of the relationship between body and environment through interactive processes where listening and sound making become interwoven through movement. This strategy is present both in projects using non-linear narratives and in some real-time processing mobile devices, but is particularly evident in projects that act on the usual technological devices by customizing them or by creating sorts of "bodily improvisation devices."

The German artist Christina Kubisch is among the pioneers of such practices: she began to explore portable listening devices (telephone amplifiers) in the early 1980s with her installations *On Air* and, since 2003, has expanded this strategy in urban space with her *Electrical Walks*. In this series the listener is equipped with a parasitic device – headsets able to pick up and amplify the magnetic fields in the environment – and, wandering in urban space, finds him/her self immersed in a continuous sound field that is constantly redefined according to his/her location and movements.

This form of interaction is further expanded in some projects by Jessica Thompson. *Walking Machine* (2003), for example, is a wearable device consisting of lapel microphones modified to clip to low-cut shoes, a mini amplifier and a set of headphones. The unit allows the walker/listener to hear the amplified sound of his/her footsteps – that is to say, the fundamental bodily contact with the environment while walking – thus becoming a platform of playful interaction both with the different materials and surfaces in the environment and with walking micro-movements.

Nowadays, several projects make use of advances in the field of sonic interaction design for mobile networked devices to translate the movement of the listener in sound textures (see Behrendt 2010 "Sonified Mobility": 66-71).

In projects like these, the flow of sound heard in the headphones is produced and listened to in real time through our actions and our interplay with the environment – it is the result of indeterminate and indeterminable processes of contingent inhabitation of urban space. A rhythm that is tied to listening is superimposed on urban soundscapes, but this "musicalization of the

step" (Thibaud 2003: 329) is reinforced by a feedback loop – the mobility of the body and its interaction with the context is the input that determines the sound track output, while, in turn, sound constitutes the basic rhythm to which we respond in real time reconfiguring it. The sound form is therefore the result of a relational process in which the listener is called to "play" the city. Walking becomes a form of behavioral and perceptual experimentation, a way to explore a relational sound universe, as well as the discovery of an expressive language based on micro daily actions. The city is turned into a field for playful improvisation, while mobile technologies become amplification devices for the relationship between body and environment in a generative, subjective and contextual process.

Thus, accentuating both the active character of listening and the relationships between body, motion and urban space, these projects amplify the interference between mediated and contextual experience and, in particular, the interference with the architectural environment that Thibaud calls "topophonic node."

BREAKING THE AUDITORY BUBBLE

This overview suggests that these different directions can be considered as ways to infiltrate the relationship between walker and the city and, paradoxically, using headphones and private listening to intensify it. As George Bures Miller declared, "We build a simulated experience in the attempt to make people feel more connected to real life" (Schaub 2005: 18).

Playing on the limits between art and everyday life, artists force or break up our practices related to listening on the move and our perception and interpretation of urban space. They contradict the sensory hierarchy based on sight that guides our movements and emphasize listening as way of relating to reality. They defuse the personal control introduced by the Walkman to underline the multiplicity of histories and relationships that makes up every place or the possibility to participate in urban adventures. They transform the supposedly passive experience of headphone listening into a creative and ludic process. Overall, they try to deconstruct the erosion of our participation in urban life.

In any case, when using mobile devices, they emphasize one of their key effects: the continuous oscillations between mediated and contextual experience and the mutual interplay between these two spheres. Revealing, overwriting and creating physical interactions are all

ways to amplify the interference between mediated listening and the urban, all ways to break the "auditory bubble" by collapsing the boundaries between aesthetic and everyday experience.

Thus the artwork is redefined as a contextual, embodied and subjective experiential process addressing everyday context and habits as much as (and sometimes more than) the aesthetic experience itself. From this point of view, we might consider these works as tactics of temporary suspension of the ordinary forms of experience or experiments of reactivation of everyday practice that reinforce the potentials associated with walking by providing possibilities of aesthetic inhabitation of ordinary spaces.

Bibliography

Arasse, Daniel. *Un siècle d'arpenteurs. Les figures de la marche.* Antibes: RMN-Musée Picasso, 2000.

Arkette, Sophie. "Sounds like City." *Theory, Culture & Society*, 21, 1 (2004): 159-168.

Augoyard, Jean-François. *Pas à pas. Essai sur le cheminement quotidien en milieu urbain*. Paris: Editions du Seuil, 1979.

Atkinson, Rowland. "Ecology of Sound: The Sonic Order of Urban Space." *Urban Studies*, 44, 10 (2007): 1905-1917.

Barthes, Roland. "Sémiologie et urbanisme." In *L'Aventure sémiologique*. Paris: Seuil, 1985.

Beer, David. "Tune Out: Music, Soundscapes and the Urban Mise-en-scene." *Information, Communication & Society*, 10, 6 (2007): 846-866.

Basset, Caroline. "'How Many Movements?' Mobile Telephones and Transformations in Urban Space." *Sound in Art and Culture*, *Open*, 9 (2005): 38-47.

Benjamin, Walter. *Das Passagenwerk.* Frankfurt am Main: Suhrkamp, 1982.

Behrendt, Frauke. *Mobile Sound: Media Art in Hybrid Spaces*. Ph.D. dissertation, University of Sussex, 2010.

Bull, Michael. *Sound Moves: iPod Culture and Urban Experience.* London-New York: Routledge, 2007.

Butler, Toby. "A Walk of Art: the potential of the sound walk as practice in cultural geography." *Social and Cultural Geography*, 7, 6 (2006): 889-908.

Careri, Francesco. *Walkscapes. Camminare come pratica estetica.* Torino: Einaudi, 2006.

de Certeau Michael. *L'invention du quotidien. I Arts de faire*. Paris: Union générale d'éditions, 1980.

Chambers, Ian. "The Aural Walk." In *Migrancy, Culture, Identity.* London-New York: Routledge, 1994: 49-53.

Connor, Steven. “The Modern Auditory I.” In *Rewriting the Self: Histories from the Renaissance to the Present* edited by Roy Porter. London-NewYork: Routledge, 1997: 203-223.

Coverley, Merlin. *The Art of Wandering: The Writer as Walker.* Harpenden: Oldcastle books, 2012.

Davila, Thierry. *Marcher, Créer. Déplacements, flâneries, dérives dans l’art de la fin du XXe siècle.* Paris: Regard, 2002.

Debord, Guy. *Rapport sur la construction des situations et sur les conditions de l'organisation et de l'action de la tendance situationniste internationale.* Paris: Internationale situationniste, 1957.

Drever, John Levack. “Soundwalking: Aural excursions into the Everyday.” In *The Ashgate Research Companion to Experimental Music* edited by James Saunders. Ashgate: 2009: 163-192.

Droumeva, Milena and Andrisani, Vincent “Toward a Cultural Phenomenology of Mediated Au r a l P r a c t i c e s .” *I n t e r f e r e n c e J o u r n a l* , 1 (2011), http://www.interferencejournal.com/archives/157.

Erens, Cilia. “Reality Sound. An interdisciplinary medium.” In *Sounds of Europe*, 2013 http://www.soundsofeurope.eu/eblog/reality-sound-an-interdisciplinary-medium/

Farman, Jason ed. *The Mobile Story. Narrative Practices with Locative Technologies*. London-New York: Routledge, 2013.

Flichy, Patrice. *Une histoire de la communication moderne. Espace public et vie privée*. Paris: La Découverte, 1991.

Hosokawa, Shuhei. “The Walkman Effect.” *Popular Music*, 4 (1984): 165-180.

Kaye, Lewis. “YOU ARE HERE: Binaural Audio, Mobile Media and the Sonic Exploration of Urban Space.” *Journal of Mobile Media*, *Sound Moves*, edited by Owen Chapman, 7, 1 (2013), http://wi.mobilities.ca/you-are-here-binaural-audio-mobile-media-and-the-sonic-exploration-of-urban-space/.

Kluitenberg, Eric. “The Network of Waves. Living and Acting in a Hybrid Space.” *Hybrid Space*, *Open*, 11 (2006): 6-16.

Jacobs, Jane. *The Death and Life of Great American Cities*. New York: Random House, 1961.

Johnstone, Stephen ed. *The Everyday*. London-Cambridge, MA: Whitechapel-MIT Press, 2008.

LaBelle, Brandon. *Background Noise: Perspectives on Sound Art*. New York: Continuum, 2006.

LaBelle, Brandon. *Acoustic Territories. Sound Culture and Everyday Life*. New York: Continuum, 2010.

La Cecla, Franco. *Perdersi. L'uomo senza ambiente*. Roma: Laterza, 1988.

Le Breton, David. *Eloge de la marche*. Paris: Ed. Métailié, 2000.

Manovich, Lev. “The Poetics of Augmented Space.” V*isual Communication*, 5, 2 (2006): 219-240. www.manovich.net/.../Augmented_2005.doc.

McCartney, Andra. "Soundwalking: Creating Moving Environmental Sound Narratives." 2010 http://soundwalkinginteractions.wordpress.com/2010/09/27/soundwalking-creating-moving-environmental-sound-narratives/.

Nancy, Jean-Luc. *À l'écoute.* Paris: Galilée, 2002.

Schafer, Raymond Murray. *The Tuning of the World.* New York: Knopf, 1977.

Paquot, Thierry. Dossier "Marcher." *Urbanisme*, 359 (2008).

Pecqueux, Anthony. "Les ajustements auditifs des auditeurs-baladeurs. Instabilités sensorielles entre écoute de la musique et de l'espace sonore urbain." *ethnographiques.org*, 19 (2009), http://www.ethnographiques.org/2009/Pecqueux

Schaub, Mirjam. *Janet Cardiff. The Walk Book*. Wien: Thyssen-Bornemisza Art Contemporary - Public Art Fund, 2005.

Sansot, Pierre. *Chemins aux vents*. Paris: Payot & Rivages, 2000.

Solnit, Rebecca. *Wanderlust. A History of Walking*. London: Penguin, 2001.

Sterne, Jonathan. "Urban Media and the Politics of Sound Space." *Open*, 9 (2005): 6-14.

de Souza e Silva Adriana."From Cyber to Hybrid: Mobile Technologies as Interfaces of Hybrid Space." *Space and Culture*, 9, 3 (2006): 261-278.

Thibaud, Jean Paul. "The Sonic Composition of the City." In *Auditory Culture Reader* edited by Michael Bull, Les Back. Oxford: Berg, 2003: 329-341.

Thibaud, Jean Paul. "Je, Tu, Il. La marche aux trois personnes." *Urbanisme*, 359 (2008): 63-65 hal.archives-ouvertes.fr/docs/00/50/25/89/.../2008_JP_T_ART_Trois.pdf.

Thomas, Rachel ed. *Marcher en ville. Faire corps, prendre corps, donner corps aux ambiances urbaines*. Paris: Éditions des archives contemporaines, 2010.

Varnelis, Kazys and Friedberg, Anne. "Place: Networked Place." In *Networked Publics* edited by Kazys Varnelis (Cambridge-London: The MIT Press, 2008).

Weber, Heike. "Taking Your Favorite Sound Along: Portable Audio Technologies for Mobile Music Listening." In *Sound Souvenirs. Audio Technologies, Memory and Cultural Practices* edited by Karin Bijsterveld and José van Dijck. Amsterdam: Amsterdam University Press, 2009: 69-82.

Westerkamp, Hildegard. "Soundwalking." *Sound Heritage*, 3, 4 (1974): 18-27.

Biography

Elena Biserna (1982) is currenly researcher in residence at Locus Sonus. She studied Humanities and History of Contemporary Art at the University of Bologna and she completed her International Ph.D. in Audiovisual Studies at the University of Udine with a dissertation entitled *Sound Walks. Mobility, Art, Sound, Urban Space*. Her research interests are focused on interdisciplinary areas of aesthetic research dealing, in particular, with expanded sound,

listening, and with contextual, urban, ephemeral and participatory practices.
She is part of Sant'Andrea degli amplificatori – a no-profit organization for contemporary music in Bologna – and collaborated with several organizations for cultural, curatorial and editorial projects: among them, Xing (Bologna), Sound Threshold (London), Zapruder Filmmakersgroup (Roncofreddo, FC) and Digicult (Milan). Recently, she co-curated bip bop, a radio programme conceived as an exhibition space on Radio Città Fujiko 103.1|Bologna. She was Adjunct Professor of "Phenomenology of contemporary arts/Latest trends in visual arts" at the Accademia di Belle Arti, Bologna, and gave lectures, seminars or participated in conferences at several institutions such as Centro di Cultura Contemporanea, Perugia; Università di Bologna; Università di Udine; University of London; Università IUAV, Venice; and NABA-New Academy of the Arts, Milan. Her articles, essays and interviews have appeared in several Italian and international journals, magazines, catalogues and books.

Biographie
Elena Biserna (1982) a étudié les Sciences Humaines et l'Histoire de l'Art Contemporain à l'Université de Bologne et en 2012 elle a obtenu son doctorat international en Études audiovisuelles à l'Université d'Udine avec une thèse intitulée : Promenades sonore. Mobilité, son, art, espace urbain*. Ses intérêts de recherche se concentrent sur les domaines interdisciplinaires de la recherche esthétique, particulièrement sur le "son étendu", l'écoute, et les pratiques contextuelles, urbaines, éphémères et participatives.*
Elle fait partie de Sant'Andrea degli amplificatori – une organisation indépendante pour la musique contemporaine à Bologne – et a collaboré avec plusieurs organisations pour des projets culturels, curatoriaux et éditoriaux : parmi eux, Xing (Bologna), Sound Threshold (Londres), Digicult (Milano) et Zapruder Filmmakersgroup (Roncofreddo, FC). Récemment, elle a co-organisé bip bop, un programme radiophonique conçu comme un espace d'exposition sur Radio Città Fujiko 103.1 | Bologna. Elle a enseigné la "Phénoménologie des arts contemporaines / Dernières tendances dans les arts visuels" à l'Accademia di Belle Arti de Bologne, a donné des cours, des séminaires et participé aux conférences dans divers institutions comme Centro di Cultura Contemporanea, Perugia; Université de Bologna; Université de Udine; Université de Londres; Université IUAV, Venise; et NABA, Nuova Accademia delle Arti, Milan. Ses articles, essais et entretiens ont été publiés dans plusieurs journaux, magazines, catalogues et livres.

Justin Bennett (UK/NL)
Lecture, Session 1

Walking, Telling, Listening. Audio Walks

Justin Bennett
artist
www.justinbennett.nl

Abstract:
The form of the audio walk seems ideally suited for artists wanting to work with, and in, public space. Using radios, CDs, iPods, or mobile phones, my audio walks weave narrative through their locations while exploring the specific acoustic environment and the physical structure of the city. In this talk I will describe the differing formal, aesthetic and technical approaches referring to a number of works from 1997 to the present.

In this talk I will mention most of the audio walk pieces that I have worked on and elaborate on some of them with illustrations and audio examples.

Secret City Middelburg, NL 1997.

De Verborgen Stad (the hidden city) was an exhibition that took place in and around De Vleeshal in Middelburg in 1997. Middelburg is a small city in Zeeland with a compact historic centre criss-crossed with alleyways and narrow backstreets. (Fig. 1)

Secret City was presented to the public as a guide to the centre of Middelburg; they could borrow a small radio receiver and headphones from the exhibition space. In fact all the directions and observations were randomly determined (two CD players on shuffle, broadcast by FM radio). The intention was thus to sow confusion and to promote drifting. I made short tracks with field recordings from the area, sometimes highly processed. Some of the spoken text consists of directions and my own observations of the current urban situation. The rest uses historical eyewitness reports of events from Middelburg's boom in the 17th Century with the slave trade, but also the second world war, referring to a Dutch resistance radio that was located in the city and events such as the strategic, intentional floods of 1944. In the text are recurring repetitive elements such as lists of ships cargo, names of houses that refer to overseas trade etc. The "score" (Fig 2.) – more of a inspirational sketch – was a map of Middelburg exploded into layers and labelled with some of the text. The open, randomised structure allowed the piece to grow during the exhibition to include interviews with visitors, recordings of events such as a Charlemagne Palestine carillion concert, live radio broadcasts and guest presenters and

musicians. One of the things that struck me about the project was how, while walking and listening to a story, I and other listeners associated the text and the sounds with the external world in a very direct way, even though, in this case, any correspondence between the two was serendipitous. I also worked with binaural recordings (made by placing microphones in my ears) and was very pleased with the way that the presented audio blended with the live soundscape leaking through the headphones from the real world.

During the next three years I worked a lot with radio projects and spatial sound installations. In 2001 I had another opportunity to make an audio walk thanks to Stroom, the city arts centre of The Hague. Stroom develops many art projects in public space. They were interested in the possibilities of sound work in an urban context and they recognized that the technique and form of the audio-guide fitted perfectly. In an exhibition *You'll never walk alone* they premiered a series of audio guides for the city. As well as myself, the artists in the project included pioneers of sound-walks such as Cilia Erens and Willem de Ridder. De Ridder is well known for his participatory radio works, a kind of flashmob avant la lettre, while Cilia Erens produced audio walks in public space as early as 1987. The walks remained after the exhibition and new tours were made by other artists.

The piece that I made, *Rumours / Resonances* 2001 (Fig. 3) is an actual and very linear guide to the city purporting to be a "search for the secret sounds of the city." At first the narrator seems relaxed and matter-of-fact but as we get drawn into the story, he guides our every footstep into a claustrophobic, paranoid vision of the city. The piece was based on rumours about both the city and the effect of sound and radiation on the human body. In the piece I play with many different possibilities – sound recording as time-travel, cinematic approaches to sound, giving the feeling that the listener is a character in a film, simulated "radio contact" with the narrator and breakdown of the equipment. I realised that if you draw the listeners into the story enough, they are prepared to really participate in the piece by moving and behaving in certain ways, particularly with small groups of listeners. The walk becomes a piece of participatory theatre. Additionally the private reception of the sound makes it possible to have very intimate contact with the listener.

Audio guide for NDSM Werf, Amsterdam, with Renate Zentschnig, 2002

An historical guide to the former shipyard in the north of Amsterdam. Interviews with retired dock workers are combined with compositions created from field recordings made in the area. The use of sound is abstract and musical rather than realistic, but using sound sources from the area keeps a strong link with reality. Renate Zentschnig is a theatre director specialised in working with non-actors. Her ability to weave a narrative from short statements and interview fragments fits very well with the format of the audiowalk, and this piece was the start of a series of collaborations.

The Well, CD and installations, 10th Istanbul Biennial, Turkey, 2007

The Well was conceived as an audio walk – many sections are based on recordings I made while walking across the city, but I changed the idea during the production – eventually making a CD and a series of listening installations. Because of the intensity and loudness of street life in Istanbul, I felt that listening to the walks and episodes in more isolated circumstances (at home or in the exhibition) gave more space for the imagination. (Fig. 4)

Soundtrackcity is an organisation based in Amsterdam led by Renate Zentschnig and Michiel Huijsman. They started producing audio walks for neighbourhoods in Amsterdam in 2008. Mostly these walks are made by two artists from different disciplines and incorporate interviews with local inhabitants. Recently they started initiating projects in other cities and in non-urban areas. The walks are distributed both digitally and physically, with local businesses like cafes or hotels hosting the lending service, and frequent organised group walks.

Zuidas Symphony, for Soundtrackcity, Amsterdam, 2009.

Begun during a residency in this business district during 2008, *Zuidas Symphony* (Fig. 5) combines interviews, actors, and audio "recreations" of fantasy events. The theme was gentrification and the ownership and use of public space. I refer to local conflicts over the future of a park, talk of the subtle differences between public and corporate control of space, trace financial investments of companies behind the development and voice rumours and facts about corruption. I tried to make the piece open up to different points-of-view by including voices of local inhabitants as well as planners, and I included a critical, political overview by breaking into the story periodically with a "pirate radio" broadcast from an imagined group of squatters. The route itself is very important. Starting at the World Trade Centre, we move out of the new

corporate area into the surrounding residential area and walk through a beautiful, quiet public park before returning to confront the planological problems of combining motorways, train tracks, housing and high-finance. At the end of the walk all the different characters appear in a large procession/demonstration that takes over one of the large corporate/public spaces.

Hoor de Bomen, Vario Mundo, Vathorst, Amersfoort, NL, 2009 (Fig. 6)

Vathorst is a new town built on former agricultural land in the middle of The Netherlands. When I was asked to make this piece, only half of the projected houses had been completed. Because of the economic crisis still now much of the land prepared for building is empty. Rather than an audio walk, *Hoor de Bomen (Listen to the trees)* is really a collection of pieces to be listened to by certain trees. In fact the original intention was to have "listening" posts by the trees themselves. Sounds are recorded from the trees themselves using contact microphones and hydrophones, and although these are interesting in themselves, the tree-sounds are just a pretext to talk about the relations between urban and agricultural landscapes in the Netherlands. The walk (or bicycle ride) in between the locations is without sound.

Ticket to Amsterdam, CUMA, Istanbul, 2010 & *Ticket to Istanbul*, Soundtrackcity, Amsterdam, 2011 play with the parallels between the two cities and the daily lives of their inhabitants. Each city becomes the visual decor for the sound of the other, (Fig. 7) a strange kind of mirror, or superimposition of one city upon the other. The tours are partly walked and partly by ferry boat and are divided into two distinct parts. Before and during the boat trip, we follow a number of people as they commute over the Bosphorous or the river IJ. They talk about the geography and history and their daily journey over the water. When the boat arrives, we enter the city and walk through a long composition made of field recordings with only occasional commentary. The idea being to give people enough contextual information in the first part to allow the second part to be "believable."

Telettrofono, Staten Island edition of Stillspotting NYC. Guggenheim, New York City, 2012

Stillspotting NYC was a project about noise in the city run by the architecture department of the Guggenheim Museum. The brief was to make a site-specific work for Staten Island. Researching stories about the island I came upon the story of the Italian immigrant Antonio Meucci, who

lived there in the late 19th century. Among many other strange inventions, many to do with sound and electricity, he invented the telephone but was swindled out of his patents by Alexander Graham Bell. I asked the New York poet Matthea Harvey to work with me and to write the text. It turned into a complex production because we wanted to use locations normally closed to the public. (Fig. 8) The locations we chose were not historically correct but were rather chosen for associative reasons, the places inspired the text and the sound.

My way of working with projects like this is to determine the route before any composition takes place. You can see the physical route as a score which determines timing, the division of the route into parts, and influences the sound composition and the structure of the text, the curve of the narrative. Once I have fixed the route I will make a video of the walk and binaural recordings of the ambient sounds. This forms a background on which to place the other sounds. Often this original binaural layer is left out of the final mix as there will always be live sound present anyway.

Spectral Analysis is an ongoing series of works concerned with the history of the use of technology as a tool for exploring and revealing the invisible. (Fig. 9) The background of this project is research into medical history, occult history and its relation to modernist art and radical social movements, the role of technology in these histories, particularly at the turn of the 20th century and the transformation of these technologies with the coming of the digital age. An additional focus point is the role of the artist: the artist as experimenter, as inventor, as medium, as patient. Up to now, the boundaries of this work have been explored in two audiowalks and a series of drawings.

Spectral Analysis Krems Kontraste Festival, Austria, 2012 is a series of "audio experiments" focussing on the relationship of electromagnetic radiation and sound. There was no audio for the walk between the locations, letting people freely walk their own way through the small centre. The story behind the experiments was printed in a small folder with a map. (Fig. 10)

Spectral Analysis WG - made for the 2013 Sonic Acts festival in Amsterdam was a much more linear piece. We listen to the recorded notes of a psychiatrist as he accompanies a patient around the grounds of a hospital. Gradually he and the listener get drawn in to the experiments

that the patient conducts with his self-made devices. The last piece takes the listener inside and into a sound installation that adds an extra layer of sound over the headphone audio.

Secrets of the Amsterdam Canals, Soundtrackcity 2013, with Renate Zentschig and Fred Feddes is a historical walk using many interviews of people who live and work along the canals. Here the long route and the texts dominate the piece – my work was mainly problem solving, for instance how to give the feeling that the walkers can hear through windows into events happening inside spaces, or how to create "quiet" moments in the busy soundscape of central Amsterdam. Some of this was done by using music. Because the listeners do not have so many preconceptions about what they are going to hear, it's possible to incorporate very contrasting types of sound and music – from electronic noise to "classical" piano or rock music – it can all be accepted as "belonging" to the story and the locations in the same way that both diegetic and non-diegetic sound and music "belong" to the image in cinema.

Dream Map audio walk for IV Mostra 3M de Arte Digital, Sao Paolo 2013
"Ever since I entered the city I have been troubled by dreams" (Fig. 11)
Dream Map recounts and stages a series of dreams which are tied to locations around the route – surreal interpretations of reality, dreams of inhabitants, the dreams of the city planners. Sao Paolo with its unpredictable street life was, like Istanbul, very difficult in terms of creating a linear route and dealing with the timing of the piece. This experience made me decide to look closer at using locative media for future projects.

Secret Garden in production for Zone2Source, Amsterdam, 2014
Secret Garden is a locative audio piece for the Amstelpark in Amsterdam. I am making recordings of usually inaudible phenomena (using ultrasound, vlf radio, contact mics, hydrophones, resonances of inaccessible spaces, etc.) which will be spread out through the park as a layer to be browsed with a mobile application. You can see the piece as an invisible garden of sound laid over the actual garden. I chose to use the "miniatures for mobiles" app from Udo Noll who runs the radio aporee website. (http://www.aporee.org). I felt that a non-linear approach to the composition was needed because the park already suggests visually, haptically, olfactory, routes and territories. Another advantage of using this system is that it is open to later additions and changes to the piece. One thing I still have to decide is whether to use visual cues

on the mobile screen. I would rather than people use their ears to find their way around, but here the technology is not yet developed enough (or fast enough) to be able to use binaural rendering which could give directional cues to the listener. That's one problem I never really had with the linear walks, assuming that people follow the instructions. I will probably create a drawn map which will show where sound is to be found. Although the technology is so different from my first soundwalk, *Secret City, Secret Garden* has for me a similar feel to it – encouraging the listeners to lose themselves in a world where audio and location blend into a new experience.

FIGURES

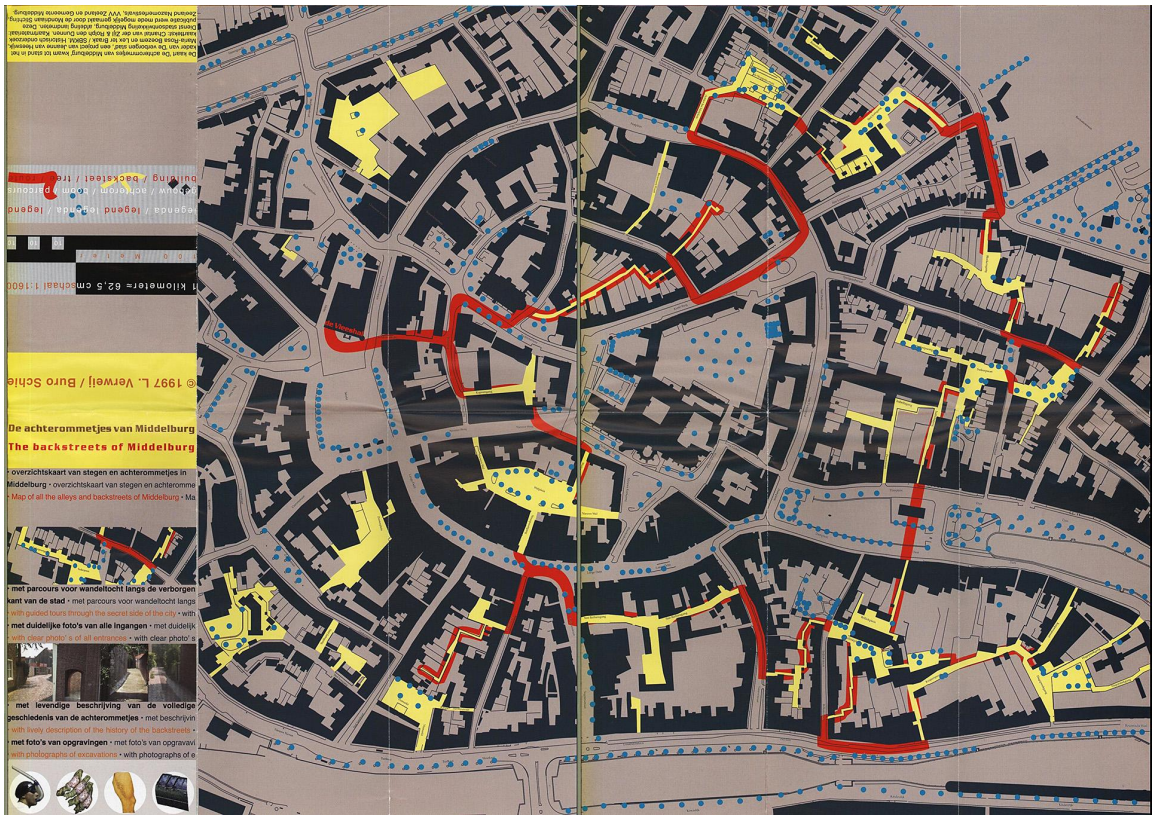


Fig 1. The Backstreets of Middelburg. Map © 1997 L. Verweij / Buro Schie

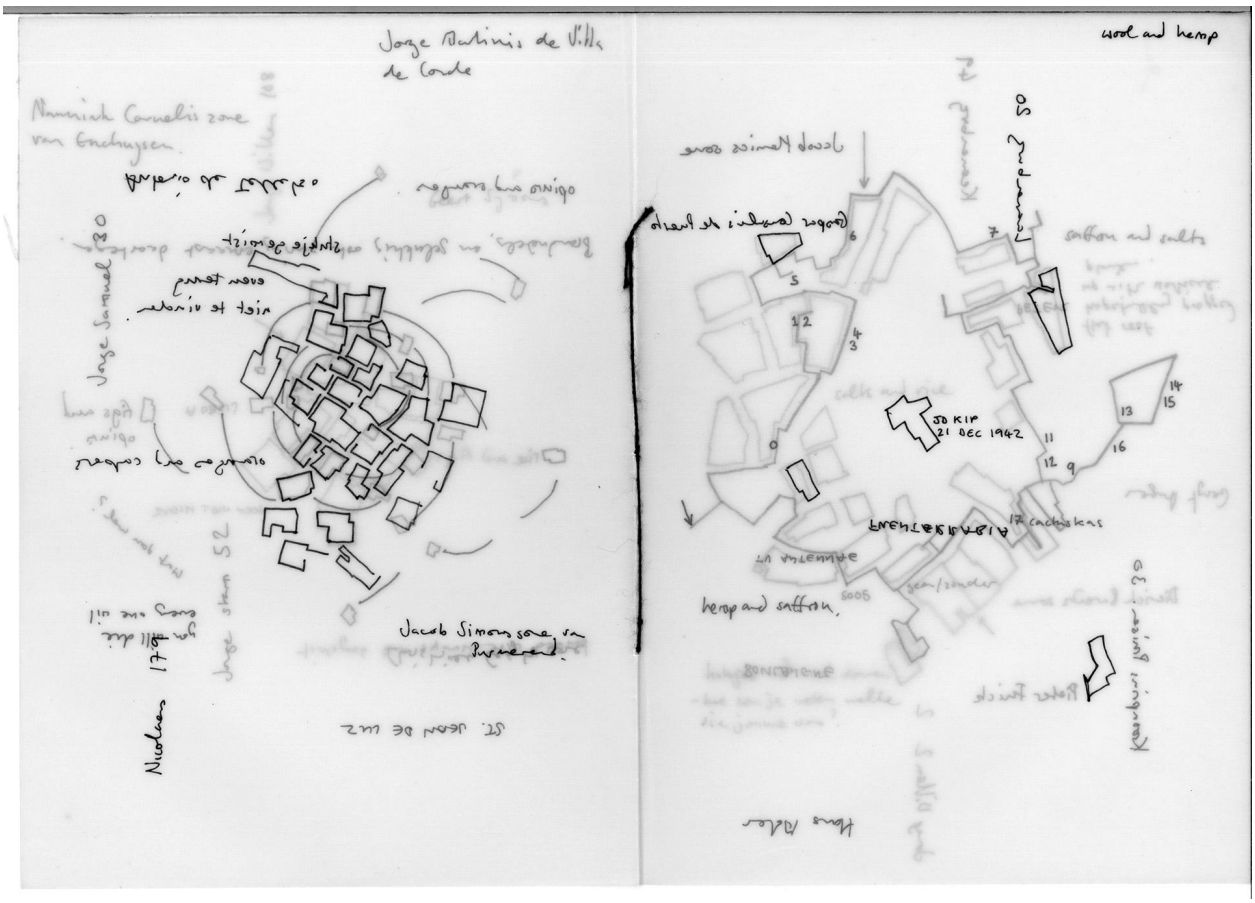


Fig 2. Pages from score for Secret City. Justin Bennett 1997

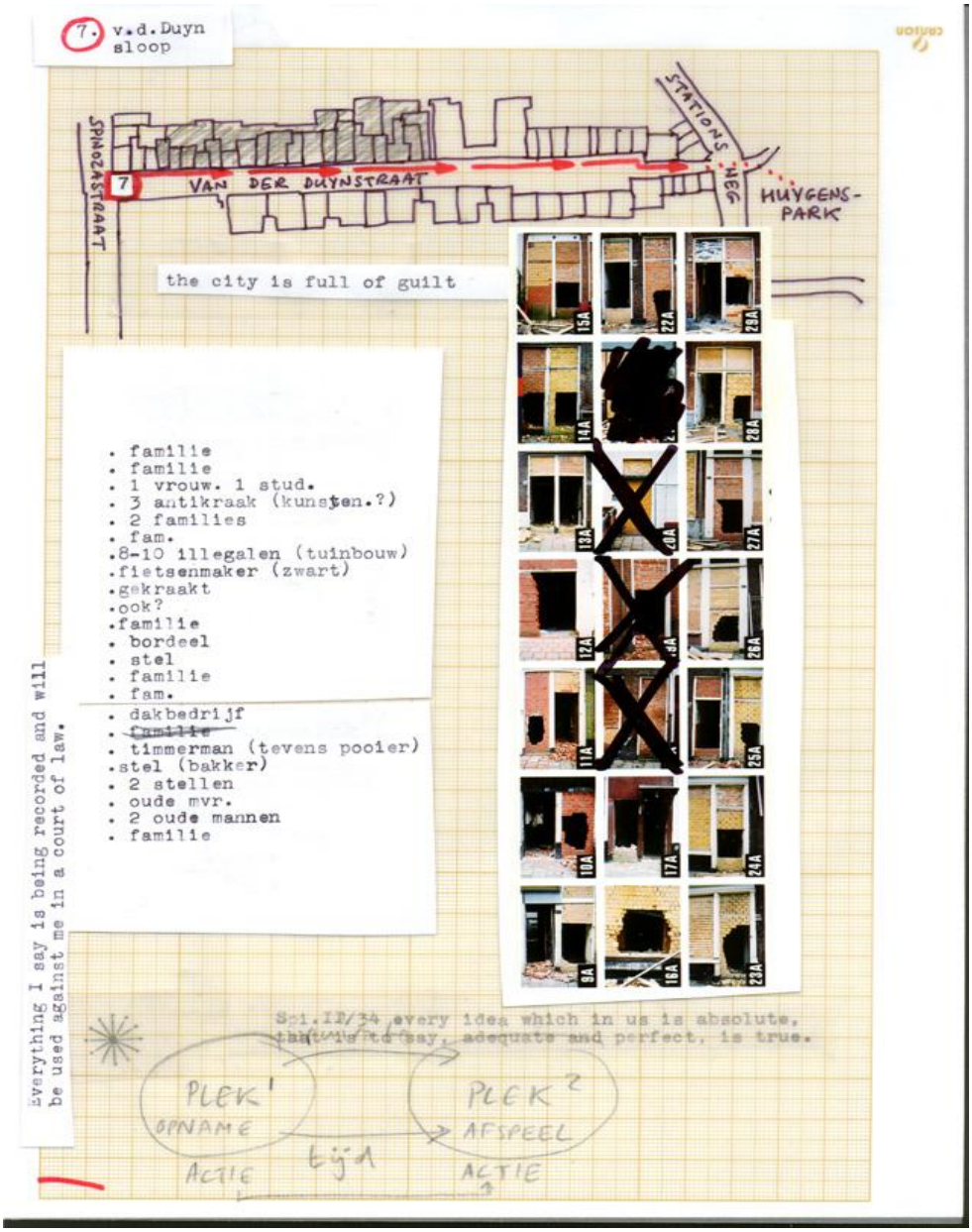


Fig. 3 page from booklet for Rumours / Resonances, an audio guide for Den Haag 2001.

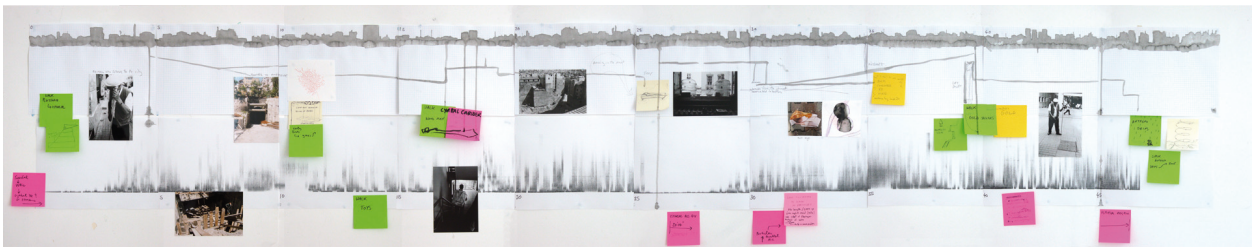


Fig. 4 working score for The Well. Justin Bennett 2007

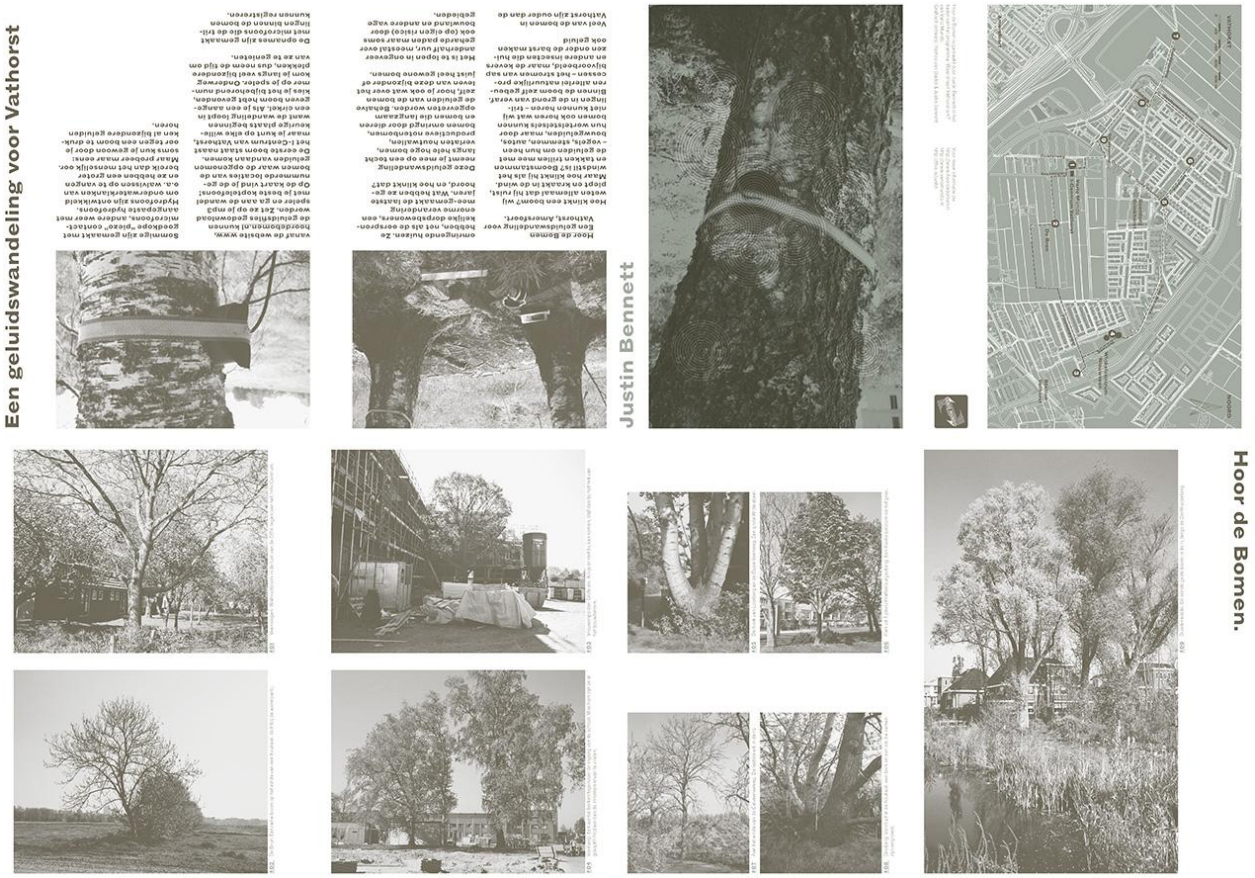


Fig 6. Booklet for Hoor de Bomen. Vathorst 2009

Fig. 7 Ticket to Istanbul, Amsterdam 2011

Fig. 8 Telettrofono Staten Island, NYC 2012

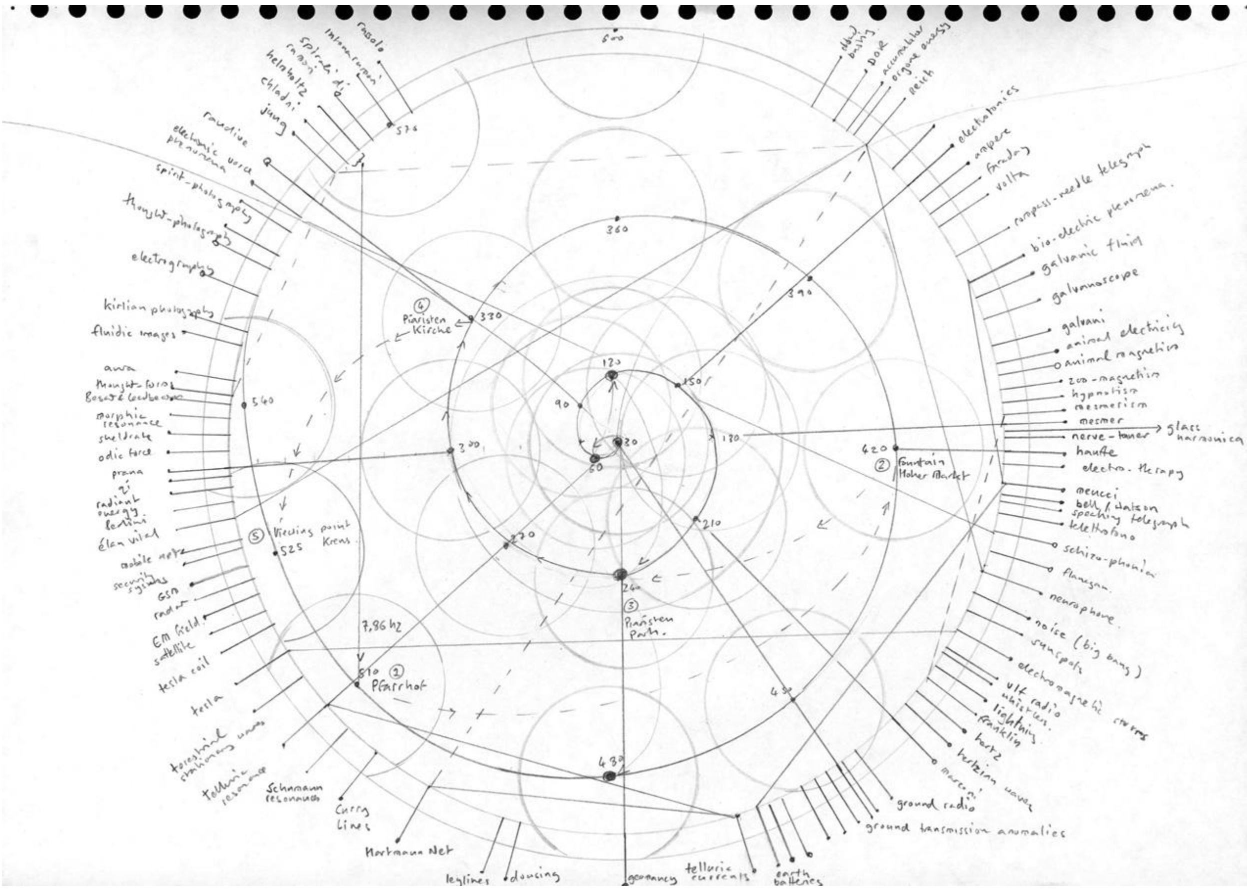


Fig 9. Sketch for Spectral Analysis 2012

Fig 10. Spectral Analysis. At Anton Mesmer's fountain, Krems 2012

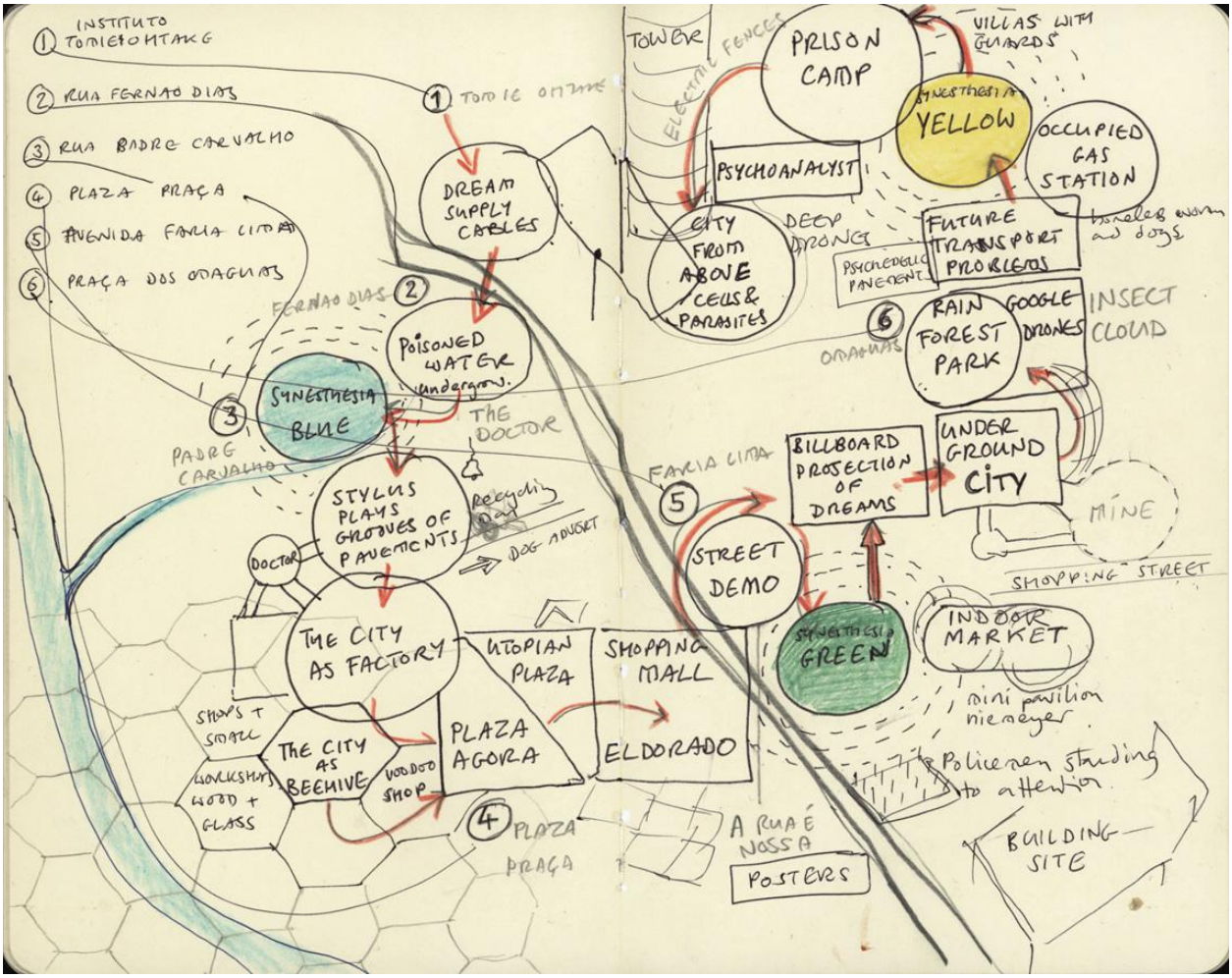


Fig 11. Sketch for Dream Map, Sao Paolo 2013.

Biography

The widely ranging work of Justin Bennett (1964 UK) is as rooted in the audiovisual and visual arts as it is in music. Central to his thinking and his work is a process-orientated approach and an interest in the elasticity of the concept of 'space', with a specific focus on urban development, technological progress and the relationship between architecture and sound. Bennett produces (reworked) field recordings, drawings, performances, installations, audio walks, videos and essays. Recent work consists of thematic projects focussing on the role of the artist in urban development, the relationship of sound and memory and the history of psychiatry in relation to the occult use of technology. Recent presentations include: *Hors Pistes* video screenings at Centre George Pompidou, Paris 2013, *Dream Map* audio walk, Instituto Tomie Ohtake, Sao Paolo 2013, *Spectral Analysis* audio walk, Sonic Acts, Amsterdam 2013, *Telettrofono* audio walk, Guggenheim New York 2012. *Orakel* sound work in public space, Zürich 2011.

Marie Muller (FR)
Lecture, Session 1

Sound installation based on a 3D mapping of Aix-en-Provence

Mapping the Iceberg: An Attempt to Model the City of Aix-en-Provence as 3D Sound Mapped on a Real Space

Cartographier l'Iceberg: Modélisation de la Ville d'Aix-en-Provence sous forme de Carte Sonore en 3D projetée sur un Espace Réel

Marie Muller
Artist, Author-Composer, Sound Designer
http://www.marie-muller.com

Abstract:
My research project is about the way videogames and their technology may inspire the creation of a sound installation, namely through the modeling of an audio architecture in three dimensions, starting from a sound map.
The development process is the following: first a map is defined in a game engine, in which we place the sound assets meant to automatically simulate a more or less realistic perception dependent on the listener's position in relation to the sound spots. Second, this virtual map is superimposed proportionally over the empty exhibition space, so that the map and the site are identical in terms of dimensions and sound propagation.
The tracking of the listener's location in the exhibition space, combined with the tilt of his head, allows us to mix the sound sources in 3D according to his location, in keeping with the sound architecture of the map; his movements in the exhibition space are reflected in real time in the spatialization of the audio sources, creating an interactive soundscape heard through wireless headphones.
This way, a virtual universe is made to coexist with a real place: the installation is both *in situ* and at distance. Indeed, it is the modeling of the map as well as the constant, real-time metamorphosis of the space according to the listener's movements that touches upon the theme of audio mobility.
Another dimension of the project is that of a process of instrumentalization: the listener becomes the author of his own performance and uses space as an instrument, by activating the work through his wanderings. In other words, he also becomes a player and embodies the avatar of his own story in a universe– the city of Aix-en-Provence – which he (re)discovers and appropriates.
In the space of this soundstage, reference is also made to psychogeography: the player will conjure up a mental picture of the map compared with his path in order to get some landmarks; probably at the same time, he will create his inner landscape in a way involving psychoacoustics, maybe in order to fill the lack of visuals in this acousmatic situation. Hence a superimposition of his own interpretation - depending on his background and his imagination - combined with his experience of the city.

Another concept also emerges concerning the player's behaviour: the gameplay. How will the sensory perception of the space influence the performer? Will he walk around the physical space indicated by a virtual sound source or, on the opposite, will he map out his way until he reaches the limits of the physical space's walls?

Résumé :
Mon projet de recherche s'inspire du jeu vidéo et de sa technologie pour créer une installation sonore : il s'agit de la modélisation en trois dimensions d'une architecture audio.
Concernant le processus de réalisation, on définit d'abord une carte dans un moteur de jeu dans laquelle on place les sources qui simuleront automatiquement une perception plus ou moins réaliste selon la position de l'auditeur par rapport aux sons. Cette carte virtuelle vient ensuite se superposer proportionnellement à un espace d'exposition vide, afin que la carte et le site soient identiques en termes de dimensions et de propagation des sources audio.
La position de l'auditeur dans l'espace ainsi que l'inclinaison de sa tête sont détectées dans le but de diffuser les sources audio en 3D selon son emplacement et respecter l'architecture sonore de la carte ; la mobilité du spectateur fait ainsi varier en temps réel la spatialisation des sources, tel un paysage sonore interactif, dont il perçoit l'évolution par l'intermédiaire d'un casque audio sans fil.
L'interaction de l'auditeur avec l'espace fait ainsi cohabiter l'existence d'un univers virtuel dans un lieu réel : l'installation est à la fois in situ et à distance. En effet, la modélisation de la carte ainsi que la métamorphose en temps réel de la perception de l'espace sonore selon les mouvements du spectateur interrogent la thématique de la mobilité audio.
Il s'agit aussi d'une forme d'instrumentalisation sonore, et l'auditeur devient auteur de sa propre performance puisqu'il active l'œuvre par ses déambulations. En d'autres termes, il devient également joueur et incarne l'avatar de sa propre histoire dans un univers qu'il (re)découvre – la ville d'Aix-en-Provence – et s'approprie.
L'espace de cette scène sonore fait référence à la psychogéographie car, dans un premier temps, le joueur tentera de se représenter mentalement la carte par rapport à son parcours en termes de repères ; aussi, et très certainement simultanément, il composera son propre paysage intérieur d'une manière touchant davantage à la psychoacoustique, afin de peut-être pallier le manque de visuels de cette situation acousmatique. D'où une superposition de sa réception personnelle des sources sonores selon son vécu et son imagination mais aussi selon son approche et son expérience concernant la ville d'Aix.
Une autre notion émerge aussi vis-à-vis du comportement du joueur, celle de gameplay, autrement dit, de l'expérience de « jeu » : comment la perception sensorielle de l'espace va-t-elle influencer le performeur ? Ce dernier contournera-t-il l'espace physique occupé par une source virtuelle ou au contraire tracera-t-il directement son chemin jusqu'à la limite des murs de l'espace physique réel ?

As an artist, author-composer and video game sound designer, creating soundscapes is at the heart of my everyday practice and concerns.

In my sound pieces, I tell stories to the listener; they are very much linked to daydreaming and interrogate questions concerning imaginary travel, memory, wistfulness and the productive free play of inner thought. These soundtracks have an air of vulnerability and demand a degree of openness and concentration from the listener. My field of research expands on the questions of how sound can animate a physical space but also the viewer's interior space and how to stimulate his/her imagination - which also requires shifting from cultural to personal understanding of sound.

More recently, because of my experience of working with video games, I have been wondering how sound can favor the user's immersion, as content but also through spatialization, and how sound can work as a feedback of the player's actions. This in turn means taking into account real time process. When designing sound for a video game, one of the keywords is immersion: audio needs to reinforce the credibility of the virtual world and therefore the player's experience, but also the gameplay - the concept and the system's rules.

These questions led me to conceive my soundtrack as a 3D map where the listener could physically wander, instead of creating a linear stereo soundscape. I consider my work as the expansion of a video game environment (that's why I will refer to the user as a player): firstly, the audio surroundings become the interactive part between the player and the space; secondly, the listener becomes his own avatar by moving in the 3D model.

My installation superposes a 3D, virtual sound map scaled to an empty space. The player can explore the audio scene by walking freely in the space and has access to the sound through headphones. This solution was chosen for two reasons: firstly, they improve the player's immersion by masking the surroundings – experience shows that participants feel more "present" in the virtual world when listening to sound through headphones rather than via loudspeakers. Secondly, the audio signal is not altered by the acoustics of the exhibition space and thus preserves the original properties of each recording.

Technically, the map has been designed on *Unity 3D* by Unity Technologies, a game engine enabling the creation of interactive 2D and 3D content (ref in bibliography). Each audio source is set in 3D architecture; a few walls are simulated by using a lowpass filter in order to reinforce the feeling of enclosed spaces. We track the player with an infrared LED situated on the headphones detected by a camera with a wide-angle lens and an infrared filter; a custom application written in C++ (developed by Simon Chauvin) extrapolates this as data to represent the player's position in the exhibition space, so that *Unity 3D* can retrieve and use this information to trigger the appropriate sound sources. In order to experience the tridimensional soundscape, we use the gyroscope and the accelerometer features of a mobile phone, also set on top of the headphones; thus, when the player moves his head, this directionality is translated in *Unity 3D*, thus the listener can perceive the position of the sound source in the 3D space. He/she will sometimes be able to hear a sound above him when tilting his head towards a source. Beyond this, a day/night parameter allows us to present a soundscape evolving through its daily

cycle.

The 3D model represents an imaginary universe created from field recordings collected in the city of Aix-en-Provence. The staging of the audio architecture is influenced by the nature of the sound sources themselves, acting like an animated ecosystem; each source is connected to the other - and so are their 3D cones - but at the same time they are different enough to make the player aware that the soundscape evolves. The installation simulates a fictional scenario implanted in a neutral setting.

Considering the audio mobility topic, the way of triggering sound, as feedback responding to the player's movements, implies that the player is at the heart of a mobile world: if he/she moves away from a sound source, it pauses and will start again when the player returns. So, for example, the player will be able to catch a conversation exactly where he/she left it. This choice is intended to favor a notion of soundmarks through identification and memorization of the sound sources.

The installation may at first seem like an audio guide but the experience is closer to audio navigation. The player discovers the existence of an interactive soundscape in which he can play - in the manner of video game playing - where sounds are triggered becoming a score controlled by the player. In this way, he/she is both directing and performing his/her own story. The player's body is also engaged in the process of discovering the piece: he/she will have to adapt his motion to the scale of the model but also to his/her own experience of listening to the space. It is for this reason that I propose that we can consider the player's motion as a choreography. Some will almost want to run, others will walk very slowly, some will hardly move - maybe only their heads, yet others will repeatedly take one step and stop. So two players won't experience the same process, since there will be two different stories created from the same initial audio recordings. This aspect of the work relates to the domain of interactive narrative, as the ability of an interactive experience to tailor the narrative for each player.

The work also refers to the player's mental model of a physical space: how will the player define his/her own imaginary map depending on his/her listening experience? Will he/she memorize each sound source's position? Will he/she get a global view of the map through an understanding of the way each microcosm communicates with the other? Or will he/she interpret the space by remembering his/her own path, like a choreography? My intention is that the installation and its structure relates to the way we perceive a city: arguably, rather than remember

our itinerary as a map, rather we create imaginary beacons punctuating our daily paths (at least in terms of audio perception). It is this type of perception that I seek to induce in the exhibition space: a transitory, ephemeral, organization of connected personal landmarks. I also relate it to web browsing and the mental process of remembering one's way through the architecture of websites.

Anne Cauquelin compares the act of web browsing to that of gardening: hypertext becomes the gardener's tools. At the beginning, this latter works on a set of information no yet connected to each other; then plants start growing in the ground and create their own structure. How do we transmit information? As a natural order (pyramidal structure or arborescence) or as an architecture generated by the research itself (personal research browser)? With hyperlinks, natural order tends to disappear and the seeker is led by his own motives for a more dynamic and fertile way of researching. These questions led me to compare the process of organizing hyperlinks with the *Rhizome* of Gilles Deleuze and Félix Guattari: each element belongs to a particular universe and points to other ones. Per example, the bee and the flower are linked by the act of dissemination, but apart from that one, there is no connection between them.

When confronted with the issue of how to organize the sound sources, the methodology I adopted while designing the 3D model is related to the *Rhizome*, in the sense that we need to organize an object according to its meaning. So the sound sources became my hypertext. And the way I compose with them is close to the act of gardening: it evolves through cycles, sometimes flowering, sometimes left fallow and is always mobile - in opposition to a fixed image.

The method has been created through a very intuitive process. Indeed, how does one connect two sound sources? Because of repetition or because of difference? The map has been established on the schematic of a center and its periphery taking into consideration the acoustic properties of the sound sources. So binary oppositions emerging from classification are inappropriate since firstly the sounds are spatially related to several different "neighbours" and secondly they dialogue with one another in different ways; they are transitions between polarities: indoors/outdoors, density/expanding of the spaces, condensation/distention of listening.

The schematic of the map is one of concentric rings: the city-center is in the middle and the periphery the exterior. The center is represented by enclosed spaces. Around the center, transitive spaces connect - the inside and the outside. And then the periphery, which sounds like

countryside with high reliefs.

The classification of sound sources into categories has been set up as follows:

- Confined spaces: small closed spaces with reverberation: *Saint-Sauveur* Cathedral's cloister; Aix's Music School; a café. Most of them are silent during the night since they are closed.

- Transient spaces: tight spaces with reverberating sounds: the *Passage Agard* – a very narrow, half covered street that looks as if it cuts two houses crosswise; a radio reverberating from an open window into a small street; the City Hall courtyard.

- Open spaces: quite large spaces with a few reverberation: the marketplace from *Place Richelme*, and also the one from *Avenue du 8 Mai*, with North-African origins; the *Cours Mirabeau*; parks; petanque strip; a secondary school exit; an accordion reverberating in downtown streets.

- Bars and cafés: either open or closed spaces that change between day and night time because of the density of their population. Different reverberations.

- Marketplaces: open spaces; the marketplace from *Place Richelme* shifts during night time to café terraces according to custom in Aix-en-Provence. Different reverberations.

- Sketches: what I consider as sketches - snippets of conversation where people unintentionally stage themselves. Different reverberations.

- Soundmarks: typical sounds from the city, very easily recognizable. Different reverberations.

- Nature: parks, country-side. Almost no reverberation.

In conclusion, in this installation audio mobility requires from the player both physical and imaginary spacial transfers. The exhibition space and the proposed representation are very much inter-connected, one makes sense because of the other: an imaginary map is understood while experiencing the real space. As the map and the exhibition's space converge, a third space emerges from the player's imagination.

FIGURES

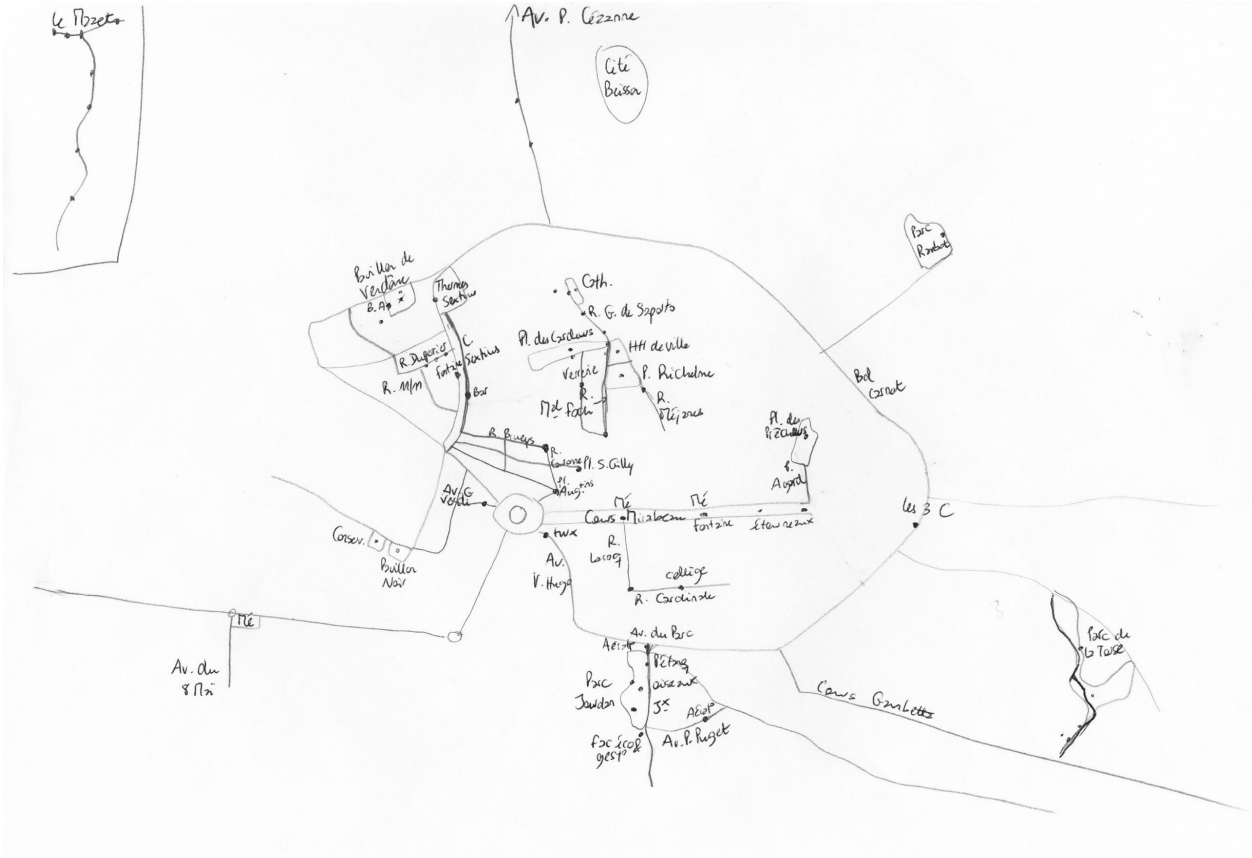


Fig. 1. Initial Map of Field Recordings Collected in the City of Aix-en-Provence

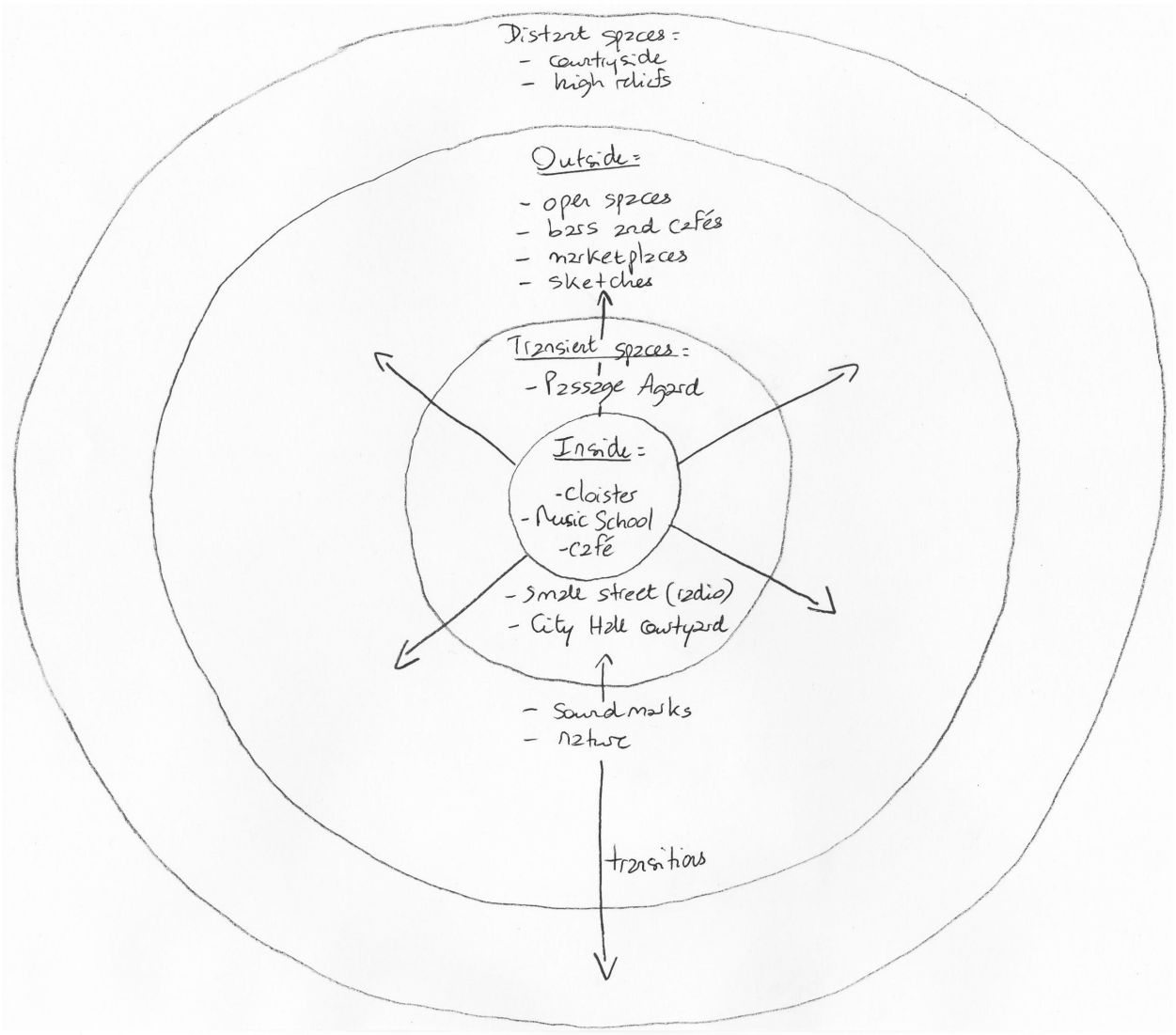


Fig. 2. Map Established on the Schematic of a Center and its Periphery

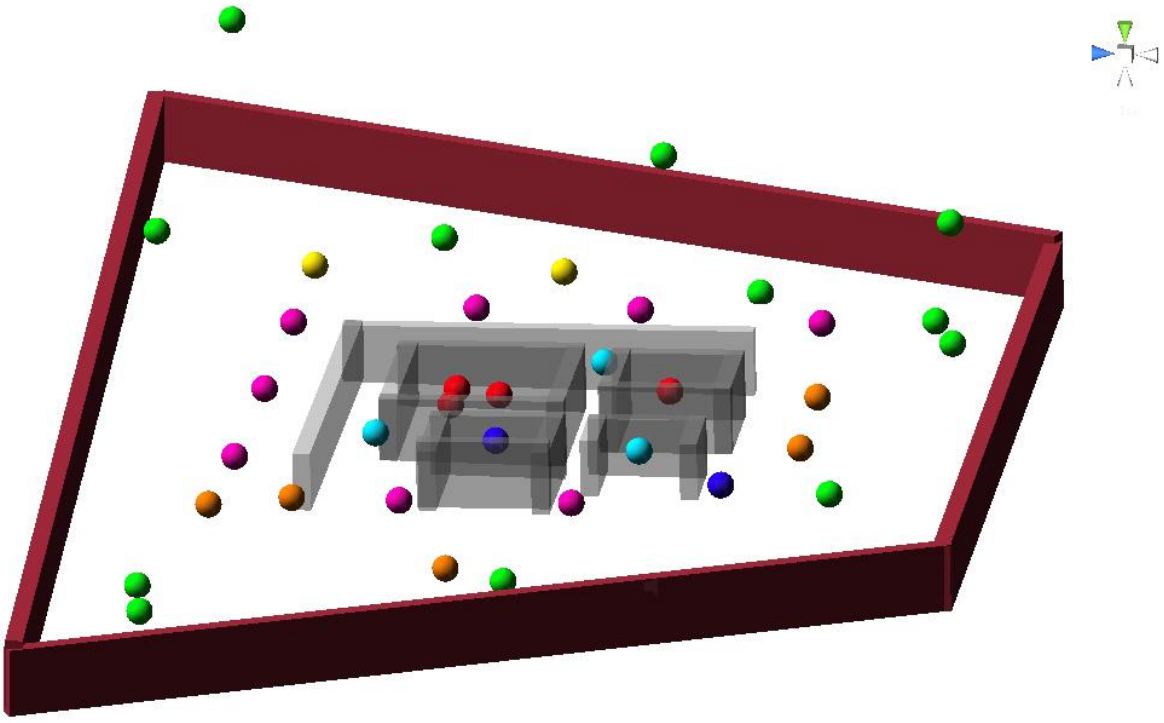


Fig. 3. Sound Map made on Unity 3D by Unity Technologies

Acknowledgements

I am very thankful to Simon Chauvin for having programmed the whole installation and for the tests. I would like to thank also Guillaume Stagnaro for his help and advices concerning the technical equipment. And Locus Sonus and my fellow residents for support during this process.

Bibliography

Cauquelin Anne, *Le site et le paysage*. Paris: PUF, 2002.

Cauquelin Anne, *L'invention du paysage*. Paris: Edition Plon, 1989.

Gallet Bastien, *Composer des étendues (l'art de l'installation sonore)*, École des Beaux-arts de Genève, 2005.

Leonardo Music Journal, vol. 23. Cambridge: The MIT Press, 2014.

Leonardo Music Journal, vol. 47. Cambridge: The MIT Press, 2014.

Calvino Italo, *les villes invisibles*. Paris: Gallimard, 2013.

Biography

Marie Muller is a French artist, author-composer and video game sound designer. She is currently artist-researcher in residence at Locus Sonus. Her practice involves the construction of soundscapes, where reality and fiction merge and are perceived as reveries stimulating the listener's emergence of memories and imagination. Her interactive works, offer an experience through which the listener is encouraged to create his own story.

She lectures in Sound Design for Video Games at the University of Paris 13 and also at *ESRA (École Supérieure de Réalisation audiovisuelle),* Paris 15.

In 2004, she obtained her Bachelor Degree in Fine Arts at the University of Lorraine in Metz; in 2007, she graduated from École Supérieure d'Art de Lorraine (5-year study) in Metz; in 2009 she obtained her Master's Degree in Fine Arts from Malmö Art Academy in Sweden, in partnership with *Nordic Sound Art Programme*, and in 2011 she completed her Master's Degree in Video Games (major in Sound Design) at *National School of Games and Digital Interactive Media* (ENJMIN) in Angoulême.

Biographie

Marie Muller est artiste plasticienne, auteur-compositeur et sound designer de jeux vidéo; elle est actuellement en résidence d'artiste-chercheur à Locus Sonus.

Elle est également chargée de cours de design sonore, notamment dans la Licence Professionnelle de Jeu Vidéo à l'IUT de Bobigny, Paris 13 et à l'ESRA (École Supérieure de Réalisation Audiovisuelle), Paris 15.

Ses études en art l'ont progressivement amenée à se spécialiser dans le médium de l'audio jusqu'au domaine de la conception sonore interactive.

Elle est diplômée en 2004 de la Licence d'Arts Plastiques à l'Université de Lorraine à Metz, en 2007 du DNSEP (Diplôme National Supérieur d'Expression Plastique) option Art à l'École Supérieure d'Art de Lorraine à Metz, en 2009 d'un Master Arts Visuels à Malmö Art Academy en Suède avec une spécialité dans l'Art Sonore (Nordic Sound Art Programme), puis en 2011 d'un Master en Conception Sonore à l'ENJMIN (École Nationale du Jeu et des Médias Interactifs Numériques) à Angoulême.

Sa pratique du paysage sonore, où s'entremêlent réalité et fiction, s'apparentent à des rêveries qui stimulent l'émergence de souvenirs ainsi que l'imagination de l'auditeur. Elle raconte des histoires, perçues comme de véritables narrations visuelles, auxquelles viennent se superposer l'interprétation du spectateur et sa propre histoire personnelle.

Joel Cahen (UK)

Lecture, Session 1

Perspectives on Sound Based Augmented Reality Theatre

Joel Cahen
Artist, Researcher
Newtoy
http://www.newtoy.org
joel@newtoy.org

Abstract:
In public spaces the individual encounters dozens of sounds. Basic entomic sonic signifiers, banal imperious announcements, passing conversations, animal sounds, fragments of musical notes; all mix to create a complex and fluid sound field that helps shape reality.
In my recent work *Interzone Theatre*, this sound field is altered entirely, the individual, wearing headphones, enters a parallel interpretation of the sound field that augments psychogeographic affects with fictitious psychoacoustic ones. Using locative media, the narrative unfolds as the individual progresses through the city; encounters with pedestrians and urban features take on another meaning.
Here the function of sound as contextualiser of experience calls the listener's imagination to attention as an active correspondent to the city around them. In such interventions, the public space is the 'objective' reality that is being augmented with the listener's imagination, shifting attention and reconextualisation to create an experiential third space.
This third space is site-specific and person-specific, a personified *Auditorium*. The *Auditorium* is a psychic space drawn and constructed from a Gestalt of perception, an affect of the environmental on the personal; a spatial, cultural and experiential framework which contextualises the meaning of a state of being at that moment.
I will discuss the role of sound in shaping of the personal Auditorium. Then follow up with a description of the sonification of psychogeographical affordances in an urban space and conclude with an example of how locative media can utilise these elements to dramatise a soundwalk and by doing so expand the realm of performance.

SHAPING THE AUDITORIUM

The Auditorium, as the auditory root of the word suggests, is a place for listening, for paying attention. I use this term to suggest a psychic space that, prompted by sound, provides context to the experience and becomes the experience. The Auditorium is self constructed within each listener in an active listening process that is intended to isolate sounds, actively segregating between the "heard" and the "listened to". This process can be prompted by verbal communication, for example by way of introduction: "Close your eyes now and listen to the sounds around you"; or by way of intrusion.

For example, at a conference I attended, a speaker was talking about the emotive resonances of the soundtrack of Jaws on the viewing experience, while from a live rig setup outside the room, in the courtyard downstairs, AC/DC's *Highway to Hell* started blasting out of a PA. Within the context of the lecture room auditorium, the music was a nuisance, a loud interference to what was previously framed by the expected sounds of the lecture room. Within this wider spectrum of attention, the tension created by *Highway to Hell* resonating from the window, augmented the somewhat dry description of the Jaws soundtrack, to create a similarly unnerving experience.

The sound coming so clearly from outside, drew attention from the speaker to the larger space outside the room. The potential rose for the context of the Auditorium to encapsulate these sounds as well and the listeners were forced to re-examine their fidelity to the original framework of the Auditorium they willingly committed to by entering the lecture room.

It arises from these examples that attention is continuously challenged and swept away by the fluidity of being in an environment, be it spatial, social or solitary. Attention conducts our experience, or perhaps our experience is the journey through attention.

The resizing and reshaping of the personal Auditorium is a creative act. Whether instructed by an external authoritative prompt and/or by a personal choice the act of listening is the wavering of attention between multiple focal points (LaBelle 2012). The focal property of the Auditorium, which I am attempting to segregate from peripheral aurality, may be useful in giving a perspective on the effect of sound on the construct of reality. It is likened to the theatre auditorium, a segregated built space to which one enters wilfully with the intention on focussing

attention on the activity presented in it, without losing the knowledge of this space existing amongst other spaces in the city and within a durational continuum.

Sound in its fluidity and signifier of physical and cultural spaces, plays a significant role in the resizing of the Auditorium. It expands or contracts its perimeters by averting attention to different elements that constitute it. The focus of listening shifts the focal point of the experience, and this attention to the sound can be as wavering and fluid as are the properties of sound and its behaviour in space.

THE RELATIONSHIP BETWEEN PSYCHOGEOGRAPHY AND PSYCHOACOUSTICS

The relational movement between the individual and the stasis of the architecture or the movement of traffic and pedestrians can invoke a fluid sense of being. In a Situationist *Dérive*, attention is not directed, it randomly wanders according to the individual interpretations of audio or visual events that unfold in the walk, from the static architecture, buildings and cityscape on one hand and the dynamic buzz of pedestrians, traffic and their respective sounds on the other. The psychic space derived from this drift of attention, developed in the mind of the wanderer, sparks from the friction between the two contrasting elements, the static architecture and the fluid activity and sound within it. The *Dérive* becomes a sequenced composition, a platform for imagined and projected journeys, a Gestalt forming the personal Auditorium.

In the urban architectural space, the fluidity of sound is funnelled through the streets, streaming and filling the spaces in-between brick walls, scattering into the open spaces of parks and public squares, resonating and reflecting off different surfaces amplifying quieter sounds or dampening loud ones. Urban structures create a dynamic envelope shaping noise, the canyons created by rows of buildings offer a compression envelope, in the same way that parks and open spaces offer a wider filter envelope. "…from the hum of ducts to the circulation of air to the sounds of the inner-ear made audible by sufficient soundproofing" (Dworkin 2012: 14).

Psychogeographical attributes of public spaces are based in their geometrical, historical, cultural and dynamic attributes. The urban space is composed of fixed closed spaces of monumental, social, cultural and historical significance, and open spaces that afford a more dynamic, social or environmental, significance.

First and foremost, architectural spaces are geometrical spaces and as such have sonic

significance, which the ear immediately translates from the sound heard in them. What follows is a table showing some geometrical attributes of space and corresponding attributes of sound.

ARCHITECTURE	SOUND
solid, static	liquid, fluid
defined form	defined form
Functional by use	informs of agency
in-betweens, alleyways	segues and silences
with boundaries	overlapping
vertical horizontal voluminous	omniphonic, directional, loudness
structure externally set	structure is in the ear of the beholder
created by external order	strives to be perceived by an internal order
denoted by nouns and prepositions such as: Window, Door, Alley, before, by, in, along	denoted by adjectives: loud, short, repetitive, high, low
graphic and incidental elements within the architecture and urban features like signage, bollards, bins, lamp posts	a graphic score, individual notes on a score sheet, ephemeral sonic clusters of meaning

Cultural and historical contexts are conveyed by architecture design and use, places of worship, industrial areas, styles such as Art Deco, Graffiti in abandoned places, leisure centres, etc. These contexts have a sonic expression associated with them through the narrative expressed in the site's use, either musically through its associated cultural artefacts or through the imperious sounds that accompany its function.

Open spaces such as Tiananmen Square, Tempelhof Airport, Tahrir Square and the Killing Fields are loaded with dynamic and social significance that may not be entirely obvious to an uninformed visitor, this is largely because their significance comes from activity that they hosted in the past. Sonically these may be expressed as cultural artefacts or audio documentation.

Other open public spaces such as open-air markets, playing fields, a busy junction in a city centre or a stream in a park, afford very particular sonic environments that are expected and often recognisable even without being at the site, such as the sound of birds in the park, traffic, etc.

Attendance in such spaces would usually evoke sonic associations however to the sound designer this works the other way around as well, psychogeographical attributes can be manipulated through sound, redefining the nature of the site and augmenting it with renewed

meaning. The insertion of sound design within a psychogeography affords what Judith Rugg describes as: "Illusory constructions of spatial meanings, the potential of parallel, normally unseen realities and the integration of the real and the virtual in presenting possibilities of perception and understanding of space" (Rugg 2010).

By incorporating these psychogeographical considerations in composition, a dramaturgy develops that supports the creation of a flexible platform for experiential storytelling and performance.

INTERZONE THEATRE AND AUGMENTATION OF FICTIVE NARRATIVE

> [...] the nature of mixed reality and of performance is complex and hybrid, involving multiple spaces, shifting roles and extended time scales, all of which are connected in multiple ways through diverse forms of interface (Benford and Biannachi 2011: 7).

Working with app developers Mobile Explorer, I created the Interzone Theatre App, a platform for locative theatrical productions. These aim to reposition the user's relationship to urban space using sound, image, performance and the creation of site specific stories that are based in the psychogeographical attributes of the locations they are set in.

Common elements of many locative performances across the sector are the sense of play, role-playing, the delegation of tasks to an individual within an audience group or the sharing of information between participants. Interzone Theatre aims to explore the immersive theatrical element of augmented reality performance by eliminating the sense of transparency of a theatrical event through minimizing audience interaction with technology (especially mobile phones) and dissolving the sense of being part of an audience. Thus the journey through the streets is a solo activity for the participants who are not consciously made aware of the architecture of the play.

Interzone Theatre replaces the sounds of the environment with the sound space created using headphones, these give the access to this parallel world, and form the theatrical space, the personal Auditorium. Local information extracted from research of the locations, is processed and mixed to form a story. It is then fed back into the site through the participant's imagination to activate a superimposition of meaning that recontextualises the location and their experience.

The narrative blurs the functionality and linearity of the urban fields and "smoothes" (Deleuze and Guattari 1987: 371) them out, using Deleuzian terminology, with poetry and abstraction both in sound, narration and image.

One of the productions I created for the platform is *The Hero With Seven Faces*, it exists in three editions, Belfast, Zurich and London. Each edition has the core narrative of the seven archetypes mapped onto architectural features in the city alongside a site specific inspired theme developed, after a period of research in the area identified as the site, according to the psychogeographic qualities of the space, its spatial, cultural, historical and pedestrian characteristics.

The London edition of *The Hero With Seven Faces - The Panopticon* (Fig. 1) is inspired by the panopticon shaped council estate where the tour begins, which happens to be in the vicinity of Jeremy Bentham's (Designer of the panopticon) London home, continues to a large mirror underneath CCTV cameras, to a representation of a Ziggurat, ancient place of worship, beside three tall towers to an image of the Eye of Horus (the All Seeing Eye) found etched on the ground and ends with the participant passing in the middle of a thin traffic island in between two crowded bus stops and bus lanes inspected by pedestrians on either side.

The work aims to increase attention to the surroundings and to details within them including pedestrian activity and rhythms, and creates correlations between otherwise disparate elements of the architecture and pedestrian activity. Interzone Theatre draws the user into an alternate perspective where particular building angles and alignments with other urban features reveal a narrative thread connecting the imperceptible to the spectacular in an individual journey of discovery.

Performance is used covertly, imperceptible to pedestrians, performers occupy various areas and compliment the narrative with slight actions even just by standing in particular places or glancing; or with direct interaction with the audience member in places such as phone booths or park benches. By inserting these sync points between the augmented narrative and the reality it refers to on the dynamic level, the potential arises for the audience member to create synchronicities between the narrative and various urban activities that have not been planned. The audience's imagination begins to interact with the urban dynamics and buildings creating a personal experience that is the hybrid of the objective realities presented to them from the environment and the fictive narrative of the production. This interaction forms the basis of the

augmented reality theatre experience.

The use sound as a contextualiser of the personal Auditorium in a public space provides a platform for articulating a contemporary practice of mythmaking between individuals and their surroundings and illuminating and augmenting aspects of the urban space that may have been neglected in its daily use as a background for commuting between interiors or flattened onto the screen of a digital display in touristic voyeurism. It affords new methodologies for engagement and strategies for embedded narrative in public spaces, which can be applied in a variety of art sector contexts including museum and local history outreach.

The platform can also develop the dramaturgical scope of performance to inhabit the real and the imagined using the omniphonic properties of sound to expand the *mise en scène* beyond the directional visual panorama. The technology enables implementation of gaming strategies to include participant decision-making, multiple narratives, smart props and flexible performer activation.

While the experience I describe relies heavily on technology, it is my intention, as a practitioner, that with its miniaturisation and the new horizons it opens, it will help reposition the participant's relationship to architectural, urban space and the diversity of its inhabitants, outside the Auditorium it creates, in daily life.

FIGURES

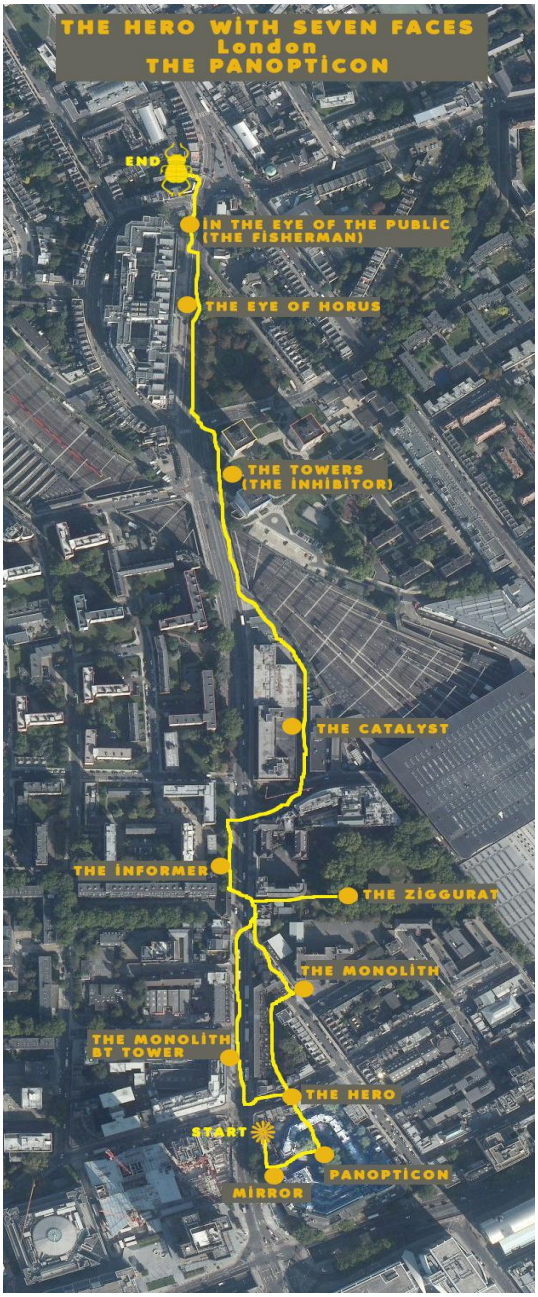


Fig 1. The journey map of the London edition of The Hero With Seven Faces

Bibliography

Benford, Steve and Biannachi, Gabriella. *Performing Mixed Reality.* Cambridge, MA: The MIT Press, 2011.

Dworkin, Craig. *A Handbook of Protocols for Literary Listening.* Published for Arika's *A survey is a process of listening* program as part of the 2012 Whitney Biennial, 2012.

Deleuze, Gilles and Guattari, Felix. *A Thousand Plateaus, Capitalism and Schizophrenia.* University of Minnesota Press, 1987.

LaBelle, Brandon. "On Listening." *Kunstjournalen* (2012) http://www.kunstjournalen.no/12_eng/brandon-labelle-on-listening

Rugg, Judith. *Exploring Site-Specific Art: Issues of Space and Internationalism*. I. B. Tauris, 2010.

Biography

Joel Cahen is an audio visual practitioner and organiser of Experiential art events based in London. His recent projects include Wet Sounds, the underwater listening event installing at swimming pools in festivals worldwide; Scrap Club, the public Destructivist activity; Cacophony, multichannel installations at libraries; Soundsoup, weekly live abstract mash ups on Resonance 104.4fm London; and productions for Interzone Theatre, sound based augmented reality theatre on a locative app. Recently he has cofounded Liquid Vibrations with Adele Drake (Founder of Drake Music) and started underwater listening sessions for children with special needs at Special Schools in the UK. His work has been presented at ISEA, AV Festival, ATP, Helsinki Festival, The Royal Neurological Hospital, and various music and art festivals worldwide.

Emmanuel Guez & Xavier Boissarie (FR)
Lecture, Session 1

De l'oreille à l'oeil.
Des conditions d'une écriture située

Emmanuel Guez et Xavier Boissarie
Artists, Researchers, Teachers
Orbe.
http://orbe.mobi
http://emmanuelguez.info
http://writingmachines.org

Abstract:
Murmures Urbains is an artistic project that builds on *Messages Situés*, a platform designed and developed by Orbe. It offers a soundwalk, delivering instructions to the viewer in a given space. The viewer is free to achieve the actions proposed in the context of a protocol. Depending on the writing of the protocol, the instructions allow the viewer to play with the social norm. The viewer oscillates between immersive phases (when it is cut off from the surrounding sound environment) and relational phases. Instructions offer him the opportunity to create his own fiction. What is the role of the viewer? Could it be a performer? Unlike the current trend of proposals or some participatory transmedia entertainments, the inversion viewer / performer involves no manipulation of the viewer, because the instructions are always interpretable. Not only the viewer can refuse to execute an instruction or to divert it, but the author cannot determine a priori what the effect on the viewer will be. How to build a sound experience when the effects are not written in advance? What is immersive game? How to think the back and forth between the immersive and relational phases? Finally, the text is written after the experience, as a story, collected by Orbe. It is a document showing the experience. Unlike the "stage writing" and "postdramamatic writing", Messages Situés concludes an experience. What tools to organize the fruits of the investigation, to share it and to compose a non-linear storyline, whose application is unpredictable?

Murmures Urbains est un projet artistique qui prend appui sur *Messages Situés*, une plateforme conçue et développée par Orbe[6]. *Messages Situés* permet de délivrer sur des smartphones, via un protocole web, des contenus sonores en fonction de situations conditionnelles aussi variées que la géolocalisation, l'heure, des conditions logiques, des conditions de synchronisation avec d'autres contenus web. L'ensemble des conditions de

6 *Messages Situés* est financé notamment par le projet ANR COSIMA (regroupant entre autres l'IRCAM, l'ENSAD).

déclenchement sont combinables, offrant ainsi des possibilités d'écriture riches.

Murmures Urbains est un projet expérimental visant à mieux cerner en quoi *Messages Situés* peut être une machine d'écriture pour l'écriture en espace public et pour l'écriture scénique. Muni d'un smartphone, le spectateur entend des consignes situées, qu'il est libre d'exécuter et surtout, qu'il est libre d'interpréter à sa guise. Au départ du projet, les effets de ce dispositif – de ce système d'actions sur les corps par la délivrance de contenus sonores – étaient inconnus.

A la suite de nos derniers workshops, il nous paraît ici intéressant d'esquisser les conditions d'une écriture située.

L'EXPLORATION DU TERRITOIRE

Murmures Urbains propose au spectateur de réaliser un protocole d'actions dans un espace donné. L'écriture d'une expérience à base de sons situés demande alors un travail approfondi avec le territoire de cette expérience pour atteindre une certaine pertinence relationnelle entre les sons et le lieu ou le moment de leur délivrance. Dans cette démarche, ou bien l'auteur s'appuie sur sa connaissance du territoire, ou bien il déjoue ses propres *a priori* pour se mettre dans un état de disponibilité lui permettant d'explorer les dimensions inhabituelles, imperceptibles du lieu de l'expérience (comme les interstices et les dimensions fractales). Ce dernier mode d'écriture se déroule sur le lieu même de l'expérience. Grâce à *Messages Situés*, l'auteur peut se soumettre lui-même à un protocole lui permettant de s'affranchir de sa propre connaissance du territoire et de ses intentions premières. Ainsi, lors d'un récent workshop à Chalon-sur-Saône avec la FAI_AR[7], l'un des quatre groupes d'apprentis a choisi une couleur pour guider son expérience : le bleu. Leur exploration s'est construite autour de cette unique clé filtrant leur perception. Le résultat fut si riche qu'ils se sont emparés de la démarche pour construire un protocole à destination du public.

Le dispositif permet d'hybrider le média sonore à son environnement d'expression. La ville présente un espace variable, fractal, imprévisible. Cette matière urbaine est difficilement maîtrisable. Deux polarités s'opposent alors dans la mise en oeuvre d'expériences sonores dans l'espace public : la scénarisation linéaire classique par laquelle l'auteur souhaite maîtriser le parcours sensible et émotionnel du spectateur et, d'autres part, la mise en scène d'un protocole

7 La Formation Avancée Itinérante des Arts de la Rue, située à Marseille.

ouvert créant les conditions de l'expérience sans pouvoir anticiper les détails de son déroulement. Dans cette deuxième démarche, le spectateur écrit son histoire : on parle de post-narration.

L'ÉCRITURE DU PROTOCOLE

Dans *Murmures Urbains*, le spectateur peut réaliser toutes les actions proposées, comme il peut n'en réaliser que certaines. Les consignes sont alors liées au protocole par des conditions. Elles sont liées entre elles (par des liens logiques « OU » et « ET ») ou au territoire par des balises géolocalisées. Les contenus sonores sont tous pré-enregistrés. Il n'y a aucune action à distance. Une fois lancée, l'expérience se déroule en tout autonomie, au gré des choix et actions du spectateur.

L'objectif du protocole est de mener l'expérimentateur vers une destination : une situation ludique ou performative. Un des écueils de l'écriture est de considérer les consignes comme une destination en soi. Par exemple, en « musicalisant » les consignes. L'attention de l'expérimentateur se porte alors sur le son et non sur son environnement direct. Ainsi avons-nous constaté de bons résultats avec une réalisation sonore assez sobre pour que l'expérimentateur n'y porte pas attention.

Murmures Urbains s'inscrit dans un contexte où se multiplient les propositions artistiques associant un environnement sonore à l'exploration de territoire[8].

A la différence de la plupart de ces propositions, *Messages Situés* déplace la position du spectateur. Dans *Ghost Machine* de Janet Cardiff, par exemple, le spectateur muni d'un casque et d'une caméra est assis face à l'entrée d'un théâtre. À l'écran, il voit la même entrée et dans le casque il entend le public enregistré quelques jours auparavant. Au bout de quelques minutes apparaît un mouvement de caméra incitant le corps du spectateur à se mettre en mouvement. L'écran devient le guide du spectateur, tandis que l'environnement sonore accentue la disjonction entre deux types de visions. Le contraste entre la perception d'une réalité passée et la perception de la réalité présente est l'objet de la pièce, qui entraîne le spectateur dans les coulisses du théâtre, ainsi habité de fantômes. Le spectateur est alors en immersion. Mais, chez Janet Cardiff,

8 Voir Karen O'Rourke, *Walking and Mapping, Artists as Cartographers*. Cambridge : The MIT Press, 2013.

la pièce a été écrite en avance. Dans *Murmures Urbains*, l'expérience du spectateur est en grande partie imprévisible. Elle s'écrit avec le dispositif. L'objectif est alors de produire une situation suffisamment immersive pour que le spectateur puisse produire sa propre fiction tout en ne neutralisant pas le principe de réalité, essentiel pour une déambulation dans l'espace urbain. Tout le travail d'écriture consiste alors à jouer avec ces deux curseurs, qui peuvent engendrer différents types d'expériences.

LE JEU TRANSGRESSIF

Le premier type d'expérience est celui de la transgression de la norme dans l'espace public. L'idée d'utiliser *Messages Situés* comme un dispositif d'écriture artistique a été expérimentée pour la première fois à Villeneuve-lez-Avignon (avril 2012), à la Chartreuse, dans le cadre de la Sonde 04#12[9]. Elle proposait de confronter les arts de la scène (théâtre et arts dans l'espace public) avec le jeu vidéo. Plus précisément, il s'agissait d'éprouver les codes du spectacle au gré des pratiques du jeu vidéo. Dans ce dernier, la règle ne se révèle qu'au cours du jeu. Appelée *Dérive protocolaire* et préfigurant *Murmures Urbains*, la proposition de Orbe avait fait en sorte que les codes soient révélés par le dispositif lui-même, en entraînant le spectateur à jouer avec les normes sociales et le règlement du lieu. L'espace public est un espace régulé, mais aussi un espace variable où il est possible d'introduire un jeu avec la norme. Nous avons pu constater que l'invitation à la transgression, portée par les consignes audio, ne dépassait jamais le questionnement de la norme. Le spectateur n'ignore jamais la loi. Dans l'espace public l'immersion n'est pas un abandon. Elle se manifeste d'une autre manière. Néanmoins, à la Chartreuse, le spectateur a été plusieurs fois placé en position de performeur : avec *Messages Situés*, il est en son pouvoir d'interroger par son corps propre les rôles et les normes. D'un point de vue dramaturgique, le spectateur n'est plus émancipé par un spectacle qui l'entraîne dans un autre monde fictionnel. Il s'émancipe au sein même du monde existant en devenant

9 La Sonde 04#12, « Si loin si proche », Le jeu vidéo, la scène, la rue, conçue par Emmanuel Guez, en collaboration avec Christian Giriat, par le Centre National des Ecritures du Spectacle, la Chartreuse de Villeneuve-lez-Avignon, en partenariat avec la FAI_AR, l'Université de Paris 8, et co-financé par le FEDER et le LABEX H-2H. A la suite de cette proposition, plusieurs moments d'expérimentation ont été mis en ?uvre par Orbe : à Saint-Etienne (Université Jean-Monnet), à Montpellier (Kawenga), à Avignon (Ecole Supérieure d'Art d'Avignon), à Aix-en-Provence (Seconde Nature).

potentiellement lui-même performeur[10], en jouant avec la norme et les habitudes. Le contexte artistique de la performance est ici donné par la proposition et l'occasion par le dispositif.

LE JEU-IMMERSIF OU « LE JEU DE VERTIGE »

L'une des modalités d'écritures explorées dans *Murmures Urbains* consiste à établir chez le spectateur une relation d'empathie à l'environnement par le protocole. Par exemple, lors de l'expérimentation menée à Chalon-sur-Saône le spectateur a été peu à peu conduit dans une friche industrielle. A la fin du protocole, une consigne lui demandait de rechercher une bombe atomique. L'écueil de ce type est ici la chasse au trésor. Les retours d'expérience ont pourtant montré que les spectateurs avaient bien vécu l'exploration d'un territoire. À certaines conditions, un tel protocole renforce la dimension immersive de l'expérience.

Ces conditions sont les suivantes :

- le déroulement fluide du protocole, tendant à rendre invisible l'interface (du smartphone),
- la pertinence des consignes au regard de leur situation,
- le maintien du spectateur dans un état de conscience le moins réflexif possible (semblable au vertige),
- la neutralisation de la projection de la conscience.

En neutralisant la capacité à se projeter, on induit un effet de présence et une attention accrue de la part du spectateur. Ce protocole favorise le développement d'une empathie avec l'environnement urbain. Le parcours est alors relativement maîtrisé par l'auteur des consignes. Mais, le spectateur peut ici penser que la voix cherche à le manipuler (« à le transformer en cobaye »). Pour éviter ce sentiment, le travail d'écriture consiste à concentrer la consigne sur l'action tout en laissant libre cours à l'interprétation du sens que peut prendre cette action. Ce type de protocole peut être complémentaire d'une écriture visant la transgression. Il est dans tous les cas idéal pour provoquer un rapport non-utilitaire et a-projectif au monde. Le spectateur peut ainsi jouer à se perdre, à se laisser porter : à mettre en sommeil le mécanisme naturel de

10 Emmanuel Guez, Christian Giriat, Xavier Boissarie, « Le spectateur-joueur : une mutation du spectateur par le code », in *Transhumanités, Fictions, formes et usages de l'humain dans les arts contemporains*, direction I. Moindrot et S. Shin. Paris : L'Harmattan, 2013.

projection et d'orientation pour expérimenter une autre façon d'être au monde.

LE JEU SUR LES EFFETS DE BORD

Il existe un troisième type de protocole, écrit avec des consignes impliquant une plus grande marge d'interprétation. Par exemple, à Chalon-sur-Saône, un protocole proposait de répéter des contenus audio dans l'espace public, à voix haute, en chantant, etc... Le spectateur y était préparé par une certaine mise en scène. La dramaturgie est venue ici compenser une offre immersive beaucoup plus fragile. Le spectateur est en effet dans ce cas davantage un interprète qu'un performeur. Les contenus audio revenaient en ritournelle, ce qui ne manquaient pas de susciter l'interrogation du spectateur. Dans ce type de protocole, l'action et le parcours du spectateur sont assez peu maîtrisés. Le risque d'égarement par rapport au parcours prévu est élevé. Ainsi, lors d'une sortie de résidence à Aix-en-Provence, un spectateur qui devait suivre quelqu'un en costume a réalisé un parcours d'une heure trente au lieu des vingt minutes prévus par l'auteur des consignes.

Dans ces protocoles, la dimension réflexive et calculatrice est renforcée mais d'une manière particulière. Par comparaison aux autres types d'expériences, c'est celle qui provoque le moins d'empathie à l'environnement et aux autres. Ces protocoles conduisent le spectateur à effectuer un va-et-vient entre les consignes et la réalité perçue. Le spectateur est alors contraint de développer des stratégies pour faire fonctionner le protocole. Ici, le jeu ne se situe pas à l'intérieur d'un système de règles fermées (une « axiomatique » en quelque sorte), mais dans ses effets de bord, entre la réalité objective et la réalité immersive. Pour poursuivre l'immersion, le spectateur doit se replacer de temps en temps dans une attitude intentionnelle, rationnelle et perspectiviste. Le plaisir du jeu réside ici justement dans le va-et-vient entre le non-jeu et le protocole.

LA POST-NARRATION ET L'ESPACE DE LA REPRÉSENTATION

Murmures Urbains ne propose pas un dispositif scénarisé. Ainsi, le spectateur traverse une succession de situations qui composent son histoire, au gré de l'interprétation qu'il a donnée aux consignes reçues. La « trame » et l'écriture de la pièce n'arrivant qu'à la fin, la captation

devient un enjeu important et une problématique: comment capter l'expérience sans la perturber? Quel point de vue adopter? Comment, au-delà de sa dimension informative sur le dispositif lui-même, rendre compte de ce récit au public?

A Aix-en-Provence, en octobre dernier, nous avions proposé au spectateur de nous raconter son histoire après l'expérience. Les notes écrites directement au moment même de l'entretien constituaient alors le texte de la pièce. Il s'agit là d'un renversement dramaturgique dans le processus d'écriture du texte. Contrairement au théâtre de la convention, le texte est écrit après la pièce et non avant. Elle n'existe pas avant d'être joué par le spectateur lui-même. Enregistrant par écrit le récit du spectateur, l'écrivain agit en quelque sorte comme un écrivain public et le spectateur partage ainsi l'écriture de sa pièce avec l'auteur des consignes.

Au mois de février de cette année, à Chalon-sur-Saône, le choix s'est davantage porté sur des captations vidéo. Certaines d'entre elles étaient subjectives (avec une caméra Go-Pro). Nous avons également demandé aux spectateurs (comme à Aix-en-Provence) de dessiner leurs parcours. La comparaison des dessins, des vidéos et des parcours géolocalisés fera l'objet d'une prochaine publication. Enfin, les apprentis de la FAI_AR ont tenté de capter systématiquement le récit audio des spectateurs. La question de l'espace de captation s'est évidemment posée. L'option retenue a été de capter les récits dans l'espace théâtral.

C'est ainsi que naturellement, l'espace de la post-narration est devenu l'espace de la représentation. Au retour de leur expérience, les spectateurs se croisaient sur une scène de théâtre, avec les artistes qui recueillaient leurs paroles. Sur le plateau, les voix s'entremêlaient, produisant ainsi une véritable création sonore. L'espace fermé du théâtre était devenu l'espace de production d'un environnement sonore, composé des récits des spectateurs. Dans ce lieu où la voix de la textualité se doit conventionnellement d'être claire, les murmures de la ville redevenaient ainsi multiples, mêlés et indifférenciés.

Bibliography

O'Rourke, Karen. *Walking and Mapping, Artists as Cartographers*. Cambridge : The MIT Press, 2013.

Emmanuel Guez, Christian Giriat, Xavier Boissarie, « Le spectateur-joueur : une mutation du spectateur par le code », in *Transhumanités, Fictions, formes et usages de l'humain dans les arts contemporains*, direction I. Moindrot et S. Shin. Paris : L'Harmattan, 2013.

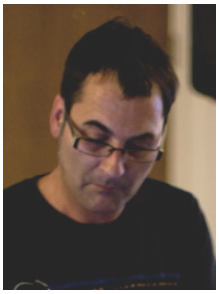
Biographies

Emmanuel Guez is an artist, philosopher, teacher and curator. Crossing networked art with textuality, fixed and/or moving images, theater or the public space, his work explores contemporary changes of identity and language as well as the effects of the digital environment on writing. His research focuses on the "name" issue (anonymity pseudonymity, heteronymy ...), writing machines and writing as a performative act. Most of his productions are realized in collaboration with other artists. He is currently in charge of the research projects at the École Supérieure d'Art d'Avignon. He is founder member of the PAMAL (Preservation and Archaeology Media Art Lab).

Xavier Boissarie. Digital practitioner for 15 years, Xavier Boissarie is away from the immaterial dimension attached to this field to approach the embodied experience. His approach of mobile media in an attempt to hybridize tangible and digital spaces in different ways: the foreshadowing of practical experience in an analog simulation, the capture and feedback of soundwalks through dynamic and interactive cartographic representations or the deployment of located content accessible with a mobile terminal. Xavier Boissarie has assembled a team of game-designers, engineers and artists in Orbe.

SESSION 2 : Mobile Microphones and Remote Listening Wednesday April 16th

Moderators : Laurent Di Biase & Jérôme Joy



Jérôme Joy (FR)

Lecture, Session nr. 2

We shape the environnement that shapes us. What we discern as an auditorium and a listening space is now overlapping the specific physical structures and architecture towards enlarged sensory enveloping forms. We need to explore and to consider a larger auditorium we're modulating and playing.

VISITING, WEAVING, AND MODULATING SONIC EXPANSES AND RYTHMS — TUNING, IMPROVISATION, AND ENVIRONMENTAL AESTHETICS

VISITER, TRAMER ET MODULER DES ÉTENDUES ET RYTHMES DANS L'ENVIRONNEMENT SONORE — SYNTONISATION, IMPROVISATION ET L'ESTHÉTIQUE ENVIRONNEMENTALE

Jérôme Joy
artist, researcher, teacher
École Nationale Supérieure d'Art de Bourges, Locus Sonus
PhD student Laval University Quebec (CAN)
http://locusonus.org/
http://jeromejoy.org/
joy@thing.net

Abstract :
We shape the environment that shapes us. What we discern as an auditorium and a listening space is now overlapping the specific physical structures and architecture (concert halls, venues, etc.) towards enlarged sensory enveloping forms. It appears as a hybridisation of actions and spaces where tactics such as collective-driven, individual weavings, embedding mobility and spaces/places visits, and so on each contribute to the everyday experience. When we collaborate and oscillate with the environment, within mobility, by modulating and interacting with sonic expanses and continuities of the properties of the places, the experiencing of a spatial and acoustic space is still characterised and assessed by the perception and the feeling of a 'certain' homogeneity and intermediacy, and of a co-presence to 'something' or 'someone': that defines an action of tuning with that is radiating and coming to us. It is not merely a question of placings and of trajectories of isolated presences and bodies in space and immersed together or lonesome into an environment (visual, sonic, animated, landscape, ambiance, venue, concert hall, at

home, with earphones, etc.). It is to listen more than what we hear. It is continuous and immediate actions of attention, in mobility or mobilised, of lithe, flexible, and absentminded exchanges and weavings with the fields of the sensible and with mobile / immobile reality (the moves, the rythms, and also the oscillations between the « possible » and the « real »). That corresponds to aesthetic, experiential situations, creative and participative spatialisation experiences. We need to explore and to consider a larger auditorium we're modulating and playing.

Résumé :
Nous façonnons le monde qui nous façonne. Ce que nous distinguons en tant qu'auditorium et espace d'écoute dépasse aujourd'hui les architectures et structures spécifiques (les salles de concerts par exemple) et permet d'envisager ces notions et les pratiques qui les animent dans des dimensions de l'ordre de formes enveloppantes sensitives et perceptives. Ces aspects et ces opérations présents dans nos expériences quotidiennes, c'est-à-dire dans des mobilités continuelles, couvrent une certaine hybridité comprenant à la fois nos actions et la perception d'espaces. Ils apparaissent comme des nœuds et des tactiques de cheminements, de visites et de trajets à la fois conduits collectivement (avec les co-présents) et individuellement (se frayer un rythme dans une polyrythmie environnante). Quand nous collaborons et ainsi oscillons avec l'environnement, au sein de la mobilité, par les modulations et interactions avec les étendues sonores (les sons qui viennent vers nous) et les continuités perçues dans les lieux traversés, faire l'expérience d'un espace acoustique reste caractérisé et évalué par la perception et le "sentir" d'une certaine homogénéité et intermédiarité, et d'une co-présence à quelque chose ou à quelqu'un : ceci définit les actions de syntonisation avec ce qui rayonne et vient vers nous. Il s'agit moins d'une question de positions, de placements et de trajectoires de présences et de corps isolés ou immergés ensemble dans un environnement (visuel, sonore, animé, paysage, ambiance, salle, ou encore dans une écoute domestique ou ambulatoire équipé d'un casque d'écoute). Il s'agit d'écouter plus que ce qu'on entend. Ce sont des actions continues et immédiates d'attention, dans la mobilité ou en étant mobilisé, aux échanges et tramages souples, flexibles et distraits avec le sensible et avec la réalité mobile / immobile (les mouvements, les rythmes, et également les oscillations entre le "possible" et le "réel").
Ceci correspond à des situations esthétiques et expérientielles et à des expériences participatives de spatialisation. Nous avons besoin d'explorer et d'envisager un plus large auditorium que nous modulons et jouons.

1. Introduction

My research since few years focuses on the notion of 'auditorium' and how it cannot remain untouched and unscathed in a digital and networked age, i.e. that we have to explore the subtle difference between what is 'producing' an auditorium and what 'is' an auditorium. What we discern as a listening space for production and reception of music and for sound propagation in space and in time is now overlapping the specific physical structures and architecture (concert halls, venues, esplanades, etc.) towards enlarged and invisible sensible & sensory enveloping forms beyond of the perimeters of our sensorium and perception: from environmental milieux, ambiances, atmospheres and membranes to internet auditoriums and larger invisible listening structures, as transparent and emerging as they are.

We have to examine those 'spaces': their architectural filiation with places and rooms, their

plasticity and ductility for being built, planned, settled and landscaped for listening, their ability to locate and seize listeners and to be explored by sound productions designed to be listened to. It would be interesting to explore hidden forms of sound and musical structuring. That is why the author is opening several assumptions crossing both musical and sound production and 'manufacturing' (music composing, interpreting, playing), reception and perception (the listening), the presence and co-presence in the spaces and places for audiences, sociotechnical arrangements that allow interconnections between these actions, operations, and members of an audience, all being perceived as coherent, seamless, and homogeneous (that is producing an 'auditorium').

Actually, along my various studies, it appears that the listener and an audience are always participating to the sound propagation and to the listening place whatever the design and nature of what we distinguish as an auditorium. The act to listening is to activate and to listen to a space and to be conscious of the space around. This research involves what the author considers as an extended music for expanded and expanding auditoriums (idiomatic music for correlated and 'tuned' spaces and for attuned members of audiences to a homogeneous and co-constituted set, as virtual and intangible as it is, in which they feel to be co-present and to participate 'in space' and 'in time') and the expected development of a music 'by' environment, based on and structured by impact and feedback of spaces: when music and environment are intermingled, collaborate together, and both oscillate. Thus such as attuned listeners we could explore an idiomatic music and new aesthetic experiences both based on properties of sound propagation in acoustic networked, tuned and connected spaces.

You may understand that the notion of mobility is not at the very core of my research. But because the auditorium could be considered as perceived spaces where sound is propagating with some constraints and for obtaining certain (acoustic and aesthetic) effects, and because its structure has continuously moved along the music history and the history of architectural listening buildings from rooms where listeners are maintained in a certain disposition (body, attention, and so on) to spaces where the audience can move, choose a listening point, trajectory or itinerary and visit the space, plasticity and ductility are new aspects of what we understand and consider as an 'auditorium'. Thus questions involved in the notion of mobility (of the audience, of members of the audience, of elements of the space) certainly imply modifications of aspects of these auditoriums. To landscape an auditorium, beyond the boundaries of our

sensorium, requires to map, sound and probe a space, a milieu, an environnement, and a combination of spaces dedicated to the listening and to organisations and interactions between listeners. For my today presentation and in order to test the question of mobility in the listening, I'll rely on three examples: Akio Suzuki's works, Hugh Davies's and Karlheinz Stockhausen's approaches about intuitive music, and a brief approach of the environmental aesthetics about 'grasping' the environment or a fluctuating element into an environment. This study is exploratory in nature and not very stable, but maybe it can open some assumptions about the topic of this symposium.

2. Visiting and weaving within sonic expanses

Akio Suzuki as a Japanese composer, artist and inventor of instruments, is interested in the use of the echo phenomenon that gives us a strong sense of place. His performance works play with richly layered and simple resonances, delays, echoes and overtones that emerge “as a sound exploration of the environment based on the progressive acceptance of natural melodic phenomena”[1]. While discovering new methods of listening, he's exploring various processes of “throwing” and “following” based on the principles of call and echo for an investigation of places by constructing a topography of sound, and “taking the natural world as his collaborator” (Suzuki).

“The echo is the perfect example of the temporal continuum of nature. An echo brings the actions of the past into the present (for what is an echo but the mountains responding through repetition?), but also prepares for the future. It is a type of being-in-the-moment, which contains all sonic time.”[2]

Since 1996, Suzuki is developing a specific work based on listening: *Oto-date* (echo point or listening point). These works, without using sound conceived by Suzuki, or while being 'soundless', question both sound perception and musical situation: how past and mundane experiences of members of the audience could reconstruct new experiences in the now? Akio Suzuki’s *Oto-date* plate marks and draws attention to a special place (and chosen spaces of transit) for listening in nature, urban space, or a building, and finally focuses on listening to everyday situations. The *Oto-date* plate shows a pictogram of human footprints and ears: the

artist proposes and plans a route by designating and selecting 'audial' points located at places with extraordinary acoustic and atmospheric features that invite the visitor to listen to. These works join other works by Max Neuhaus (*Listen*, 1966-68) and Peter Ablinger (*Listening Piece in four parts*, 2001). The passers-by are invited to discover a new sensation, perception and emotion, and finally a new way to inhabit, affect and perceive the surrounding space-time continuum, by staying, in an unusual attitude, for some time motionless in a specific location. This intimate understanding of the place puts our body at the crossing of sonic expanses that propagate to us and are within our reach, and such as a component of a moment and a structure of the environment.

"Nature was my teacher. I would immerse myself in the surrounding environment and play around with natural sound phenomenons. For example, I would go to the mountainside or shout across the valley and listen to the way the sound came back. My interest in natural echoes then led me to start thinking about an instrument that could also create that kind of sound."[3]

A few years ago, I had the opportunity to follow and to participate in a sound performance by Akio Suzuki during a festival on an island near Hong Kong. A part of this festival took place in a bay of the island surrounded by mountains and a lush vegetation: Tung O on Lamma Island. Suzuki has proposed a collective soundwalk, such as a procession or a wandering, starting from the shore to the mountainside through dense forest passages. I wrote in a former article some descriptions concerning out-in-the-open music comparing to "shakkei", a analogical way of gardening the listening and weaving in sonic environments[4]: The event by Suzuki is able to simultaneously alter our participation as listeners and our perception of what music is made of, between what it is to receive those played sounds and what it is that constitutes the played sounds themselves. Akio Suzuki creates wakes of sounds that we follow during an aimless stroll. Successive sounds of stones banged together by the performer reverberate as we walk on the more or less reflective surfaces of the environment, along the narrow path crossing a grass area, then a small hamlet of houses built close together then entering an emerging forest under a canopy. To play sounds while wandering across different spaces (and fluxes) involves the transmitted sounds successively lighting up echoing acoustics. Our wandering follows the furrow and "groove", without having to record or read a preliminary sound. It creates the impression of audio filtering as distances between transmission and reception increase and decrease, as sounds leave and then return from the surfaces of the spaces reverberated and reflected. In some

respects, this is reminiscent of the practice of ambulatory lighting as it stimulates and explores acoustic spaces thorough the soundscape. What is *already there* becomes real through our wandering movement and the distances we establish between things. The interpretation of these perceptible spaces, either occasionally or as something more regular, involves seizing the opportunity of the moment and the place, making what is *already there* manifests through its multiple fragments and variations, as if they were so many coloured and tinted planes and volumes. These kinds of perception profoundly and permanently alter the topography: the road and the landscape are more complex than they seemed to be at first. At the same time, we both lose our way and discover new landmarks. This art of manufacturing the space of remote listening encounters, by analogy, another art: *shakkei*. In Japanese tradition, *shakkei* (which literally means "borrowed scenery") refers to the subtle practice of gardening considered as a technique of perception, construction and interpretation of the reality (and of collaboration with the exterior world). It corresponds to what is called *mitate* ("see like") and, if taken into the acoustic field could be translated as *ototate* (a term surprisingly close to that of *Oto date*, which designates the listening station works by Akio Suzuki). This form and experience of listening, that we must direct, modulate and adapt ourselves, with intuition, improvisation and composition with the environment, will remain in all likelihood partial and wandering, yet which nevertheless has the capacity to profoundly altering our perception of our environments and, ultimately, the world itself while being in immersion into it. This process of manufacturing — effectively the establishment of an auditorium — collaborates with the environment and experiments with acoustic expanses, between strategies of minimum and maximum saturation and intensification of acoustic spaces ("merging into the surroundings"); it modifies, to repeat, our ways of perceiving and enables us to participate, evaluate and modulate "together" the very listening experience that is being constructed.

As Suzuki plays with the wind and echoing surfaces, and the sound qualities of places in nature and architectural spaces while being immersed in the surrounding environment, this example can help us to have a better approach of how we're playing with our milieux (towards a sort of mesology) and with co-presents perceived into these milieux.

Akio Suzuki, Oto-date	***Akio Suzuki, Oto-date, Torino, 2006***
Akio Suzuki, Oto-date, Torino, 2006	***Akio Suzuki, Oto-date, Torino, 2006***
Akio Suzuki, Oto-date, Sentier des Lauzes, 2004	***Akio Suzuki, Oto-date, Sentier des Lauzes, 2004***

Max Neuhaus, Listen, 1966-68	***Peter Ablinger, Listening Piece in four parts, 2001***

Akio Suzuki, performance, Tung O and Motat village, Soundpocket Festival, Hong Kong, 2009

3. Modulating into the environment

The way of modulating and syntonizing into an environment could correspond to ways of

improvising in music. For this and at the occasion of this article, I'm going to explore notions of intuitive music and environmental music as they were investigated by Stockhausen and Davies, specifically in *Mikrophonie I* realized in 1964-65 (a work based on sound exploration of an instrument). I discover by chance that Hugh Davies, an English composer who was musical assistant of Karlheinz Stockhausen, and was involved in several musical and art projects in the 70s and 80s (*Gentle Fire* (1968-76) — featured Davies, Richard Orton, Graham Hearn, Stuart Jones, Richard Bernhas and Michael Robinson —, *Naked Software*, *Music Improvisation Company* (1968-71), *Artist Placement Group*, *EMS Electronic Music Studio*), has realized a piece in 1974 which took place not so far from here: *Sounds Heard at la Sainte-Baume*. Very few documentation about that work is right now available and accessible (except in his book released in 2003 about home-made instruments and thus anticipating Nicolas Collins's book)[5], but by referring to recent papers by Julian Cowley and James Mooney, we can point out that Davies realized *Sounds Heard* in a very close way to Suzuki's performance at Tung O Beach and his Oto-date works:

"In July 1974 in southern France, English sound artist Hugh Davies [...] wrote Sounds Heard at La Sainte-Baume, a text comprising seven invitations to listen. One advocates standing on the highest mountain peak, listening to the shrill calls of swifts in their rapid convoluted flight. Another commends listening to the loud and varied songs of crickets. The seventh proposes listening to the echoes produced by two stones struck together, in regular rhythms at different speeds, in a small secluded valley high up in the mountains, surrounded by rock on all sides."[6]

One month ago, at the same place, and for the second edition of the festival organised by the Centre International de Sainte-Baume en Provence, Davies performed also (with Gentle Fire, and after the former shows in Liege on September 1972 and in La Rochelle in 1973) *Alphabet für Liege* by Stockhausen, a series of connected instrumental and vocal works about harmonization between music, humans and spaces.

At that time both Davies and Stockhausen were involved in environmental listening, improvisation and indeterminacy, new instruments, and audio art and installations. But my today interest would to focus on the notion of intuitive music first developed by Stockhausen[7] and re-interpreted by Davies. To examine intuitive music and its correspondences and differences with free improvisation could help us to distinguish manners of deliberated decisions and

participations based on interactions, synchronisations, and responses we're engaging with a evolving sonic environment, organisation and with co-presences. Briefly and without diving into details somewhat very interesting indeed, we could summarize the distinction between

- free improvisation that is based on personalities (of the individual performers) and on their respective background, training, and playing (and stylistic) technique, each one of them might use to react and interact with others and with forms and music that emerge;
-
- and intuitive music based on common sets of rules (as a "process plan" even if details are not described) followed and interpreted by everyone and by each personality in order to participate to the emerging form: to an "environment in which our own group musical personality has a chance to resonate."[8]

It's a question of balance between what is predictable and unpredictable, premedited and un-premedited. But what I want to point out is another difference we can find in intuitive music: the difference between a "process plan" (by the use of written rules, symbolic notations, or specific instrumental or technological configurations) and a "people process" (in such a way that the musical personalities of the constituent performers are allowed to shape the musical form as it emerges, using descriptions of the interaction and ensemble characteristics of playing together)[9].

Mikrophonie I by Stockhausen and works by Gentle Fire and Davies illustrate this distinction. "*Mikrophonie I* is a piece that involves six performers. Two performers strike, scrape, or otherwise excite the surface of a tam-tam—a large circular Chinese gong in this case 155 centimetres in diameter—using a range of beaters, bows and other implements. A further two performers have hand-held microphones which they move around throughout the piece, following detailed graphical instructions in the score that describe the distance between the microphone and the surface of the tam-tam, and the position of the microphone relative to the site of excitation. What the listener hears, then, is a combination of natural tam-tam sounds and sounds constantly modified through the dynamic use of microphones, filters and potentiometers. The overall purpose of the work, Stockhausen says, is to 'discover the micro-world of the acoustic vibrations, amplify it and transform it electronically'[10].

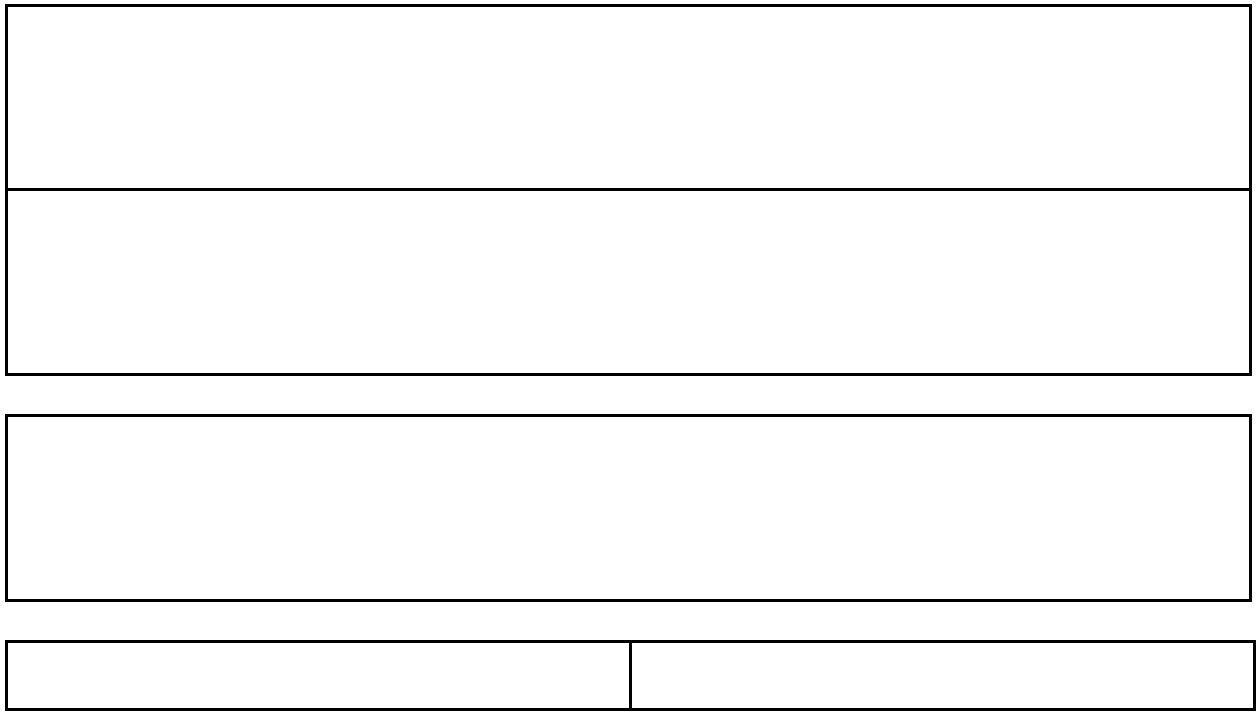
"Exploration of timbre with the mediation of microphones is also a characteristic central to Gentle Fire's *Group Compositions III* and *IV* (both 1971), which utilize custom-built

instruments. [...] This comprised three welded metal grid structures—like wrought-iron gates or oven grills—measuring about 1.5 meters squared[11]. These were suspended from a stand or from the ceiling, allowing the structure to resonate[12]. [...] The exploration of otherwise inaudible sound vibrations through amplification is, it turns out, a defining characteristic of many of Davies's self-built musical instruments."[13]

In *Mikrophonie I*, the microphone(s) is an instrument to probe and explore (with the help of a score) potentials of a space, an environment, and actions, and in Gentle Fire's and Davies's performances and works, the instrument is the score —thus following assertions by Gordon Mumma and David Tudor (Rainforest 1968-73, for instance): the circuit is the score—:

"*Group Compositions III* and *IV* use an instrument which we've all contributed to and built, and the instrument is the score of what we're playing." (Gentle Fire)

At this step, the question is: when we're modulating (intuitively, even if it's a complex task of trying of understand what it means in practice) by listening, individually or collectively, into an environment, how our decisions are vectorised or attracted by responses and interactions with the environment? And, in parallel, when does the environment become the score?



Hugh Davies, Shozyg, 1969	***Karlheinz Stockhausen, Mikrophonie I, Metz, nov. 1973***

Karlheinz Stockhausen, Mikrophonie I, 1966	***Karlheinz Stockhausen, Mikrophonie I, 1966***

4. Tuning the environment

Listening to an environment appears as an operation of hybridisation of actions and spaces in everyday experience with tactics such as collective-driven modulations in space and in time, embedding listeners' mobility and spaces/places visits, when the audience becomes the inverse of a crowd, and so on. Our assumption is that these operative processes of asynchronic & synchronic attachments to places, to moments and to the now, are landscaping a 'sensorium' while keeping characteristics of an 'auditorium' where arrangements of listeners are identifiable, recognizable and flexible. The experiencing of a spatial and acoustic space is characterised and assessed by the perception and the feeling of a 'certain' homogeneity and intermediacy, and of a co-presence to 'something' or 'someone': that defines an action of tuning with that is radiating and coming to us.

Our research about auditoriums (Internet auditoriums, Earth-Mars auditorium) is more based on actions and operations of synchronicities (synchronisation, de-synchronisation, re-synchronisation), of 'tuning' (in French: syntonisation), and of temporal organisation and (architectural) structuring, than on descriptions of the chaining of spaces and times such as a factual extension of our listening places and mobility. Thus these operations we're already acting into our current and existing ways to listening to music and to everyday and mundane sound environments in ordinary experience and situations, rely on actions of modulations and of listening positions and dispositions face to emerging sonic states and dynamics (and also used in urban planning, architectural acoustics and in most of loudness-based music works): filtering (with our bodies and by moving according to sound reflections on surfaces), masking (hidden

and emerging sounds because of their simultaneity), cut out effects (transition from an ambience or an atmosphere to another one), amplification (the strengthened sounds for increasing their propagation in comparison to background noise and a sonic ambiance), partial listening (by selecting into seemingly unlimited and unceasing sonic processes and productions), listening by wake (by following specific sonic dynamic appearances and rythms into an environment), and so on. It is not merely a question of placings and of trajectories of isolated presences and bodies in space and immersed together or lonesome into an environment (visual, sonic, animated, landscape, ambiance, venue, concert hall, at home, with earphones, etc.). It is to listen more than what we hear. It is continuous and immediate actions of attention, in mobility or mobilised, of lithe, flexible, and absentminded exchanges and weavings with the fields of the sensible and with mobile / immobile reality (the moves, the rythms, and also the oscillations between the 'possible' and the 'real'). This occurs in the followup adaptations into the moving[14] (by sympathy, by intuition, inadvertently and unintentionally, by anticipation, etc.)[15] —that reminds our development about intuitive music—, and in the dynamic constructions by the perception and the interpersonal interactions and those with the outer[16].

The production of continuities (there is no more separation between us and the outside[17]) is persistent and remanent. That corresponds to aesthetic, experiential situations, creative and participative spatialisation experiences. We're acting into our environments (and interacting with them) and we're engaging at any time and everywhere aesthetics experience[18]. In a larger sense these characteristics could imply notions of environmental aesthetics and of ambient aesthetics.

“[W]e discover in the aesthetic perception of environment the reciprocity, indeed the continuity of forces in our world — those generated by human action and those to which we must respond. [...] Person and environment are continuous. […].” [19] [20]

Similarly, we could say that, in perception, we are shaping the world that shapes us. By our moves and our listening we're filtering and modulating and tuning with the sonic environment constituted by sound expanses (that come and flow toward us, and that we continuously cross and criss-crossing) even if they are coming from remote or absent sources. At the same time we're tuning 'idiorrythmically'[21] with other listeners and actors who we perceive the co-presence of in space (togetherness).

This series of studies included those of Thibaud, Böhme and Berleant (among others) gives us the scope and the magnitude of such a chaining of questions related to the reality

manufactured by our perception and to our understanding of and reactivity facing the outer world by listening.

The notion of 'ecotone'[22], as an interstitial space for expanses and and if we transpose this term in acoustics and sound research fields, relies on two principles: that of continuity (recurrences, structural aspects, organicity) and that of discontinuity (fortuitous events, unexpected saliences, signal losses and cuts), that both operate on our listening (to music or to environments or to background noise). As we have seen, the sense of 'tuning' and of modulation in space and time from us as listener(s) is relying on our reaction to and interaction with (and our perceptions of) formal and informal lines or elements into sound environments and a fortiori in music (this is relevant in experimental music, for instance: improvisation music, noise music, generative music, etc.). That joins other in-progress studies the author is leading related to music based on sound intensity (loudness), delay and decay —that will surely open reflections on the use of duration in music or better to say on music listening duration and music production that does not corresponding to music duration, as an attempt to approach a music constituted by interactions and modulations with, and immersions into the environment — that the author considers as 'extended music' (or music for sonic expanses)[23].

Finally this also concerns music collaborations with environments beyond today's current practice of field recordings and of phonographies in order to heighten other facets of aesthetic experience with music and listening. That is, to modulate and oscillate with the surroundings and audio streams for having a more sensitive experience without predication, expectation and preferences into a vast sonic space[24] — instead of always being based on 'events' vs 'non-events' distinction and inventory (of what exists in space and in places and bore by a discourse on space and by representational conception) and on naturalism and realistic perspectives (vs noise, density and saturation). Our perceptions of background noise and sonic scenery are certainly essential comparing sound saliences and figures that we distinguish and separate as 'events' and sonic signals. Actually these perceptions often neglected (in music for instance) help us to better 'sense' the space around us — as if the space was 'musicalised' and continually offered aesthetic experiences (physical, social, situational, contextual, environmental, etc.). We experience the fact to be a part of the environment: how our bodies are immersed into the environment (and blend into the background) and how our systems combine and collaborate with it. The ruggedness of space (present in its responses and animation, and in intensity and density thereof)

combined with its ductility (mobile and evolving shapes and forms) and with its capacity to accommodate and to feed fortuitous, incidental and temporary sounds, provides occasions of production of this sense/ation that could be interesting to compare it with (musical) emotion we feel, beyond any effect of expression. It provides also occasions for an idiomatic music: a work 'by environment' , i.e. a work that collaborates with it and whose elements and conditions is dependant on interactions with and responses from the environment(s), the context, the milieu, and the (eco)-system(s) that generate it. Our listening spaces are less places of contemplation than places of participation in, of action and engagement into, and of improvisation with these surroundings (as an aesthetic and artistic involvement).

Bibliography

Augoyard, Jean-François. “Vers une esthétique des ambiances” (Towards an Aesthetics of Ambiances). In *Ambiances en débats (Ambience in debate)*, edited by Pascal Amphoux, Jean-Paul Thibaud and Grégoire Chelkoff, 17-34. Bernin: La Croisée, 2005.

Augoyard, Jean-François. “Vers une esthétique des ambiances” (Towards an Aesthetics of Ambiances). In *Ambiances en débats (Ambience in debate)*, edited by Pascal Amphoux, Jean-Paul Thibaud and Grégoire Chelkoff, 17-34. Bernin: La Croisée, 2005.

Augoyard, Jean-François and Henry Torgue. *À l'écoute de l'environnement. Répertoire interdisciplinaire des effets sonores*. Marseille: Éditions Parenthèses, 1995.

Barthes, Roland. *Comment vivre ensemble: Cours et séminaires au Collège de France, 1976–1977 (How to Live Together: Classes and seminars from the College of France, 1976–1977)*. Edited by Claude Coste. Paris: Seuil/IMEC, 2002.

Barthes, Roland. *How to Live Together: Novelistic Simulations of Some Everyday Spaces.* Translated by Kate Briggs. New York: Columbia University Press, 2012.

Bergson, Henri. *La Pensée et le Mouvant* (1938) (The Creative Mind). Paris: Quadrige / Presses Universitaires de France, 1998.

Bergson, Henri. *The Creative Mind : an Introduction to Metaphysics*. Translated by Mabelle L. Andison. Mineola, N.Y.: Dover Publications, 2007.

Berleant, Arnold. *The Aesthetics of Environment.* Philadelphia: Temple University Press, 1992.

Berleant, Arnold. "Ideas for a Social Aesthetic." In *The Aesthetics of Everyday Life*, edited by Andrew Light and Jonathan Smith, 23-38. New York: Columbia University Press, 2005.

Berleant, Arnold. "What Music Isn't and How to Teach It." *Action, Criticism, and Theory for Music Education* 8 (1) (2009): 54-65.

Blesser, Barry and Linda-Ruth Salter. *Spaces speak, are you listening? Experiencing aural architecture.* Cambridge MA: MIT Press, 2007.

Böhme, Gernot. "Acoustic Atmospheres: A Contribution to the Study of Ecological Aesthetics." *Soundscape: The Journal of Acoustic Ecology* 1 (1) (2000): 15.

Böhme, Gernot. "The art of the stage set as a paradigm for an aesthetics of atmospheres." Paper delivered at the international Conference Understanding Atmospheres - Culture, materiality and the texture of the in-between, University of Aarhus, Denmark, March 16-17, 2012. Accessed March 7, 2014. http://conferences.au.dk/fileadmin/conferences/Understanding_Atmospheres/abstracts.pdf and http://ambiances.revues.org/315.

Brady, Emily. "Environmental Aesthetics." In *Encyclopedia of Environmental Ethics and Philosophy*, Vol. 1, edited by J. Callicott and Robert Frodeman, 313-321. Detroit: Macmillan Reference USA, 2009.

Chafe, Chris. Network Delay Studies, and Internet Acoustics: series of papers. Accessed March 14, 2014. https://ccrma.stanford.edu/~cc/shtml/research.shtml

Collins, Nicolas. *Experimental Music*. BA Thesis. The Honor College, Wesleyan University, 1976. Accessed on March, 14, 2014. http://www.nicolascollins.com/texts/Collins_BA_thesis.pdf

Collins, Nicolas. Pea Soup (1974; revised 2002-2011), series of papers (instructions, history, etc.). Accessed on April 14, 2014. http://www.nicolascollins.com/aboutpeasoup.htm

Collins, Nicolas. *Handmade Electronic Music: The Art of Hardware Hacking*. Abington: Routledge, Taylor & Francis Group, 2006.

Collins, Nicolas. *Composing Inside Electronics*. PhD Thesis, University of East Anglia, 2007. Accessed on March 14, 2014. http://www.nicolascollins.com/texts/Collins_BA_thesis.pdf

Cowley, Julian. "Annotations for Sound Art." p. 1. 2003. Accessed on April 13, 2014. http://www.diapasongallery.org/texts.html

Davies, Hugh. "Gentle Fire: An Early Approach to Live Electronic Music." Leonardo Music Journal, vol. 11, 53–60, 2001.

Davies, Hugh. *Sounds Heard: A Potpourri of Environmental Projects and Documentation, Projects with Children, Simple Musical Instruments, Sound Installations, Verbal Scores, and Historical Perspectives*. Chelmsford: Soundworld Publishers, 2002.

Gallet, Bastien. *Composer des Étendues – L'art de l'installation sonore (Sonic Expanses Composing – The Art of Sound Installation)*. Collection "n'est-ce pas" n°4. Genève: Éditions École Supérieure des Beaux-Arts de Genève, 2005.

Gentle Fire. Radio interview, 'Music in our Time', recording of BBC Radio 3 broadcast, 1973. Hugh Davies Collection, C1193/35.

Joy, Jérôme. "Une Époque Circuitée — Réflexion sur l'organologie des arts en réseau: le passage de l'Internet à un état musical" (A Circuited Era — About an organology of networked art: The Internet as a musical space). *Intermédialités - Histoire et Théorie des Arts, Lettres et des Techniques, Programmer* 13 (2010): 57-76.

Joy, Jérôme. "Musique à Niveau Sonore Élevé – Musique-Environnement" (Loud Sound & Music Structures Into Environment and Space). Last modified August 26, 2013. Accessed September 9, 2013. http://jeromejoy.org/w/index.php?page=NOISEhigh.

Joy, Jérôme. "Introduction à une Histoire de la Télémusique" (Introduction to a History of Networked Music Performance). Accessed September 9, 2013. http://jeromejoy.org/w/index.php?page=PubliTelemusA2010.

Joy, Jérôme. "Anté-Bruit — Composer le Tout-Audible" (Pre-Noise — Composing the All-Audible). Last modified December 8, 2013. Accessed December 19, 2013. http://jeromejoy.org/w/index.php?page=PubliAnteBruit2013.

Joy, Jérôme. "Les Étendues Sonores — Auditorium Terre-Mars" (Sonic Expanses — Earth/Mars Auditorium). In *Soundspace – Soundscape — Espaces, Expériences et Politiques du Sonore*, Proceedings CNRS colloquium, edited by Claire Guiu and Marie-Madeleine Mervant-Roux, ESO Espaces & Sociétés Université de Nantes and Université de Rennes. Rennes: Presses Universitaires de Rennes, 2013. (forthcoming)

Joy. Jérôme. "Synema : Expanses through Connected Environments." In Proceedings of the International Conference « Remote Encounters : collapsing spaces and temporal ubiquity in networked performance », edited by Garrett Lynch, University of Glamorgan - Cardiff - Wales (UK), published by Liminalities, A Journal of Performance Studies, Vol 10, Nr. 2, May 2014. (forthcoming)

Joy. Jérôme. "Auditoriums Étendus et Espaces Raccordés." In Proceedings of the Conference « Nouveaux Territoires », Bourges, 9-10 April 2014, revue Prospective et Stratégie, 2014. (forthcoming)

Kaye, Lewis. "The Silenced Listener: Architectural Acoustics, the Concert Hall and the Conditions of Audience". Leonardo Music Journal: 22, 63–65. 2012.

Kennedy, Chris. "Akio Suzuki asks us to stop and to listen to the world." Musicworks, issue 115, Spring 2013. Accessed on April 13, 2014. https://www.musicworks.ca/featured-article/featured-article/akio-suzuki

Lefebvre, Henri. *Éléments de rythmanalyse: Introduction à la connaissance des rythmes (Rhythmanalysis: Space, time and everyday life)*. Paris: Éditions Syllepse, 1992.

Lefebvre, Henri. *Rhythmanalysis: Space, time and everyday life.* Translated by Stuart Elden and Gerald Moore. New York, London: Continuum International Publishing Group, 2004.

Lopez, Francisco. "Profound Listening and Environmental Sound Matter." In *Audio culture. Readings in modern music*, edited by Christoph Cox and Daniel Warner, 82-87. New York: Continuum, 2004.

Lopez, Francisco. "An artist of the auditory sounds off on the world of sounds." Accessed September 24, 2013. http://www.redbullmusicacademy.com/lectures/francisco-lopez--technocalyps-now?template=RBMA_Lecture%2Ftranscript.

Maconie, Robin. *Stockhausen, Lectures and Interviews, compiled by Robin Maconie*. p.87. Londres-New York: Boyars, 1989.

Mooney, James. "Technology, Process and Musical Personality in the Music of Stockhausen, Hugh Davies and Gentle Fire." In *The Musical Legacy of Karlheinz Stockhausen*, ed. by I. Misch & M. Grant, 2013-14.

Nyman, Michael. *Experimental Music: Cage and Beyond*. p.6. Cambridge: Cambridge University Press), 2nd edition, 1999.

Oliveros, Pauline. *Sounding the Margins: Collected Writings 1992-2009*. Lawton Hall, ed. Kingston, New York: Deep Listening. 2010.

Oliveros, Pauline. "Echoes from the Moon." Accessed September 9, 2013. http://www.orbit.zkm.de/?q=node/409.

Rebelo, Pedro. "Netrooms The Long Feedback, a participatory network piece." Accessed March 14, 2014. http://netrooms.wordpress.com/

Rebelo, Pedro. "Nethalls." Accessed March 14, 2014. http://pedrorebelo.wordpress.com/2009/11/25/performance-of-nethalls-hamburg/

Schütz, Alfred. "Making music together : a study in social relationship." In *Collected Papers II. Studies in Social Theory,* edited by A. Brodersen. Dordrecht, 159-178. The Netherlands: Martinus Nijhoff Publishers, 1964. First published in *Social Research,* 18 (1) (March1951): 76-97.

Seel, Martin. "Aesthetic Arguments in the Ethics of Nature." *Thesis Eleven* 32 (1992) 76-89.

Stockhausen, Karlheinz. "Intuitive Music." In *Stockhausen, Lectures and Interviews, compiled by Robin Maconie*. 112-25. Robin Maconie (ed.). Londres-New York: Boyars, 1989.

Straus, Erwin. “The Forms of Spatiality” (1930). In Erwin W. Strauss, *Phenomenological Psychology: The Selected Papers of Erwin W. Straus, t*ranslated, in part, by Erling Eng, 3-37. New York: Basic Books, 1966.

Tanaka, Atau and Kasper T. Toeplitz. “The Global String”. Accessed March 14, 2014. http://ataut.net/site/Global-String
Tanaka, Atau and Bert Bongers. “Global String – A Musical Instrument for Hybrid Space”. Paper delivered at the international Conference cast01 // Living in Mixed Realities, Conference on artistic, cultural and scientific aspects of experimental media spaces, Sankt Augustin (Bonn, Germany), September 21-22, 2001. Accessed March 14, 2014. http://netzspannung.org/version1/cast01/index.html ; and also: Accessed March 14, 2014. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.5.9050&rep=rep1&type=pdf
Tansley, A.G. “The use and abuse of vegetationnal concepts and Terms.” *Ecology*,16 (3) (1935): 299.

Thibaud, Jean-Paul. “De la qualité diffuse aux ambiances situées” (The diffused quality of ambient places). In *La croyance de l'enquête : aux sources du pragmatisme,* edited by Bruno Karsenti and Louis Quéré, 227-253. Collection “Raisons Pratiques”. Paris: Éditions de l’EHESS, 2004.

Thibaud, Jean-Paul. “La Ville à l'Épreuve des Sens” (The City through the Senses). In *Écologies urbaines : états des savoirs et perspectives*, edited by Olivier Coutard and Jean-Pierre Lévy, 198-213. Paris: Economica Anthropos. 2010.

Thibaud, Jean-Paul. “The Sensory Fabric of Urban Ambiances.” *The Senses & Society* 6:02 (2011): 203-15.

Thibaud, Jean-Paul. “The City through the Senses.” *Cadernos PROARQ 18, Revista de Arquitetura E Urbanismo do PROARQ*. Post-Graduate Program in Architecture from FAU-UFRJ, Faculdade de Arquitetura e Urbanismo, Universidade Federal do Rio de Janeiro. 2012. Accessed March 12, 2013. http://www.proarq.fau.ufrj.br/revista/public/docs/Proarq18_TheCity_JeanThibaud.pdf.

Thibaud, Jean-Paul. “Petite Archéologie de la Notion d'Ambiance” (A little archaelogy on the notion of ambiance). *Communication* 90 (2012): 155-74.

Footnotes :

1. http://www.bv33.org/, Borgovico33, Como (Italia), 2006. Accessed on April 13, 2014.

2. Kennedy, "Akio Suzuki asks us to stop and to listen to the world."

3. Suzuki, interviewed by Millie Walton, AV Festival 14 Extraction, Newcastle, March 2014, http://www.port-magazine.com/music/av-festival-14-extraction-akio-suzuki/ ; http://www.avfestival.co.uk/programme/2014/events-and-exhibitions/akio-suzuki-otodate-newcastle .

4. Joy, "Extended Music – Out in the Open," 2010; "Auditoria and Audiences," 2009.

5. Davies. *Sounds Heard: A Potpourri of Environmental Projects and Documentation, Projects with Children, Simple Musical Instruments, Sound Installations, Verbal Scores, and Historical Perspectives*; And also: Collins, *Handmade Electronic Music: The Art of Hardware Hacking.*
6. Cowley, "Annotations for Sound Art."
7. Stockhausen, "Intuitive Music."
8. Gentle Fire. Radio interview, 1973.
9. Mooney, "Technology, Process and Musical Personality in the Music of Stockhausen, Hugh Davies and Gentle Fire."; And also: Nyman, *Experimental Music: Cage and Beyond*. p.6.
10. Maconie, *Stockhausen, Lectures and Interviews, compiled by Robin Maconie*. p.87; And also: Mooney, Ibid.
11. Gentle Fire.Radio broadcast, 1973.
12. Davies, "Gentle Fire: An Early Approach to Live Electronic Music."
13. Mooney. Ibid.
14. Bergson. *La Pensée et le Mouvant* (The Creative Mind: An Introduction to Metaphysics). 144-76.
15. Schütz. "Making music together : a study in social relationship."
16. "The rhythmanalyst will not be obliged to leap from the inside to the outside of the bodies he observes; he should be able to succeed in listening to them together and allying them, by taking his own rhythms as a reference: by integrating the inside to the outside and vice-versa […]." Lefebvre. *Éléments de rythmanalyse. Introduction à la connaissance des rythmes.* 32-33; and also: Lefebvre, *Rhythmanalysis: Space, time and everyday life*.
17. Berleant. *The Aesthetics of Environment.* 4.
18. Berleant, *Ibid.*, 11.

19. Berleant, *Ibid.*. 4; See also: Thibaud, "The City through the Senses"; Augoyard, "Vers une esthétique des ambiances" (Towards an Aesthetics of Ambiances), 17-34; Böhme, "Acoustic Atmospheres: A Contribution to the Study of Ecological Aesthetics," 15. Böhme, "The art of the stage set as paradigm for an aesthetics of atmospheres."
20. "Berleant argues that aesthetic experience begins with the environment (both natural and humanly modified environments) and extends to art." (Brady, "Environmental Aesthetics," 313-21).

21. Roland Barthes developed the concept of 'idiorrythmy' to express a possible way of living together, for instance in space, that preserved individual rhythms (withing a group) and a fluctuating balance between them and a communal rhythm. (Barthes, *Comment vivre ensemble. Cours et séminaires au Collège de France, 1976–1977*; and also: Barthes, *How to Live Together: Novelistic Simulations of Some Everyday Spaces*). In addition, Henri Lefebvre, following Gaston Bachelard, defined the issue of rhythmanalysis: it is to study and understand the polyrhythm, being attuned to the world, to explain what is occurring in places. (Lefebvre, *Éléments de*

rythmanalyse; and also: Lefebvre, *Rhythmanalysis:Space, time and everyday life*).

22. An ecotone is a transition and contact area between two ecosystems or biomes. This term was created by A. G. Tansley ("The use and abuse of vegetationnal concepts and Terms." 299) and precised by G.L. Clarke (*Elements of Ecology*).

23. To extend the research by Chris Chafe (Network Delay Studies, and Internet Acoustics: series of papers), Pauline Oliveros ("Echoes from the Moon"), Pedro Rebelo ("Netrooms The Long Feedback, a participatory network piece" and "Nethalls"), Atau Tanaka and Kasper T. Toeplitz ("The Global String"; and also: Atau Tanaka and Bert Bongers. "Global String – A Musical Instrument for Hybrid Space"), etc.; Other references are: Nicolas Collins ("Pea Soup" and "Roomtone Variations"), Gordon Mumma ("Hornpipe"), Hugh Davies ("Quintet"), etc.

24. "The question of the dissipation of music has to do with how much of the experience of music in that very strong fundamental sense might be dissipated by a number of things" ("An artist of the auditory sounds off on the world of sounds"). Interview of Francisco Lopez by Todd L. Burns, Red Bull Music Academy, Matadero, Madrid, 2011. *The Dissipation of Music* is an in-progress essay by Francisco Lopez. Also: "I believe in expanding and transforming our concept of music through nature (and through 'non-nature') […]." (Lopez, "Profound Listening and Environmental Sound Matter." 82-87).

Biography

Jérôme Joy is a French composer and performer, living and working in Nantes (F). Since the beginning of the eighties, his work is based on sound intensity, duration and loudness as structure and de-structuring of music. He's currently member of various live electronic music projects : pizMO, MXPRMNTL and NoEnsemble ; and committee member of several organisations : Apo33 (Nantes, F), Avatar (Quebec, CAN), WLP World Listening Project (Chicago, USA) ; and member of the art-ivist community The Thing NYC. He is presently tenured professor at the National School of the Arts at Bourges (F) and research co-director - with Peter Sinclair - of Locus Sonus, audio in art research lab, http://locusonus.org/ . He is currently engaged in a Ph.D. in audio art & experimental music at Laval University Quebec (Title : Internet Auditoriums — Extended Music and Expanding Auditoriums : Musical Composition, Creation & Environmental Aesthetics — Earth-Mars Auditorium).

Biographie

Jérôme Joy est un compositeur de musique expérimentale et musicien français basé à Nantes. Il a étudié au Conservatoire de Bordeaux (classes de composition instrumentale et électroacoustique) et a suivi les master-classes de Luis de Pablo, François Rossé, Etienne Rolin, François Bayle et Ivo Malec. Il a débuté en 1982 comme performeur, improvisateur (en musique électronique et électroacoustique) et "microphoniste". Depuis le début des années 80, son travail se fonde sur l'exploration de l'intensité, de la durée et de la puissance sonores comme structure et déstructuration de la musique. Il joue actuellement avec pizMO, MXPRMNTL et le NoEnsemble. Il est actuellement professeur à l'école nationale supérieure d'art de Bourges et co-directeur avec Peter Sinclair de Locus Sonus, groupe de recherche en art audio, http://locusonus.org/ . Il est engagé aujourd'hui dans un cursus de Ph.D. de recherche-création en art audio et musique expérimentale à l'université Laval Québec (Sujet : « Les Auditoriums Internet — La Musique Étendue : Création Musicale et Esthétique Environnementale — Auditorium Terre-Mars »).

Owen Chapman (CA)

Poster, Paper, Session 2

Ecotones, Eco-territories and the Sonic Relationality of Space: An audio investigation of Montreal's "Falaise St. Jacques".

Écotones, éco-territoires et la relationnalité sonore de l'espace: une enquête auditive du "Falaise St. Jacques" à Montréal.

Owen Chapman
Researcher-creator, Associate Professor
(Department of Communication Studies, Concordia University)
http://mobilities.ca
owen.chapman@concordia.ca

Abstract:
This paper discusses the outcomes of a research-creation project based in the Mobile Media Lab at Concordia University, Montreal Canada where myself and a small team of research assistants used smart phones and other mobile devices to make geo-tagged audio recordings of a particular urban wilderness area in Montreal called the St. Jacques Escarpment. I address the emerging role of mobile media devices ('smart' phones, MP3 players, tablet computers, etc.) in such recording, soundmapping and/or composition projects. What are the dynamics of such engagements? What environmental and ethical considerations emerge through such initiatives? How can mobile media devices bring our senses to bear differently on the spaces we inhabit? This paper applies Doreen Massey's approach to understanding space as intrinsically relational, while inflecting this conception through new possibilities that emerge from mobility studies.

Résumé :
Cet article décrit les résultats d'un projet de recherche-création provenant du "Mobile Media Lab" à l'Université

Concordia, à Montréal. Notre équipe a utilisé les téléphones intelligents et autres appareils mobiles pour effectuer des enregistrements audio géolocalisées d'un région sauvage urbain à Montréal appelé le Falaise St. Jacques. Je m'adresse à l'émergence du rôle des dispositifs de médias mobiles (téléphones «intelligents», les lecteurs MP3, ordinateurs tablettes, etc.) dans un tel projet. Quelles sont les dynamiques de ces engagements? Quelles sont les considérations environnementales et éthiques émergent à travers de telles initiatives? Comment est-ce que les périphériques multimédias mobiles peuvent nous encourager à écouter différemment aux espaces qui nous entourent? J'applique l'approche de Doreen Massey qui traite l'espace comme intrinsèquement relationnel en infléchissant cette conception par les nouvelles possibilités qui émergent des études de mobilité.

Recording and manipulating sound "in the field" can lead to an enhanced awareness of one's sonic environment through a greater sense of the relational nature of space. This paper is about the emerging role of mobile media devices ("smart" phones, MP3 players, tablet computers, etc.) in such a dynamic. Our experience of space is tied to multiple, simultaneous relations—including relationships of time and memory as much as physical distance. How do contemporary, mobile practices of audio field recording, "soundmapping" and sound composition both construct and react to different spaces? What are the dynamics of such engagements? What environmental and ethical considerations emerge through such initiatives? How can mobile media devices bring our senses to bear differently on the spaces we inhabit? This paper applies Doreen Massey's (2005) approach to understanding space as intrinsically relational, while inflecting this conception through new possibilities that emerge from mobility studies and creative locative audio work.

In what follows I discuss the outcomes of a research-creation project based in the Mobile Media Lab at Concordia University, Montreal Canada where myself and a small team of research assistants used smart phones to make geo-tagged audio recordings of a particular urban wilderness area in Montreal called the St. Jacques Escarpment (known locally as the Falaise St. Jacques, or simply, the "Falaise"). These "mapped" audio recordings were then used as source material in the creation of different compositions by team members. A soundmap of the Falaise and five different compositions can be accessed at http://audio-mobile.org/falaise, along with short artist statements for each piece. The soundmap follows the emerging, interactive, online format outlined in Waldock (2011), "with pin signs/tags to mark where sounds have been recorded at a particular geographical location. Clicking on the pins allows the soundmap visitor to listen to the sounds and […] to zoom in to see a picture of the geographical location."

What we uncovered was not only the sonic character of a particular neglected bit of urban wilderness. The Falaise became a site onto which team members projected and worked through aspects of their own capacity as audio recordists and composers and also the impacts of collective processes of forgetting and rendering invisible the costs of producing and dumping waste in our proverbial "backyards". On the other hand, the resilience and enduring significance of the Falaise in terms of its diverse collection of wildlife was also strongly reinforced.

Theoretical and Methodological Context

This initiative is part of a larger project that explores the potential of smart phones and other mobile devices for audio recording, soundmapping and creative production. We have developed an iOS app entitled "AudioMobile" as part of the project (submitted for approval to Apple's App Store as a free app on March 26th 2014). A tool for collaborative, dynamic field recording, AudioMobile allows users to record the sounds around them, attaching a photograph and GPS coordinates to the file. These elements can then be uploaded to an online sound map (http://audio-mobile.org) and shared with others in a variety of ways. The growing ubiquity of mobile, networked "smart" mobile devices suggests new and more accessible frontiers for audio field recording in the form of easy-to-produce soundmaps and greater availability of free or inexpensive sound production "apps". The case study described in this paper, then, should be considered as a gesture towards an emerging field of human engagement with the sonic environment. Mobile devices offer extraordinary opportunities for new forms of social interaction and sharing of the sounds around us. Besides being "ready to hand while on the move" (Thulin 2012), the convergence of different forms of media represented by contemporary mobile devices means that digital audio field recordings can now easily be tagged with other types of location-based data, such as GPS coordinates, photographs, as well as user-generated titles, notes and descriptions of recording conditions such as weather. Audio recordings become "locative media" (Lemos 2009) when made with mobile devices.

The digitization of media production technologies has brought with it a parallel reduction in the space and equipment necessary for sophisticated audio recording, editing, mixing, and dissemination. While many of these technologies are portable (i.e., laptops, mixers, digital recorders, etc.), they are not "mobile," in that they are not carried with the user at all times, nor

available in all circumstances. Along with these contemporary developments in mobile technologies, "mobility studies" as a field asks how we move through spaces, introducing a temporal dimension into the preoccupation with space and a call for more robust data sets for the development of simulations and analyses of movement (Sawchuk and Crow 2012; Patterson et al. 2010). Mobile media devices are also a prevalent theme for mobility studies in terms of how they connect or disconnect users from the environments in which they move (Beer 2010; Bull 2004; Lemos 2009; Farnsworth and Austrin 2010; De Souza e Silva and Firth 2010; Cresswell 2006; Goggin 2008; Sheller and Urry 2007; Urry 2007).

The research presented in this paper is meant to contribute to dialogues around emergent practices of mobile music-making and cellphone audio performance (Christiane 2003; Essl et al. 2006; Essl and Rohs 2009; Gaye et al. 2003; Gopinath 2005; Weinberg 2005) as well as locative media (Bleeker and Knowlton 2006; Galloway and Ward 2006; Hemment 2004 and 2006; Lemos 2011; Pope 2005; Tarka 2005; Wershler 2008) and critical cartography (Crampton and Krygier 2006; Fusco 2004; Sotelo-Castro 2009). Methodologically, the project follows a "research-creation" approach, which is a Canadian neologism for work that integrates "a creative process, experimental aesthetic component, or artistic work as an integral part of the study" (Chapman and Sawchuk 2012: 6; see also Barrett and Bolt 2010; Elkins 2009; Leavy 2009; Haseman 2006).

The Sonic Zoom project also draws inspiration from ongoing work at the Centre for research on sonic space & urban environment (CRESSON) in Grenoble, France (see Augoyard 2007; Augoyard and Torgue 2006 and Thibaud (2013). In addition, Andra McCartney's "Soundwalking Interactions" project, focused on re-examining the ethical parameters of soundscape studies (McCartney 2010 and 2013), the "100 Finnish Soundscapes" project, led by Helmi Järviluoma (2006 and 2013) and Brandon Labelle's (2010) account of acoustic territories as forms of movement all provide important touchstones. In terms of studies of electronic and sample-based music, while much has been written about hip hop and mobility in terms of class and also transportation (especially subway and graffiti culture—see Castleman 1984; Mailer and Naar 2009), and also the historical significance of the mobile "sound system" and boom box (Miller 2004; Hebdige 1994), the role of mobile devices has received little serious attention. While the cell phone as a form of conspicuous consumption is often referenced in terms of its symbolic value within hip hop and other forms of contemporary electronic and sample-based

music, no studies have yet been released on potential new directions for these genres in terms of integrating locative media or mobile devices as new production platforms. The work discussed in this essay is therefore relevant to studies of sampling in contemporary music, but in the novel sense of "sampling" the soundscape, or audio environment, as opposed to copyrighted audio material (see Rose 1994; Schloss 2004; Serazio 2008).

Ecotonality

McCartney describes the ecological concept of the "ecotone" as "a marginal zone, a transitional area where species from adjacent ecosystems interact." (McCartney 2010) Ecotones are notable for interspecies interaction, but also for providing rich and unique habitats for other species to thrive that would not be found elsewhere. McCartney explores the concept as a means to highlight the relationships that become apparent through close listening to audio environments, or soundscapes, asking "what would it mean to pay attention to how sounds overlap, to how they rub up against each other, in whatever context"? (McCartney 2010) While crossing Canada west to east by car in August 2013, I visited a rest-stop near the eastern edge of the province of Manitoba, where the Canadian Prairies start to end and boreal forest begins to take over the landscape. The small park by the highway was filled with prairie grasses, but also lots of trees. I pulled out my cell phone and recorded the sound of a woodpecker cry mixed with crickets and wind in the long grass in the background.

Applying the notion of the ecotone to an urban space like the Falaise is a bit more of a stretch, perhaps, but is nevertheless highly evocative. Species certainly interact in such a pocket of urban wilderness, but it is less a space where two ecosystems intersect as it is an island of green amidst a sea of urban development/decay. But if one extends the notion of ecosystem as designating specific sonic as well as ecological characteristics, the Falaise is an example of a robust "ecotonality" that is as mundane as it is extraordinary. Applying the concept to the space is also helped by a linguistic coincidence—in 2004 the city of Montreal designated the Falaise St. Jacques as one of ten "eco-territories" in the region—their term for areas where "protecting and enhancing natural spaces are a priority" (Montreal 2004a). Some are previously protected areas, others are not. In the case of the Falaise, most of it has been owned by the city for the past 30+ years, but besides a couple of municipal clean up efforts in the 1980s and 90s, the Falaise

has been consistently treated as a local dumping ground, with St. Jacques business owners at times charging construction companies cheaper rates to illegally throw waste over the side than the local city dump. (Riga 2007: A4) In 2003 the city took legal action against a car dealership for cutting down 50 trees from the area, sparking renewed interest in the space, and its designation in the 2004 "Master Plan" for the City of Montreal as one of the 10 eco-territories. (Riga 2007: A4; Montreal 2004b) As of this writing, however, there has been zero implementation of any plan for protecting and enhancing the Falaise, and indeed the term "eco-territory" was dropped from the 2011 Master Plan for the city (Montreal 2011).

While it is not the intent of this paper to argue for or against greater environmental protection of the Falaise, it is worth noting that all project members grew quite fond of the area, and it is easy to imagine that it could be cleaned up and turned into something beautiful, but only with a lot of effort and shifting of local attitudes around the space. Decrees of "eco-territory" status work well for city planning or visioning documents. But in this case they have fallen short. Our compositional and soundmapping work, then, can be read as an alternative form of commentary on the Falaise, and by extension other spaces like it, which exist the world over.

Soundmapping the Falaise

Jammed between an abandoned rail yard and major highway (the "Autoroute du Souvenir") to the south and a large commercial street to the north, the Falaise St. Jacques is a thin strip of trees situated amongst kilometres of concrete. The terrain is quite steep, almost cliff-like in many places. It is heavily wooded, but with fast growing species of trees like poplar and Manitoba maple (Acer negundo). It is also *full* of junk, including the kind of waste that people evidently want to dump "discretely" like oil barrels, paint cans, computer parts, dead animals (we found the skeleton of a dog) and sex "toys" (including a blow-up doll). Most of this waste is to be found near the top of the escarpment (along the part that faces St. Jacques), which we quickly learned to avoid, due to steepness of the terrain and the likelihood of stumbling across hazardous materials.

The 16 hectare core of the Falaise has park zoning. It is about three kilometres in length and covers an area of over 20 hectares stretching from the neighbourhoods of Montreal West to Westmount, and passing through much of Notre Dame de Grace (known locally as NDG). But

the Falaise is not a park, even though there are remnants of trails and a small section of paved path. In the 1980s Montreal Mayor Jean Drapeau initiated a plan for his vision of a "linear park: a hiking-and-biking trail that could be used for cross-country skiing in winter. In the ensuing 25 years, Montreal spent more than $2 million on the Falaise. There's still no sign of a park." (Riga 2007: A4). Money was spent on clean-up initiatives, where truckloads of oil barrels, abandoned cars, tires and the like were removed. Different species of trees were planted. Property was bought by the city. But the efforts were repeatedly abandoned (first by Drapeau, then by his successor Jean Doré in the 1990s). Throughout the years the space returned to use as a dumping ground by local business and residents. Planted samplings were dug up and removed by locals. Cleared areas for trails grew over.(Riga 2007: A4)

While parking lots from the businesses along St. Jacques cover much of the upper access to the area, the bottom borders onto the expansive former Turcot rail yards, which is now used, among other things, as a winter repository for snow cleared from the dirty, salt covered streets of Montreal. The Falaise is "thought to be a geological formation dating back to the Champlain Sea, which covered much of the Montreal area 10,000 years ago, at the end of the last ice age." (Riga 2007: A4) According to the City of Montreal, the Falaise "together with Mount Royal, are each defining characteristics of the Island of Montréal landscape" (Montreal 2004). The comparison, it must be admitted, comes across as somewhat ludicrous, as the latter is an immensely popular and extremely well-tended park. The same civic document then goes on to explain that the Falaise is "of strategic importance for migratory waterfowl" a other bird species such as the Indigo Bunting (breeding), Chimney Swift (breeding), Ruby-Throated Hummingbird (breeding), Scarlet Tanager (migration), Wood Thrush (migration), Cooper's Hawk (migration), Red-Shouldered Hawk (migration), and American Kestrel (migration). (Montreal 2004)

While the soundscape of the Falaise has one predominant quality—traffic noise—the birds are not to be underestimated. In David Madden's soundmap, his search for bird sounds on an October day, right in the middle of migration season, was foiled time and again by traffic and construction noise. But his final recording featured success:

> The construction noise to the south is represented most prominently in the recordings, in combination with the noise I was making—stepping on branches, sliding down the hill, moving little rocks and pushing away branches, etc. I was actually expecting there to be

> more of a range of sounds (and dynamics) within the space. There were very few birds throughout most of the walk. It was not until the final recording of the day—"tree full of birds"—that I was able to represent a broad mixing of sounds. In the recording you can hear that there are so many birds in the trees and a lot of traffic. Strangely, these flocks of birds emerged in the part of the Falaise that is closest to St. Jacques. (David Madden, Ph.D Communication Studies recent graduate and MML research associate, personal communication with author, Nov. 20 2013)

The ecotonality of the space foiled Madden's express purpose while on his soundmapping trip—to collect bird sounds. The discovery of the "tree of birds", however, belies the reputation of the Falaise as a bird sanctuary. But Madden's experience also points out one of the limitations of a soundmap or any field recording in general, namely that we are dealing with representations of sonic reality—and such representations are limited to particular times and spaces. They also vary immensely depending on the disposition of the recordist—whether or not she interacts with objects or people in the environment, for example, to create sounds for recording (tapping on trees, etc.), not to mention the question of including one's voice. Soundmaps and field recordings used to represent a space are always mediated, and if someone wants to make claims for a certain level of authenticity for a particular representation (e.g. mapping the "signature" sounds of a city), that authenticity needs to be grounded through a reflexivity and openness around the limitations of the "totality" represented (see Waldock 2011). While there are multiple different ways in which soundmapping as a practice can be accused of being reductionist, this is not an essential quality of the practice or technology involved, but rather a question of disposition and attitude around the thing produced.

Soundmaps as Relational

The ubiquity of mobile devices has the potential to open up the practice of audio field recording to entirely new populations. However, claiming that such devices democratize practices of audio field recording and soundmapping is a slippery slope (Waldock 2011), and can lead to utopian proselytizing about soundmaps reaching across "geographic, economic, educational, cultural and racial divides" (Sound Seeker 2013). Massey's relational notion of

space provides a model for developing the reflexive potential of activities like soundmapping. She narrows her perspective on space down to three main propositions,

> *First*, that we recognise space as the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny.[…]*Second*, that we understand space as the sphere of the possibility of the existence of multiplicity in the sense of contemporaneous plurality; as the sphere in which distinct trajectories coexist; as the sphere, therefore of coexisting heterogeneity.[…]*Third*, that we recognise space as always under construction. Precisely because space on this reading is a product of relations-between, relations which are necessarily embedded material practices which have to be carried out, it is always in the process of being made. It is never finished; never closed. Perhaps we could imagine spaces as a simultaneity of stories-so-far. (Massey 2005: 9)

If we consider space as produced by interrelations, then it follows that those interrelations are multiple and plural (otherwise how could they be "inter"?) as well as complex and unpredictable as they shift and incessantly affect each other over time. The account makes room for the significance of enterprises such as audio field recording, soundmapping, soundscape composition, etc., as means to access this shifting, this movement. On this account, soundmaps, soundscape compositions and other creative forms of audio expression produced using field recorded material act as representations of the constellation of interrelations felt by the recordist/composer while moving through the space of recording. They are situated (Haraway 1988), reflexive attempts to write logs of the "stories so far" of relational spaces as perceived by individual recordists

Additional Information (concerning presented art work)

Title: Audio Mobile : locate, Listen, Share

Type of presentation: Performance

Short Description:

Participants will be introduced to the free AudioMobile iOS app in order to record sounds around the Locus Sonus symposium location, uploading these to the online database and soundmap available at

audio-mobile.org.

FIGURES

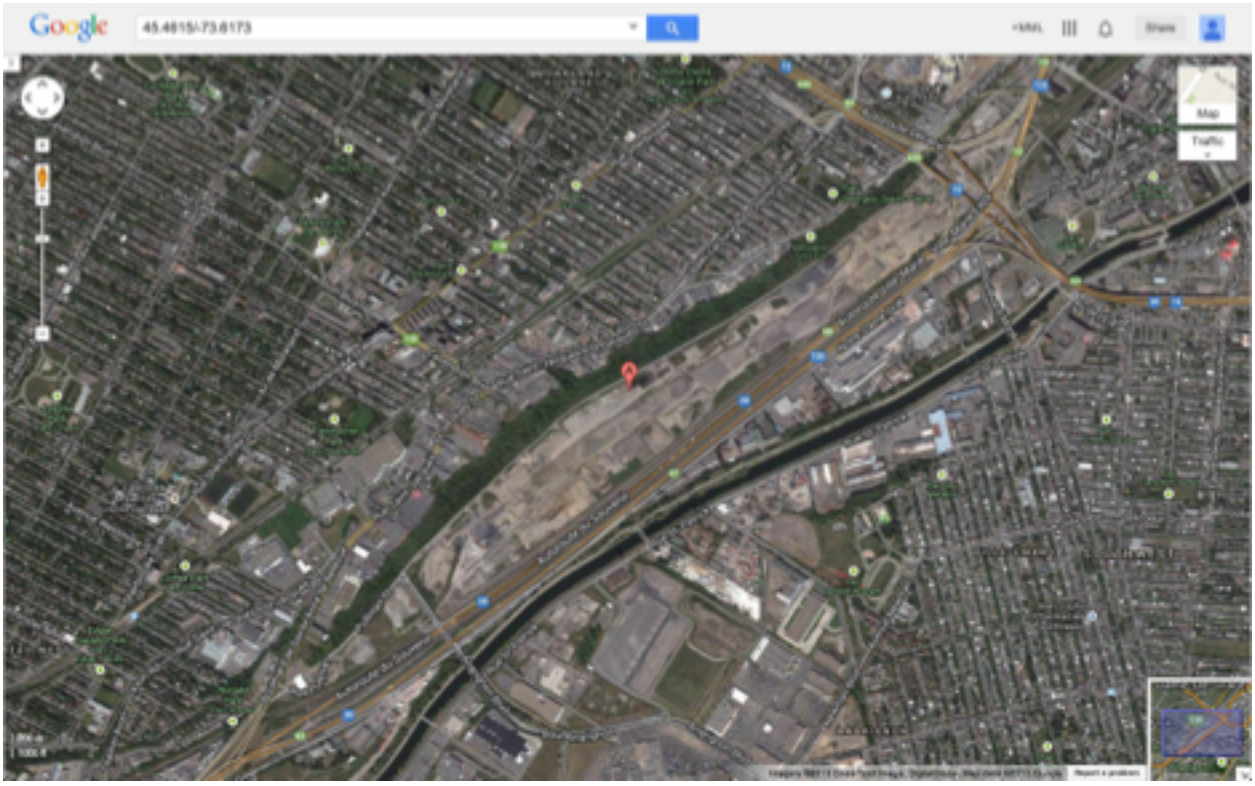


Fig. 1 Google Map Image of the Falaise St. Jacques – 2013

Fig. 2 Soundmap of the Falaise St. Jacques - 2013 audio-mobile.org

Fig. 3 Tree Full of Birds - 2013 David Madden

Bibliography

Augoyard, J.-F., 2007. *Step by Step: Everyday Walks in a French Urban Housing Project* 1st ed., Univ Of Minnesota Press.

Augoyard, J.-F. & Torgue, H., 2006. *Sonic Experience: A Guide to Everyday Sounds*, McGill-Queen's University Press.

Barrett, E. & Bolt, B., 2010. *Practice as Research: Context, Method, Knowledge*, I. B. Tauris.

Beer, D., 2010. Mobile Music, coded objects and everyday spaces. *Mobilities*, 5(4), pp.469–484.

Bleeker, J. & Knowlton, J., Locative media: GPS-enabled locative media. *Leonardo*, 14(3). Available at: http://www.leoalmanac.org/journal /vol_14/lea_v 14_n03-04/jbleecker.html.

Bull, M., 2004. Automobility and the power of sound. *Theory, Culture and Society*, 21(4/5), pp.243–259.

Castleman, C., 1984. *Getting Up: Subway Graffiti in New York*, MIT Press.

Chapman, O. & Sawchuk, K., 2012. Research-Creation: intervention, analysis and "family resemblances." *Canadian Journal Of Communication*, 37(1), pp.5–26.

Christiane, P., 2003. *Digital Art*, New York: Thames & Hudson.

City of Montreal, 2004a. Policy on the Protection and Enhancement of Natural Habitats. Available at: http://ville.montreal.qc.ca/pls/portal/docs/page/nature_en_ville_en/media/documents/ppmnang060123.pdf [Accessed September 30, 2013].

City of Montreal, 2004b. Monteal Master Plan. Available at: http://ville.montreal.qc.ca/portal/page?_pageid=2762,3099656&_dad=portal&_schema=PORTAL [Accessed September 30, 2013].

City of Montreal, 2011. Montreal Master Plan. Available at: http://ville.montreal.qc.ca/portal/page?_pageid=2762,89025570&_dad=portal&_schema=PORTAL [Accessed September 30, 2013].

Crampton, J. & Krygier, J., 2006. An Introduction to Critical Cartography. *ACME: An International E-Journal for Critical Geographies*, 4(1), pp.11–33.

Cresswell, T., 2006. *On the Move: Mobility in the Modern Western World*, Taylor & Francis.

Crow, B. & Sawchuk, K., Shaking Hands with the User: Principles, Protocols, and Practices for User-integrated Testing. In M. Ladly & P. Beesley, eds. *Mobile Nation*. Toronto: Riverside, pp. 37–42.

Doreen Massey, 2005. *For Space*, London: Sage.

Elkins, J., 2009. *Artists with PhDs: On the New Doctoral Degree in Studio Art*, Washington, DC: New Academia Publishing, LLC.

Essl, G. & Rohs, M., 2009. Interactivity for Mobile Music-Making. *Organised Sound*, 14(02), pp.197–207.

Essl, G., Rohs, M. & Roth, M., 2006. CaMus: live music performance using camera phones and visual grid tracking. In New Interfaces for Musical Expression: Proceedings of the 2006 conference on New interfaces for musical expression. Paris: IRCAM, pp. 31–36.

Farnsworth, J. & Austrin, T., 2010. Assembling portable talks and mobile worlds: Sound technologies and mobile social networks. In P. K. Nayar, ed. *The New Media and Cybercultures Anthology*. John Wiley & Sons.

Fusco, C., 2004. Questioning the frame: Thoughts about maps and spatial logic in the global present. *In These*

Times. Available at: http://www.inthesetimes.com/article/1750/ [Accessed October 14, 2012].

Galloway, A. & Ward, M., 2006. Locative Media as Socialixing and Spatialising Practice: Learning from Archaeology. *Leonardo Electronic Almanac*, 14(3/4).

Gaye, L., Mazé, R. & Holmquist, L.E., 2003. Sonic City: the urban environment as a musical interface. *Proceedings of the 2003 conference on New interfaces for musical expression (NIME '03)*, pp.109–115.

Goggin, G., 2008. The Models and Politics of Mobile Media. *The Fibreculture Journal*, (12). Available at: http://twelve.fibreculturejournal.org/fcj-082-the-models-and-politics-of-mobile-media/ [Accessed October 14, 2012].

Gopinath, S., 2005. Ringtones, or the auditory logic of globalization. *First Monday*, 10(12).

Haraway, D., 1988. Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. *Feminist Studies* 14 (3): 575–99.

Haseman, B., 2006. Tightrope Writing: Creative Writing Programs in the RQF Environment. In The Eleventh Annual Conference of the Australian Association of Writing Programs. Brisbane, Australia: Queensland University of Technology. Available at: http://www.textjournal.com.au/april07/haseman.htm [Accessed October 14, 2012].

Hebdige, D., 1994. *Cut "n" Mix*, New York: Routledge.

Hemment, D., 2006. Locative Media: Editorial. *Leonardo*, 14(3).

Hemment, D., 2004. The locative dystopia: Exploring the apparent convergence of locative media with technologies of social control. *drewhemment.com*. Available at: http://www.drewhemment.com/2004/the_locative_dystopia.html [Accessed October 14, 2012].

Järviluoma, H., 2006. One Hundred Finnish Soundscapes? Exploring the Feelings of Safety, Soundscape and LIved Space in Sonic Memories. In *The West Meets the East in Acoustic Ecology*. Hirosaki, Japan: Japanese Association for Sound Ecology, pp. 70–83.

Järviluoma, H., 2013. Re-sounding pleasure in soundscape studies. *Wi: Journal of Mobile Media*, 7(1). Available at: http://wi.mobilities.ca/re-sounding-pleasure-in-soundscape-studies/ [Accessed October 14, 2013].

LaBelle, B., 2010. *Acoustic Territories: Sound Culture and Everyday Life*, Continuum.

Leavy, P., 2008. *Method Meets Art: Arts-Based Research Practice*, Guilford Press.

Lemos, A., 2009. Locative Media in Brazil. *Wi: Journal of Mobile Media*, Summer. Available at: http://wi.hexagram.ca/?p=60 [Accessed November 29, 2013].

Lemos, A., 2011. Pervasive Computer Games and Processes of Spatialization: Informational Territories and Mobile Technologies. *Canadian Journal Of Communication*, 36(2), pp.277–294.

Mailer, N. & Naar, J., 2009. *The Faith of Graffiti*, It Books.

McCartney, A., 2013. Ecotonality and listening praxis in sound ecology, ambiences, and popular music. *Wi: Journal of Mobile Media*, 7(1). Available at: http://wi.mobilities.ca/ecotonality-and-listening-praxis-in-sound-ecology-ambiences-and-popular-music/.

McCartney, A., 2010. Ethical Questions About Working With Soundscapes. *Soundwalking Interactions*. Available at: http://soundwalkinginteractions.wordpress.com/2010/06/24/ethical-questions-about-working-with-soundscapes/ [Accessed July 18, 2011].

Miller, P.D., 2004. *Rhythm Science*, New York: Mediawork.

Pope, S., 2005. The shape of locative media. *Metamute.org*. Available at: http://www.metamute.org/en/The-Shape-of-Locative-Media [Accessed October 14, 2012].

Riga, A., 2007. "E" is For escarpment; MONTREAL from A to Z. Gazette reporter takes a walk on the wild side - in the long-lost park of legendary mayor Jean Drapeau Series: montreal from a to z; 26 tales of the city. *The Gazette*, p.A4.

Rose, T., 1994. *Black noise*, Wesleyan University Press.

Schloss, J.G., 2004. *Making beats: the art of sample-based hip-hop*, Middletown, CT: Wesleyan University Press.

Serazio, M., 2008. The apolitical irony of generation mash-up: A cultural case study in popular music. *Popular Music and Society*, 31(1), p.79.

Sheller, M. & Urry, J., 2006. The New Mobilities Paradigm. *Environment and Planning*, 38, pp.207–226.

Sotelo-Castro, L.C., 2009. Participation cartography: The presentation of self in spatio-temporal terms. *M/C Journal*, 12(5). Available at: http://journal.media-culture.org. au/ index.php/mcjournal/article/viewArticle/192.

Sound, S., "About" Page. *Sound Seeker*. Available at: http://fm.hunter.cuny.edu/nysae/nysoundmap/about.html [Accessed November 29, 2013].

De Souza e Silva, A. & Firth, J., 2010. Locative Mobile Social Networks: Mapping Communication and Location in Urban Spaces. *Mobilities*, 5(4), pp.485–505.

Tarka, M., 2005. Labours of location: Acting in the pervasive media space. *Diffusion.org*. Available at: http://diffusion.org.uk/?cat=15 [Accessed October 14, 2012].

Thibaud, J.-P., 2013. Commented City Walks. *Wi: Journal of Mobile Media*, 7(1). Available at: http://wi.mobilities.ca/commented-city-walks/ [Accessed October 14, 2013].

Thulin, S., 2012. "There to Hear": Reimagining Mobile Music and the Soundscape in Montreal. In L. R. Koos, ed. Oxford: Inter-Disciplinary Press.

Urry, J., 2007. *Mobilities*, Polity.

Waldock, J., 2011. SOUNDMAPPING: Critiques And Reflections On This New Publicly Engaging Medium. *Journal of Sonic Studies*, 1(1). Available at: http://journal.sonicstudies.org/vol01/nr01/a08 [Accessed May 24,

2013].

Weinberg, G., 2005. Voice Networks: The Human Voice as a Creative Medium for Musical Collaboration. *Leonardo Music Journal*, 15, pp.23–26.

Wershler, D., 2008. Sonic signage: [murmur], the refrain, and territoriality. *Canadian Journal Of Communication*, 33(3), pp.403–418.

Zachary Patterson et al., 2010. Disaggregate models with aggregate data: Two UrbanSim applications. *Journal of Transport and Land Use*, 3(2), pp.5–37.

Biography

Owen Chapman is an audio artist whose work involves sample-based music, mobile phones, and old electronic instruments. He is co-director of the Montreal wing of the Mobile Media Lab, located in the Communication Studies department at Concordia University, where he is also an Associate Professor in Sound Production and Scholarship. His written works have appeared in *Organised Sound*, *Public*, *M/C Journal*, *Esse* and *The Canadian Journal of Communication*. His creative work has been commissioned internationally for video, contemporary dance, solo performance and site-specific installation. His research-creation projects have been funded by the Canada Council, the Quebec Fonds de recherche sur la société et la culture (FQRSC), and the Social Sciences and Humanities Research Council of Canada (SSHRC).

Biographie

Owen Chapman est un artiste audio dont le travail fait appel à la musique basée sur l'échantillonnage, les téléphones mobiles, et aux vieux instruments électroniques. Il est le co-directeur du Mobile Media Lab, abrité au département des études en communication de l'Université Concordia, où il est également professeur adjoint en production et études sonores.

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Matthieu Saladin (FR)

Session 2

Public ringtones are textual statements recorded as ringtones, that are freely downloadable. With each call, your phone becomes a loudspeaker broadcasting a sentence in the public space.

Public Ringtones

Sonneries Publiques

Matthieu Saladin
Artist, Researcher, Teacher
Haute Ecole des Arts du Rhin, Institut Acte
http://www.hear.fr
http://www.cacbretigny.com/inhalt/saladin_.html
matthieu.saladin@gmail.com

Abstract:
The end of 2013, within the framework of the project " Of There A Riot Goin ' One. One Of Year Exhibition " produced by the Contemporary Arts Center of Brétigny, the project " Public Bells/Sonneries Publiques " was launched. The public bells are textual statements presented in the form of bells for mobile phone and downloadable free of charge on a site which is dedicated to them. Once an installed bell, your mobile phone becomes, in every call, a loudspeaker broadcasting a sentence in the public place. This communication will be the opportunity to return on the reflection which accompanied the elaboration of this project, the tactics and the misappropriation which it operates towards the mobile technologies which accompany us daily. It will be a question then more widely of wondering about our relationships in these devices and in the infiltration of the sound practices in the public place. http://sonneriespubliques.tumblr.com/

Résumé :
Fin 2013, dans le cadre du projet « There's A Riot Goin' On. One Year's Exhibition » produit par le centre d'art contemporain de Brétigny, le projet « Sonneries publiques » a été lancé. Les sonneries publiques sont des énoncés textuels présentés sous forme de sonneries pour téléphone portable et téléchargeables gratuitement sur un site qui leur est dédié. Une fois une sonnerie installée, votre téléphone portable devient, à chaque appel, un haut-parleur diffusant une phrase dans l'espace public. Cette communication sera l'occasion de revenir sur la réflexion qui a accompagné l'élaboration de ce projet, les tactiques et le détournement qu'il met en œuvre à l'égard des technologies mobiles qui nous accompagnent quotidiennement. Il s'agira alors plus largement de s'interroger sur nos rapports à ces dispositifs et à l'infiltration des pratiques sonores dans l'espace public.

http://sonneriespubliques.tumblr.com/

Depuis mars 2013, je suis invité par le centre d'art contemporain de Brétigny-sur-Orge à mener un projet que j'ai intitulé « There's A Riot Goin' On ». Il ne s'agit pas véritablement d'une résidence, mais plutôt d'un programme de production s'étalant sur plus d'un an et ponctué par la réalisation d'un ensemble de pièces (le dernier projet, sous forme d'édition, paraîtra en novembre 2014). Le titre « There's A Riot Goin' On » vient d'un morceau absent du disque éponyme de Sly & the Family Stone paru en 1971 et permet sans doute de comprendre ce qui se joue dans le projet « Sonneries publiques ». Simplement indexé dans la *tracklist* de l'album, sans commentaire, ni explication qui pourrait le distinguer des autres pistes, ce « morceau » vient conclure la face A de l'album, compris comme ce moment où l'aiguille de la tête de lecture quitte le sillon du vinyle et où l'écoute passe subrepticement de la musique enregistrée à l'espace qui l'environne. Il laisse alors entendre, dans son mutisme, une révolte dégagée de tout manifeste, semblant ne pouvoir poindre que dans les interstices. « There's A Riot Goin' On » est l'indice de ce qui n'est apparemment ni visible, ni audible, et qui pourtant se signale comme ayant déjà cours.

Comme énoncé d'exposition et programme de production, ce titre devient l'intitulé d'une série dispersée d'annonces, d'actions, de publications, de logiciels, d'invitations, de manifestations sonores et d'événements, plus ou moins discrets, qui s'activent et se déploient depuis début 2013 au CAC Brétigny, mais aussi dans l'espace public, dans la presse et sur internet. Mais l'invisibilité et l'inaudibilité signifiées par le morceau qui lui donne son titre ne concernent alors plus seulement une révolte sourde ; elles touchent également à des aspects de la vie sociale et économique qui échappent à l'appréhension directe, par leur caractère immatériel et/ou leur omniprésence, et qui néanmoins orientent et modèlent les attitudes, les conduites et les discours, les rapports sociaux et les activités quotidiennes. Recevoir un appel sur son téléphone portable (ce qui se joue au moment où l'appareil émet sa sonnerie) représente un des gestes simples que je cherche à interroger.

Dans « There's A Riot Goin' On », les flux boursiers, les sondages d'opinion, les

dispositifs de communication (du téléphone portable aux messageries électroniques, en passant par les organes de presse), les archives de manifestations ou encore les empreintes idéologiques des productions culturelles deviennent autant de matériaux disponibles pour questionner la construction de l'espace social, les tensions qui le traversent et le reconfigurent, les rapports entre la perception esthétique et l'activité économique qui la conditionne, l'activité d'un centre d'art et son inscription territoriale, ou encore la notion même de démocratie. En outre, pour la plupart des pièces réalisées dans le cadre de ce projet, la diffusion joue un rôle important : elles sont vouées à la dissémination.

« Sonneries publiques » est l'une de ces réalisations. Elle a été lancée fin 2013 au CAC Brétigny et poursuit depuis début 2014 sa propagation par emails, annonces dans la presse et dépôts de flyers dans divers lieux culturels et touristiques en France et à l'étranger. Les sonneries publiques sont des énoncés textuels présentés sous forme de sonneries pour téléphone portable. Elles sont téléchargeables gratuitement sur un site qui leur est dédié (http://sonneriespubliques.tumblr.com), disponibles en français et en anglais, et sous deux formats (le format générique des smartphones et le format dédié des iphones). Les phrases, scandées par une voix électronique, sont d'origines diverses : expressions de la vie courante, aphorismes, citations d'artistes ou de théoriciens (mais sans mention d'auteur). Certaines renvoient à l'écoute – « Entre deux sonneries, le silence » ; « Aussi loin que l'oreille puisse entendre » –, d'autres s'énoncent comme de potentiels mots d'ordre ou des conseils de circonstance – « Faites comme si de rien n'était » ; « C'est maintenant ou jamais » –, ou encore arborent un ton plus engagé – « La classe révolutionnaire n'existe pas sociologiquement » ; « Les distances que l'on prend par rapport aux rouages du système représentent un luxe qui n'est possible que comme produit du système lui-même ». Il existe actuellement une vingtaine de sonneries, mais leur nombre n'est pas arrêté : à la manière d'un work in progess, la gamme des énoncés textuels proposés augmentera à mesure que de nouvelles idées de phrases germeront. Une fois une sonnerie téléchargée, il suffit de l'installer sur son téléphone portable et de l'activer. Le téléphone portable devient alors, à chaque appel, un haut-parleur diffusant cette phrase dans l'espace public, chez soi, au travail, etc. Autrement dit, la phrase installée comme sonnerie se propage de manière inopinée et au gré de nos activités quotidiennes.

Si le smartphone a considérablement transformé notre rapport, non seulement à la

communication et aux autres, mais aussi à notre environnement immédiat, c'est qu'il appartient en premier lieu à la classe d'objets que Giorgio Agamben nomme, à la suite de Foucault, des dispositifs (il en représente même un cas exemplaire et pour lequel le philosophe ne se cache pas d'avoir peu de sympathie) : « […] j'appelle dispositif tout ce qui a, d'une manière ou d'une autre, la capacité de capturer, d'orienter, de déterminer, d'intercepter, de modeler, de contrôler et d'assurer les gestes, les conduites, les opinions et les discours des êtres vivants. » (*Qu'est-ce qu'un dispositif ?*, 2007, p. 31) Face à ces dispositifs qui ne cessent, à l'époque actuelle, de se multiplier, Agamben pose la question suivante : « De quelle manière pouvons-nous donc nous opposer à cette situation, quelle stratégie devons-nous adopter dans notre corps à corps quotidien avec ces dispositifs ? » Le projet « Sonneries publiques » entend proposer une réponse modeste à la question posée par le philosophe et plus spécifiquement à l'endroit des téléphones portables, en ayant recours à une stratégie vieille comme le monde, ou du moins comme le situationnisme : le détournement. Le haut-parleur dont est équipé tout téléphone portable et qui sert habituellement à entendre aussi bien son interlocuteur que la sonnerie qui nous prévient de son appel, est ici utilisé comme moyen technique pour la propagation de phrases, ayant la particularité, dans la plupart des cas, de nous interroger sur nos usages mêmes de ces dispositifs ou du moins sur les comportements qu'ils suscitent.

Ce qui m'intéresse dans ce projet est également le caractère à la fois discret et hasardeux de son activation. À moins d'avoir convenu en amont un rendez-vous téléphonique à une heure précise, on ne peut en effet prévoir le moment où l'on va recevoir un appel sur son téléphone portable. On peut se trouver dans la rue, dans le métro, au musée ou au supermarché, à la bibliothèque ou à la plage, dans des endroits trop bruyants pour entendre son téléphone ou encore dans d'autres lieux où il aurait été préférable de l'éteindre. Ainsi, la phrase utilisée comme sonnerie est déclamée au hasard des appels reçus. Elle se présente un peu à la manière d'un slogan – comme ces badges si répandus dans les subcultures, que l'on porte encore quelquefois sur le revers d'une veste ou épinglés sur un sac et qui, discrètement, signifient l'appartenance à une communauté musicale ou à une idéologie politique. Mais dans le cas présent, le « slogan » ne devient audible que par intermittence, pour aussitôt disparaître une fois le téléphone décroché ou le temps de sonnerie épuisé.

Au caractère indéterminé de l'activation, s'ajoute la discrétion du procédé. Bien des sonneries de portable peuvent être jugées bruyantes, dérangeantes, surtout lorsqu'elles sonnent

dans des endroits ou des situations où il est prié de les laisser silencieuses. Mais dans bien des cas également, nous ne portons pas véritablement attention aux sonneries qui ne cessent de résonner autour de nous : le trafic et l'environnement sonore peuvent les dissimuler, leur ritournelle peut être si répandue que nous n'y portons plus vraiment attention (que l'on pense aux sonneries par défaut des différents opérateurs et constructeurs qui fonctionnent comme de véritables marqueurs publicitaires), ou encore, il peut s'avérer que nous soyons nous-mêmes absorbés dans une conversation téléphonique. En outre, il existe aujourd'hui tellement de sonneries différentes, des derniers tubes aux sonneries personnalisées par chacun, qu'une sonnerie énonçant une phrase comme « L'espace public est un espace stratégique » peut assurément passer inaperçue. Mais elle s'infiltrera néanmoins dans l'espace public, qu'elle se mélange aux multiples discussions des transports en commun ou qu'elle résonne avec éclat dans une file d'attente silencieuse, qu'elle suscite l'interrogation, la surprise, ou laisse indifférent. C'est un aspect particulièrement important du projet. Alors que je travaillais sur l'œuvre de Max Neuhaus, j'ai été profondément marqué par la manière dont il envisage ses installations dans l'espace public. Pour Neuhaus, il apparaît primordial qu'une installation puisse être ignorée. L'artiste va même jusqu'à affirmer qu'il estime que ses installations ne sont réussies que si elles passent inaperçues pour au moins 50% des personnes qui les traversent.

Les « sonneries publiques » ne peuvent cependant pas être comparées à une installation sonore qui investit l'espace public. Elles ne sont pas attachées à un lieu fixe, mais sont par nature mobiles et multiples. Elles s'apparentent davantage à des interventions pour sites non spécifiques, jouant de tactiques et du détournement des technologies mobiles qui nous accompagnent continuellement, mais façonnent aussi en partie nos comportements quotidiens.

Information Complémentaire (concernant l'oeuvre présenté)

Titre: Sonneries Publiques

http://sonneriespubliques.tumblr.com

FIGURES

Fig. 1. Qrcode Sonneries Publiques

Biography

Matthieu Saladin is artist, musician and researcher. His practice takes place in a conceptual approach. He is interested in the history of artistic forms and the relationships between art and society. He has got PhD in Aesthetics (University of Paris 1 – Panthéon-Sorbonne): his research is on aesthetics of experimental music and sound art. He is teacher at the Haute école des arts du Rhin, editor in chief of Tacet and works in Volume! and Revue & Corrigée.

Biographie

Matthieu SALADIN est docteur en Esthétique et chercheur associé à l'IDEAT (Université Paris I – Panthéon-Sorbonne, CNRS). Il effectue ses recherches principalement dans le champ des musiques expérimentales et a soutenu sa thèse sur la pratique de l'improvisation libre dans l'Europe de la fin des années 1960. Il enseigne l'histoire et l'esthétique des musiques actuelles à la Faculté Libre de Lettres et Sciences Humaines de Lille. Il est membre du comité de rédaction de la revue de recherche Volume ! La revue des musiques populaires et directeur de la nouvelle revue Tacet dédiée aux musiques expérimentales. Il est également musicien. Sa pratique s'inscrit dans une approche conceptuelle de la musique, en réfléchissant sur l'histoire des formes musicales et des processus de création, ainsi que sur les rapports entre musique et société.

Laurent Di Biase (FR)

Lecture, Session 2

Sound Geofiction and Mobile Interaction: The Sound in the Environement as Support of Composition

Géofiction Sonore et Interaction Mobile : Le Son dans l'Environnement comme Support de Composition

Laurent Di Biase
Artist, Researcher in residency
Locus Sonus

http://laurent.dibiase.perso.sfr.fr
ldibiase@hotmail.com

Abstract :
Questionings between fiction and art in interaction with the reality of an environment developed by borrows it of the Man and the Nature through the medium of the sound and the technology defines this line of research.
The reality in which spreads our environment became a ground of experiment allowing to question new surrounding areas of the fictional universe and the sound creation by means of preexisting digital tools. From this point of view, a reflection on the links of complicity between the sound and the geographical context, through notions of mapping dynamic as element inherent to the writing of a score, and its relation in the audio art reveals new possibilities of questioning the links between fiction and art. The current tools of mediatizations offer capacities at the same time of action and mobility of the subject in interaction with various sources of possible investigations as well as the apprehension of sound contained in real time by the use of the flows of network. A domain of research so opens

through the medium the performance taking the shape of a sound geofiction where the qualities of sounding and of scénarisation of the reality in references to domains of creations such the cinema, the radio art, and the performance, allow to create a new narrative dimension. The everyday life in its deployment by the unpredictable becomes support of creation in the exploration of a writing of the sound while keeping its part of improvisation as weft of dialogue.

Résumé :
Les questionnements entre fiction et art en interaction avec la réalité d'un environnement élaboré par l'emprunte de l'Homme et de la Nature à travers le médium du son et de la technologie définisse cette ligne de recherche.
La réalité dans laquelle se déploie notre environnement est devenu un terrain d'expérimentation permettant de questionner de nouvelles approches de l'univers fictionnel et de la création sonore à l'aide d'outils numériques préexistant. De ce point de vue, une réflexion sur les liens de connivence entre le son et le contexte géographique, à travers des notions de cartographie dynamique comme élément inhérent à l'écriture d'une partition, et sa relation à l'art audio révèle de nouvelles possibilités de questionner les liens entre fiction et art. Les outils de médiatisations actuels offrent des capacités à la fois d'action et de mobilité du sujet en interaction avec différentes sources d'investigations possibles ainsi que l'appréhension de son contenue en temps réel par l'utilisation des flux de réseau. Un domaine de recherche s'ouvre ainsi à travers le medium la performance prenant la forme d'une géofiction sonore où les qualités de sondage et de scénarisation du réel en références à des domaines de créations tel le cinéma, l'art radiophonique, et la performance, permettent de créer une nouvelle dimension narrative. Le quotidien dans son déploiement par l'aléatoire devient support de création à l'exploration d'une écriture du son tout en gardant sa part d'improvisation comme trame de dialogue.

My line of research is an investigation between art and fiction in interaction with the reality of an environment, using the technological medium of digital sound.

The reality of our environment becomes a terrain for a new form of fictional experimentation, by dynamically re-mapping and remixing sound sources captured in real time. The action of capturing sound thus becomes an inherent element in the musical "interpretation".

Current broadcasting tools (real-time streaming software) allow, both the action and the mobility of the subject (mobile microphones) over an hypothetically unlimited terrain. This opens the possibility of apprehending and interacting with the various sound sources available in the field and their capture and transmission to an auditorium in real time. Thus, I propose, that the path taken by the microphone(s) can be considered as a score and the person carrying the microphone as an instrumentalist.

Sound capture becomes performance; re-mixing takes the shape of a sound geofiction, reality is

script-written. It is possible to predefine the paths (tracks) to be taken by the performers carrying the microphone and/or to designate specific actions, types of actions and temporalities within which these actions are to take place. Thus a narrative dimensions is generated which can refer without difficulty to domains such as cinema, radio art, and performance. Everyday life and its unpredictability become a support for composition –exploratory sound writing dialogues with improvisation.

The fact that this approach to the sound environment –this reorganization of space and movement uses real-time capture of the everyday, implies a social, environmental and political dimension that might otherwise be absent in the auditorium. It incorporates both the performers and the audience in the interpretation/creation of the fictional sphere.

By an oriented environmental approach, the city becomes an entity comparable to the universe in the cosmic scale. According to Leibniz's *Leibniz's Monadology*, the city is a unity; an autonomous form, in which the components find a common harmony. This latter also characterizes their mutual relationships, as a whole. This issue shares some goals with the practice of soundwalking when considered as the re-appropriaton of the urban space in which we live and as a response to the acceleration of our way of living, which imposes a change in our way of thinking in relationship with contemporaneity. (Max Neuhaus, *Listen*, 1976).

Multi media installations through their immersive nature, query the relationship between the subject and its environment, but often, such approaches fail, in my opinion, to take into account the question of mobility. Sound art, linked with digital technologies of telecommunication, might offer solutions to this shortcoming through creative possibilities sustained by the dynamics of movement and performative digital mobility. Mobile interaction combined with the audio stream, generate a new fictional dimension and narration by the simultaneity and spontaneity of the live creative process; a remixed as opposed to an alternative reality.

Special attention is required in the perception of a temporality appropriated for the purpose of listening, and the direct porting of actions in progress inherent to the environmental context could be in an innovative and experimental method; a new approach the writing of sound. A sort

of mixed reality which leaves space for the listeners imagination, and at the same time, the direct or indirect implication in their own temporality; in the present through movement and corporeality. Janet Cardiff and George Miller in "Alter Bahnof Video Walk" 2012, integrate exactly this concept of interaction through the mobility of the subject.

In the context of this symposium, the development of my project implies a commitment on the part of the performers, since the narrative approach I have adopted implies the interpretation of actions and movements indicated in a “score”. The moving positions of the smartphones used to stream the sound from the mobile microphones are transcribed live for the audience via a dynamic map that showing the GPS localisation of the performers (microphone carriers). Thus the listener/spectator, is embarked in an “alternating realty” where they shift between the location in which the remote geo-localized microphone is situated in an imaginary projection – because they can follow it on the map– and the actual experience of the sound in real time and then again they are participating in a fictional remix in which the streams are spatialised in the local auditorium creating an acoustically impossible telescoping of the exterior environment.

The tools of digital mobility and audio art performance combine to offer an imaginary vision of the city, while redeploying the principles of public space and private space as an element of understanding of the environment. The distance between the corporeality, of the moving individual, and the apprehension of the context through imagination are modified by the interaction between the various media (map, real-time audio stream, spatialised remix), between fiction and reality, and between the author, performers, spectators and the artwork.

The urban context is discovered as a tangible space where reality is played out, revealing at each instant the facets of a society in perpetual movement. The traces of mankind lend themselves to interpretation as a score, representing the flow of the life. The Fluxus movement explored this idea during the 1960s with a sense of humor and derision, the happening, investigated the place of the artist and his/her work, acclaiming the links between the art and everday life in a participative approach. The influence of John Cage, for whom any sound can be music, also held a major place in this lineage as he included reality and the everyday life as compositional elements. A few years later, Barry Truax of the group WSP, developed his first compositions in

the field of soundscape listening, at the Simon Fraser University, in an approach which redefined electroacoustic music.

In our cotemporary vision, the city can also appear as chaos, where the worlds anguish accumulates, and in which the non discriminant elements of the sound environment are exaggerated. When attempting to create narrative it is arguably necessary adopt an almost selective method when faced with this geography of noise, in order to define the subject while playing with forms. Daniel Deshays considers the paradigm of sound capture as being a choice, the re-creation a new reality based on prior decisons.

Sound art and other artistic practices, related to environment and the limits between reality and fiction, constitute a field of research that questions our perception of social context. Geography, sociology, town planning, architecture and various other domains are also concerned by this question, and propose different approaches to augment our perception of environment. They reveal, in particular, increasingly narrow limits between the private and the public sphere. The increasing development of media sharing and exchange via Internet, tends to erase geographical borders, reducing distance and modify our temporal scales. The development and domestication of mobile digital tools will perhaps incite individuals, through a new form of nomadism, to adopt a new of apprehension of environment, and to develop new lifestyles more in tune with society as a whole.

Bibliography

- Gottfried Wilhelm Leibniz, *La Monadologie*, 1714 (Librairie Delagrave, Paris, 1978)

- Aude Argouse, « Alain Musset, *De New York à Coruscant. Essai de géofiction*, P.U.F, Paris, 2005, 190 p. », *Nuevo Mundo Mundos Nuevos*, accessed may 15 2006, URL : http://nuevomundo.revues.org/2485

- Bernard Guelton, *Fictions et Médias, Intermédialités dans les fictions artistiques,* 2007 (Publications de la Sorbonne, group of research *Fictions et Interactions* UMR ACTE, CERAP, Université Paris I Panthéon-la Sorbonne, 2011)

- Renée Bourassa, *Journées d'étude*, *Mobilités Numériques - Corps, imaginaire des villes et réalités hybrides*, UQAM Laval University, Québec, 2013
http://figura.uqam.ca/actualite/journ-es-d-tude-mobilit-s-num-riques-corps-imaginaire-des-villes-et-r-alit-s-hybrides

- Frédéric Roulier, *Pour une géographie des milieux sonores,* Cybergeo : European Journal of Geography, Environnement, Nature, Paysage, document 71, http://cybergeo.revues.org/5034 ; DOI : 10.4000/cybergeo.5034

- Murray R. Schafer, *The soundscape: our sonic environment and the tuning of the world* (Rochester, Vt.: Destiny Books, 1993-1994. Print.)

- Ken Friedman, Owen Smith et Lauren Sawchyn, *The Fluxux Performance Workbook* (a Performance Research e-Publication 2002)

- Ben Vautier, *Text On Fluxus* (Fluxus Subjectiv catalogue, 1997)

- Steve Roden, *Active Listening,* written for the *soundwalk* catalogue, *Soundwalk 05*, sound festival, various sites, Long Beach, CA, 2005

- World Soundscape Project, WSP, Université de Simon Frazer, créé par M. Schafer

- Barry Truax, *Soundscape Composition as Global Music: Electroacoustic Music as Soundscape* (*Organised Sound* 13(2), 2008) URL: http://www.sfu.ca/~truax/OS7.html

- Richard Maxfield, *Mechanical Fluxconcert,* Fluxconcert 1964, Maxfield Tod 1969

- Daniel Deshays, *Pour une écriture du son* (Klincksieck, 2006)

- Daniel Deshays, *Sur le travail du Son,* Propos recueillis par Daniel Deshays, revue Images documentaires n° 59/60, 4tri 2006 / 1tri 2007

- Jean-Paul Thibaud, *The sonic composition of the city*, BULL Michael & Les Back (Eds.) The Auditory Culture Reader. Amsterdam : Berg Publishers, 2003, p. 329-341

Biography

Transdisciplinary visual artist arises from the graduate school of Ecole Nationale des Beaux-Arts of Paris and develops projects in the domains of the sculpture installation, the sound creation and the multimedia. He performed recently the function of teacher in art connected with the vice-chancellorship of Versailles and managed besides workshops of creations with structures socio-educational. His work turns around the likely links between the plastic arts and the experimental music, favoring the technological misappropriation and the processes of recycling or reversal of obsolete media and the new digital technologies. So adopting the shape of sound sculptures, installations, multimedia performances, the recent use of digital processes offer a potential of greater creation also allowing to create works in interaction with the public and with the space. Through this approach, I ask mainly the question of the nature of the work in the relationship to its environment in front of spectators and research to question new dimensions around the concepts of destruction and creation.

Biographie

Artiste plasticien transdisciplinaire, issu de l'Ecole Nationale Supérieure des Beaux de Paris, il développe des projets dans les domaines de la sculpture installation, de la création sonore et du multimédia. Il a exercé la fonction d'enseignant en art attaché au rectorat de Versailles, et a dirigé des ateliers de créations auprès de structures socio-éducatives. Son travail s'oriente autour des liens probables entre les arts plastiques et
la recherche sonore, favorisant le détournement technologique et les procédés de récupération et de retournement des médias obsolètes et des nouvelles technologies. Adoptant ainsi la forme de sculptures sonores, d'installations, de performances multimédia, l'utilisation de procédés digitaux et d'internet offre un potentiel de développement autour des enjeux d'interactivité, de mobilité, de streaming et de l'aléatoire. Il pose principalement la question de la nature de l'œuvre dans le rapport à son environnement face aux spectateurs et recherche de nouvelles dimensions autour des concepts de destruction et de création.

SESSION 3: Sounding Sensing and Sonification. Thursday April 17th

Moderator: Peter Sinclair

Peter Sinclair (UK, FR)

Lecture Session n°3

Inside Zeno's Arrow: Mobile Captation and Sonification

Captation Mobile et Sonification

Peter Sinclair
Artist, Researcher, Co-director of research at Locus Sonus, ESAA (Ecole Superieur d'Art d'Aix-En-Provence).

http://locusonus.org
http://roadmusic.fr

Abstract:
In the call for contributions for this symposium we suggested that it might be useful to consider audio mobility as existing with two poles: the high level symbolization of maps and recorded archives –downloadable data– versus data capture, sounding and sonification. If much hybridization exists in between these poles, this paper is clearly focuses within the latter category.

Taking as an example my recent experience with the project RoadMusic, I will argue for art forms based on a mediation of the situation, opposing this to other kinds of 'augmented reality', which rather, offer a supplementary media layer to a situation. I will consider how the activation of our naturally occurring audio environment takes place through mobility: the praxeology or the sounding of the acoustic space as developed by Jean Paul Thibaud. I will then discuss the way that this influences our listening experience on the move, in particular when the acoustic environment is replaced by an electronic one, as shown by Michael Bull. Finally I consider mechanisms of musical perception based on the kinetic syntactic theory and consider ways in which these can be used as a reference for generating musical sonifications on the move.

When I tackled my Doctoral studies a few years ago now, the principal question that I was asking was whether there is change in the artistic paradigm when a sonification is related to environment in real-time. Whether using data extracted from a situation, to generate sound for that situation, modified the sound's status. In other words might it become the actual audio environment rather an interpretation of an environment.

The idea is that rather than it being the artist who, like a recording head, sublimates flux into a fixed and tangible form, it is the artwork itself, which operates with, through and on the evolving situation. The role of a particular kind of artist being to define the way in which this takes place. In such a case it is possible to consider the system and the user as a cybernetic whole. This principle is applicable to most forms of "interactive" art and the idea has been around for some time and theorized by such people as Roy Ascott as early as the 1967 (Ascott, Engineering Nature: Art and Conciousness in the Post-Biological ERA, 2006). However, my hypothesis was that there is an important difference between interactivity where the user generates data (deliberately or not) and interactivity that incorporates real–time data from the environment, with the user, in a system. In the first instance, user and artwork are included in a closed circuit (often dependant on a dedicated space such as the gallery) ; in the second, a probe allows environment to penetrate the system and visa versa. For this principle to work I proposed that we need some kind of structure that captures and acts upon real-time in its own way. A way which, without being a fixed form, has the capacity to elevate the immediate data to a state, that 'makes sense' (or art), in some way that is appreciable for the person experiencing it.

The creative project around which this research was articulated is RoadMusic a device that generates music for your drive from your drive (which now runs on a humble smart phone) and as my research advanced it became more and more clear that the mobile aspect of this project was all important.

If I discovered a number of interesting ideas and concepts through my research into sonification by fellow artists (Sinclair, 2012), in most cases these where not autonomous in the way they functioned. Rather the data took on a role similar to that of the program in program music, in other words an added value which gives concept to otherwise abstract music or sound. An example might be John Eacott's piece *Flood Tide* (Eacott, 2009) where a live orchestra

placed on the banks of the Thames in London interpreted a score generated by the tidal flow of the River below. If this work is both poetical in its conception and quite beautifully executed, full appreciation is, arguably, dependant on awareness of the system being applied.

A notable exception to the idea that data is necessarily exposed as the conceptual basis of the artwork is Christina Kubisch's *Electrical Walks* (Kubisch, 2008). Here the audience are coiffed with special headphones that audify the patterns of the invisible and normally silent, electromagnetic fields produced by various electronic devices in the (urban) environment. I would argue that in this case the artwork is potentially self explicit and autonomous. Christina Kubisch offers maps to her public that indicate spots of particular interest, however, I propose that if one where to wear the headphones without prior knowledge of their usage, one would rapidly comprehend their functionality and ultimately be in a position to appreciate the artistic intention. For this to be the case though, the user must move around and arguably it is this mobility that generates the actual content of the piece.

Henri Bergson puts us inside Zeno's arrow from whence rather than observing form, we perceive mobility through intuition (Bergson, 1912). It seems evident that once the arrow is immobilised in the target there is little to be intuited –the arrow can only be in a state of passive reception of the exterior, whereas when it is in flight it activates all which is around it by its own passing-through. We might consider that, in a manner of speaking, there is an analogous difference between listening to the soundscape when immobile in an armchair and traversing a sound environment on foot. In the first case, we are listening, observing and in the second, we are participating in the activation.

Bergson's hypothesis was that all things in the universe are there, 'virtually' present but inactive and that we activate them as if directing a beam at them which is bounced back to us. I would venture that this is a vision-centric theory of our relationship to the world. If we take this activation from a sounding/listening position, two important differences appear. Firstly, we literally, activate the sound space around ourselves by generating sound waves through our actions, which come back to us as reverberation and echo informing us of the environment all around us (whereas we do not literally generate a beam of light rather we (choose to) direct our regard). Secondly, we share the audio scene with other sound emitting agents, which activate the environment as well (here too there is a difference with light which is reflected off objects and on to our retinas). Sound is produced by actions in our surroundings (the atmosphere), both ours and

those of other things. All reach our ears in the same vibrating air mass to which we must then apply auditory scene analysis (Bregman, 1994). It is perhaps more evident to consider our cybernetic inclusion in environment from the starting point of sound rather than from that of vision.

The idea that sound is inclusive in its nature can be found in various philosophical and spiritual models of the world ranging from ancient cosmology: Pythagoras' '*Harmony of The Spheres'* to The Sufi Teaching of Hazrat Inayat Khan, as this extract illustrates:

> Since all things are made by the power of sound, of vibration, so every thing is made by a portion thereof, and man can create his world by the same power. Among all aspects of knowledge the knowledge of sound is supreme, for all aspects of knowledge depend upon the knowing of the form, except that of sound, which is beyond all form. (Khan, 1996, p. 27)

Henri Lefebvre, who is perhaps better known for his writings on the production of space, proposed a philosophy based on rhythm called Rhythmanalysis (Lefebvre, 2004). If Lefebvre's rhythm it is not specifically related to our audio experience the choice of metaphor is essential to the understanding of the Rhythmanalysis concept. Musical listening and audio perception in general are seldom inherently passive. It is natural to respond to music by moving, singing or playing. To take an obvious example when dancing, our bodily movements and rhythms adjust to those of the music, as if we were entering into 'resonance' with it. We become increasingly aware (or perhaps increasingly sensitive, without being aware) of subtle variations or changes in pattern. Thus from a cybernetic point of view, we can include the human and the music in a single cybernetic system and the augmentation of sensation as a feedback loop.

We might liken this metaphorically to sympathy, defined as 'the state or fact of responding in a way similar or corresponding to an action elsewhere (Oxford)'. The term applies more concretely to the sympathetic resonance of stringed instruments that vibrate in unison without being touched when excited by an external force (see Hermann Helmholtz *On the Sensations of Tone* for a full technical explication (Helmholtz, 1885 , pp. 36-49)). Sympathetic vibration of a string is a particularly pure form of resonance; however, taken figuratively we might consider this exchange of energy between systems as a basis and/or a model for

approaching all types of sound space from the physical reality of acoustics to sonification.

Sounding

Lefebvre includes the individual in the environment through rhythms. These extend outwards from ourselves seamlessly and we are incorporated in them. If for Lefebvre, rhythms are not necessarily musical, in terms of acoustics we can also consider the activation of the sound environment literally, through our own actions which return to us as a modified audio impression of that environment through echo and reverberation. According to Jean Paul Thibaud, audio praxeology, the activation of the environment by one's actions in space, can be considered as our primordial sound producing activity (before language or even vocalisation) (Thibaud, 2010).

Imagine, for example, running up a flight of stairs and entering an empty room out of breath. Our panting would return to us with information about our body state and simultaneously, through reverberation, about the space which we just entered (we might add that it also informs us of the past instant of our climb and thus the architecture). In our natural audio mobility there is no barrier between sounds produced by our bodies (voice), those generated at the point of contact between our body and the exterior (footsteps) and those caused by actions external to us. These all mix in the instant of varying pressure that activates our eardrum. Thus if the door squeaks as we close it behind us, we add to the perturbations of the same mass of air caused by our panting. If as we catch our breath the quiet sound of a ticking clock becomes audible, it will also reveal the space we entered albeit from a slightly different (audio) perspective.

Before developing how all this can relate to sensing and sonification I will make a rapid detour via the research of British sociologist Michael Bull. Bull has made prolonged studies into the use of portable music devices (Walkman and more recently in-car listening and iPods) (Bull, 2010). He proposes that mobile audio devices construct a 'post-Fordist' soundscape, which operates to filter-out random urban sounds. The age of Muzak is past, we are no longer willing to accept being washed over by an anonymous blanket of sound, and the new audio practice is one of empowerment as the iPod user re-appropriates the sound environment. The idea –that we cannot close our ears– no longer holds true when wearing headphones. You can close your ears to your surroundings and simultaneously immerse yourself in an audio environment of your choice, simply by inserting 'earbuds'. This immersive quality of headphone listening influences the way in which people use their mobile players. As Bull puts it:

> This mediated experience of listening to something through headphones gives you direct access to the world and your own emotions, so it's a mediation that paradoxically conceives of experience in its immediacy. Music for many users has become such second nature, that it ceases to be recognised as mediation. (Bull, Thematic Series: Sonic Impressions - Mobile Sound Technologies, 2011)

The iPod is used aesthetically to reconstruct the meaning of the visual scene. Bull proposes that this form of mimesis is the opposite to the *flanerie* described by Walter Benjamin (Benjamin, 1997), where the 'flaneur' is the alienated subject who imagines what it is like to be the other. Here, the iPod user can appropriate a person who appears in front of them and incorporate them into their reconstructed scene –an actor to go with their own sound track so to speak. Bull's conclusions concerning personal empowerment through iPod use are a little frightening, in the sense that they leave us with little hope for the future of public social space, but the empowerment they offer over the urban environment is also desirable. Curiously, although iPod listening is not technically geo-located the modification of perception it induces possibly makes it so. Through the act of personal choice, our soundtrack takes over from the naturally occurring environment and thus participates in creating our location.

In a 1994 study of Walkman users J.P Thibaud examines the way in which gestural behaviour adapts to meet that of the music being listened to. He suggests that this places the wearer of headphones in an "entre deux" which brings into question not only the sound and social space but mobility itself:

> Rather than the condition or the cartography of the itinerary, it is the action of walking to music, allowing it to penetrate us, lending our body to the voice of the Walkman which lends content to our movement (Thibaud, Les mobilisations de l'auditeur-baladeur: une sociabilité publicative., 1994)

Today the *Sony Walkman* is a distant souvenir and many of us now have as much processing power in our pockets as a professional recording studio had a few years ago. It is therefore possible to addition these ideas:

That mobility in itself enhances the listening experience and that headphone listening while on

the move transforms music into the audio scene.

That Real-time sensing can be used to sound out the environment and if used when on the move in itself, even in its most basic form, generates a narrative which is by definition in symbiosis with the behaviour of the user and can create new bonds between the listener and the environment as is the case in the example of Christina Kubisch's electrical walks.

To these I will rapidly add another proposition which I suggest allows us to create musical form from our trajectory as that trajectory is unfolding and which involves a step sideways into musical perception. For this idea to work it is important to accept the idea's developed by Hanslick in the mid nineteenth century which propose that the beauty in music, rather than being found in mimesis of human emotions (or indeed any other association or figuration) is inherent to the music itself and the delicate relationship of the notes as they unfold (Hanslick 1854). This is the beginning of a musical formalism in which we can consider music as a flux rather than as an architecture of patterns and symmetry which is laid out. One of the particularities of music is that it unfolds in time. Even if we may hold in our memories the structure of a piece after listening to it –allowing a certain form of comprehension *a posteriori*– surely a large part of musical affect and even profound 'understanding' is to be found within this unfolding? Going back to being inside zeno's arrow, Bergson often used music as a metaphor for duration (that aspect of time, which can only be perceived through intuition and cannot be projected as a spatial concept) and the multiplicities that arise from it.

> Might it not be said that, even if these notes succeed one another, yet we perceive them in one another, and that their totality may be compared to a living being whose parts, although distinct, permeate one another just because they are so closely connected? (Bergson, Time&Free Will, 1913, p. 60).

In his 1956 book *Emotion And Meaning In Music,* Leonard B. Meyer offers a *kinetic-syntactic* explanation to this question:

> Music is a dynamic process. Understanding and enjoyment depend upon the perception of and response to attributes such as tension and repose, instability and stability, and ambiguity and clarity. (Meyer, 1961, p. 257)

Because of a previous musical event a subsequent musical event becomes more or less likely to take place (we know this, according to Meyer, because of our pre-existing knowledge of musical form), thus the significance of a next musical event is dependent on its degree of expectedness. An event that is totally expected is without significance – it is tautology. Taken further and viewed from the position of information theory 'it is the flux of information created by progression from event to event in a pattern of events that constitutes the reality of experience… (Meyer quoting (Coons & Kraehenbuehl, 1958)).' This flux then does not just depend on the musical event which immediately proceeds the present one but on the whole string of events since each has an influence in succession or as Meyer puts it: 'the significance of an event is inseparable from the means employed in reaching it (Meyer 1961, 259).' Musical pleasure is therefore related to the answering of expectations, but above all the skilful manipulation of discrepancy with obvious expectations.

It is not possible here to go into more detail of Meyers theory, however if we retain this principle of kinetic syntactic perception of music and apply it to composition we have the basis for a system to generate music in real time from incoming data which can simultaneously play on different variations in structure creating degrees of 'expectedness' and thus musical emotion without having an overall pre-defined plan or architecture.

Going back to my working experience, unlike recorded music in the car, *RoadMusic* is a sympathetic system, it has no recorded sounds to play back and the different modules of synthesis instruments that constitute its orchestra (or soundscape) are based on audification of the incoming data. It constantly responds to the surface of the road, the movements of the car, the variations in landscape and the of course the drivers driving. If however it where only to do this by direct mapping, it might rapidly be perceived as redundant and become boring (the sound inside the car would just be an analogous reflection of another sensation). As it is RoadMusic analyses data on different levels of complexity and different timescales revealing the drive through its own musical logics. Thus not only does it sonify the incoming stream of data directly, it also measures difference in order to detect events, then counts events to create statistics and combines these flux in different ways to create complex voices each of which has a life of its own that the driver gradually gets to know (and hopefully love). However these identities are always different and so in keeping with John Cage's experimental music (Cage, 1971) even the composer discovers the music as it unfolds.

I draw a parallel between the internal, caused-by and external sounds that we experience as humans (voice, footsteps and environmental sounds) and *RoadMusic's* digital sounding of the car's environment. It is the tread of the tyre on the road that sets the (virtual) audio space into resonance in its micro-sonic detail. Events echo, their influence slowly dying away. Each curve and bump is reflected in the musical structure as it is playing and as it will continue to play. Sonification of the visual field brings outside objects and atmospheric sound into the mix. As the car becomes prosthesis, an extension to our body, the music played through its loudspeakers becomes the reverberation of the re-calibrated space that the car / person(s) occupies.

RoadMusic (as its name invokes) is designed exclusively for use in the car. There are various reasons for this but perhaps the most important is the fact that when driving in a car we are, to a large extent, cut off from the soundscape through which we travel –even with open windows environmental sounds will be masked by turbulance. The modern car hybrid or electric cars, arguably, do not possess their own audio environment either and so we might consider that the car radio has become the default sound source. Compared to 'normal' car radio listening, Road Music represents a gain in terms of real-time perception of the situation since it sonifies the road and the cars movements – hypothetically, and indeed user testing would tend to confirm this, RoadMusic increases your awareness of the road rather than diminishing it as listening to radio or music in the car probably does.

The question that I am now faced with, concerns the way in which to deal with the new possibilities that audio processing power can add to iPod-type listening – (wearing ear-buds when on the move or when in social spaces). In such cases the user is in a situation where there is an existing soundscape and the information obtained through normal listening is often useful, potentially for avoiding inconvenience or even danger and yet as Anthony Pecqueux has shown (Pecqueux, 2009) individuals are willing to trade the inconvenience of what might be considered as an amputation of 'normal' hearing, for the siren of ear buds (Michael Bull develops on this idea) and judging from purely personal observation it is not a practice which appears to be diminishing. Some, possibly most, mobile applications (if one does a quick web search) are based on the principle of the audio guide, in other words they play back geo-localised sound files according to ones position in the field. This can be a way of making the iPod listening "useful" in the sense that it provides extra information and it has also become the basis for a new narrative genre as has been developed by other participants in this symposium. However I prefer to follow

my idea that there is a future in apps that generate music from and for the situation from the bottom up, so to speak, and which thus by definition include information about the field.

An obvious way to manage the inconvenience of 'audio amputation' is to do something with the existing audio scene, that is to say capture sound with the microphone do something to it to make it musical in some way and then output it to headphones. There are initiatives which tend towards this type of approach (certain RjDj scenes for example (RjDj, 2011)). We have been experimenting with this type of processing with some interesting results. By incorporating some of the code originally developed for RoadMusic (video analysis) and adding access to he smartphone's various different sensors (LocusSonus with the help of Pd developer Cyrille Henry): gyroscope, light-level, compass and gps rendered the android Pd player (originally *Scene Player* by Peter Brinkmann (Brinkmann, 2012) real time and sensitive to environment. We have started developing applications with this setup, however they are still very much in an experimental phase both artistically and technically speaking and havn't yet gained the autonomy of RoadMusic (for example). We hope that fortified by the discussions induced by this symposium we will be soon presenting revolutionary new apps, we also intend to make pd release publicly available soon.

Bibliography

Ascott, Roy. *Engineering Nature: Art and Conciousness in the Post-Biological ERA.* Intellect Books, 2006.

Ascott, Roy. "The Cybernetic Stance: My Process and Purpose." *Leonardo* (MIT Press) 40, no. 2 (April 2007): 188-197.

Bull, Michael. *Sound Moves.* New York, NY: Routledge, 2010.

—. "Thematic Series: Sonic Impressions - Mobile Sound Technologies." *You Tube.* UBC. 24 Nov 2011. http://www.youtube.com/watch?v=y66YIG7p_7c (accessed December 30, 2011).

Benjamin, Walter. *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism.* Verso, 1997.

Bergson, Henri. *An Introduction to metaphysics (Introduction à la métaphysique 1903).* Translated by T.E. Hulme. Hackett, 1912.

—. *Time and Free Will: An Essay on the immediate data of conciousness (Essai sur les données immédiates de la conscience 1889).* 3rd. Translated by F.L. Pogson. London, 1913.

Bregman, Albert S. *Auditory Scene Analysis - The Perceptual Organization of Sound.* The MIT Press, 1994.

Brinkmann, Peter. *Making Musical Apps.* O'Reilly Media, Inc, 2012.

Cage, John. *Silence lectures & writings.* London: Marion Boyars, 1971.

Coons, Edgar, and David Kraehenbuehl. "Information as a mesure of Structure in Music ." *Jpournal of Music Theory II*, 1958: 145.

Eacott, John. "Flood Tide." *http://www.informal.org/.* 2009.

Hanslick, Eduard. *The beautifull in music* . Translated by Gustav Cohen. Bobbs-Merrill, 1854.

Kubisch, Christina. "Electrical Walks." Kunsthalle Bremen. *Christina Kubisch, Electrical Drawings, Works 1974-2008.* Kehrer Verlag Heidelberg, 2008.

Khan, Hazrat-Inyat. *The Mysticism of Sound and Music.* Shambhala, 1996.

Lefebvre, Henri. *Rythmanalysis - space, time and everyday life (Eléments de rythmanalyse 1992).* Translated by Stuart Elden & Gerald Moore. Continuum, 2004.

Meyer, Leonard B. "On Rehearing Music." *Journal of the American Musicological Society* (University of California Press) 14, no. 2 (1961): 257-267.

Oxford Dictionary of English. 2010. Oxford University Press.

Pecqueux, Anthony. "Les ajustements auditifs des auditeurs-baladeurs.Instabilités sensorielles entre écoute de la musique et de l'espace sonore urbain." december 2009. http://www.ethnographiques.org/2009/ Pecqueux (accessed 07 12, 2012).

Sinclair, Peter, ed. "Sonification - What Where How Why." *AI & Society* (Springer) 27, no. 2 (05 2012).
RjDj. *RjDj.* 2011. http://rjdj.me/ (accessed december 22, 2011).

Thibaud, Jean-Paul. "Towards a praxiology of sound environment." *Sensory Studies - Sensorial Investigations [website]* . 2010 . (accessed 05 30, 2012).

Biography

Born In Suffolk, England. Lives and works in Marseilles France.

Peter Sinclair, digital media artist & researcher is best known for his sound installations and other cross-disciplinary works using sound as their principal medium.The modification of environments or situations, through the mediation of flux is Sinclair's way of interpreting the world around him. He enjoys rising to the challenge of emerging technologies, often treating them with a certain sense of humour.Beyond his personal artistic productions Peter Sinclair has participated in Artist collectives such as "PacJap" or "Daisy Chain" and worked largely with New York based artist GH Hovagimyan. His work has been shown frequently in Europe and the US in such venues as ICA / London, MAC / Marseille, MAC /Lyon, Postmasters gallery / New York, Eye Beam / New York, STEIM / Amsterdam, Gaîté lyrique /Paris, Jeu de Paume / Paris, Avatar / Quebec…

Aline Veillat (FR/CH)
Lecture Session 3
Augmented Topography By Sound

Augmented Topography By Sound

Aline Veillat
Independent visual artist
www.alineveillat.com

Abstract:
My presentation focuses on current research for a new art work using personal mobile smart devices to challenge the notion of landscape through movement and hearing perceptions. I propose to think about this question, among others, through the analysis of different art works and some experiments with mobile smart devices. For this research, the word “Landscape” is taken in its classical sense of a particular framing of a piece of environment with certain topography and qualities. Moreover a landscape is perceived when informed by cultural perceptive models. This is why the notion of Landscape in relation to visual perception is often difficult to define because it is perfectly integrated: it has become self-evident. However, when we possess this visual education, and we walk to discover landscapes, our other senses are also solicited. Now, we know that movement is central in perception of the world. Alain Berthoz adds that "topokinesthetic memory, memory of space, is memory of the movement based on body movements associated with visual or acoustic marks". Today with mobile smart devices we can walk through a landscape without paying attention to it, isolated in a private bubble of sound. For this project, the environment to explore will be a self-coloured topography that is restricted to a given space, like a 'white cube' with relief. In such a place, cut off from clear visual meaning, we will be able to focus at ease on auditory perceptions; but through the use of topographic sensors built into mobile smart devices, we will influence this hearing. Thus, it would bring up a new point of view and help us to further explore this question of Landscape. In fact, experiments could help to crack the shell, bringing permeability between inside and outside and qualifying the explored space. So what will the perception of Landscape become if experienced through listening to sounds, by the body movement - thus summoning up our topokinesthetic memory – rather than through vision?

The aim of the presentation is to give an overview of different explored disciplines to progress in a research for a possible art work using mobile smart devices. The starting point of this research, and the main object of this paper, is to question the notion of landscape through movement and hearing perceptions.

First of all I will explain how this question came up and how it leads me to take a look at ecology studying sound of environment. Furthermore because perception of landscape is a cultural question, we will see what anthropology can bring us, more specifically the contributions hearing culture. Later we will question neurophysiology of perception in particular the topic of mobility and senses cooperation, as well on the role of the memory and of the attention. Then we will briefly discover some art works using sound and mobility and see what we can learn from them. Finally just before the conclusion, some remarks will follow about a test mock-up using a mobile smart device to explore a sound space.

Before starting I want to make it clear that for my own research project I do not use the word of "soundscape", for mainly two reasons: first different definitions exist but they are very specific to certain field and not satisfying for my art research, second in my mother tongue we do not have such a word: the word "landscape" stays present, simply going with the word "sound" and I start my research thinking of some analogy between a Landscape as a painting and a space defined by sound and mobility.

How did I come to be interested in the idea of Sound Landscape?
On the one hand, since some years I regularly find myself in situations where I cannot enjoy the pleasure of walking through some pleasant surroundings. The trouble comes from noises, mainly from sounds called "anthrophonic" (produced by human activities)[2].

On the other hand, while working on an art project about violence and voyeurism, I watched war documentary scenes where sounds heard were bucolic and gentle (mainly birds) while one might expect a dead silence or violent sounds as well from this same anthrophonic category.

In both non-fictional situations, real and documentary, I was concerned how a sound dimension can modify and question my perception: what were precisely the environment and the situation I was perceiving and dealing with? More especially, since then I started to look at Landscape paintings in a different way and realized that I have never asked myself before what would be the sound of Cezanne's *Mont Ste Victoire* or the Van Gogh's *Les Oliviers*. What was the sound of these Landscapes for the painters? Did sound influence their perception thus their creation? How sound heard would have changed our perception of these very well known art works?

Therefore it is not surprising to notice that environmentalists and ecologists are among

the first ones interested in the sound dimension. Indeed the notion of “soundscape” started to be used in the sixties by Canadian composer and environmentalist, R. Murray Schafer[3] and a bit later by American bio-acoustician Bernie Krause. They both had noticed the evolution of the sound of different environments. During their research on that question they realised how meaningful and valuable sounds can be for research in ecology. They could suddenly perceive through sound listening evolution, modification, perturbation where sight perception was not revealing anything.

From their study they analyzed and categorised a “Soundscape”. Murray Schafer defines it through three main sound elements: keynotes sounds (like a background), sound signals (foreground sounds) and soundtracks (unique to an area, like a signature). Bernie Krause[4] talks more about 3 groups of sources: geophony (generated by non-biological natural sources such as wind), biophony (all from non-human living creature) and anthrophony (produced by humans). Both used sounds records for ecological long term studies and archived “soundscapes” as memory of places.

These concerns are all the more relevant today - even if from country to country, culture to culture, methods might differ. In 1994, W. J. T. Mitchell summed up the situation in a sentence: “Landscape is now more precious than ever – an endanger species that has to be protected from and by civilization, kept safe in museums, parks, and shrinking “wilderness area”.[5] For him “Landscape is a medium” that could be political, economical and social tools and marks.

Yet, my concern is not on ecology but as mentioned before, I am interested to think about what I call “Sound Landscape”, where the word “Landscape” is taken in its classical sense of a particular framing of a piece of environment with certain topography and qualities. It coincides with the painting notion which involves on the one hand a “frame” to mark out through a “point of view” a piece of environment to focus on, and, on the other hand the later is transformed as creation by a process of “artialisation”[6] . To be more precise my concern is here to understand what means to perceive a “landscape” while it is define by sounds.

Thus, a landscape is perceived, so recognized as such by sight, when informed by a cultural perceptive model. The anthropologist Philippe Descola in his College de France courses specifies that “the landscape is the result of an interaction which joints an individual and a place. This interaction forms a place as a landscape for the individual but perhaps not for his neighbour.

The landscape does not exist in itself it is a physical and cognitive mediation that objectivises a reality.“ [7]

In fact anthropology can bring us some key elements to understand and specify what a Sound Landscape perception could be as a science that tries to define concepts beyond cultures. Because as Roberto Barbanti remarks, it is “also sounds, specific odours and specific climatic conditions that allow, as a whole, to perceive the place to which we are present. Hearing is the only form of perception which refers at the same time to the perceived sounds, to the uttered speech and to the dimension of vibratory touch. We can therefore by analogy reasonably consider hearing - thanks to its specific multidimensional nature - as the most capable to represent the perceptual complexity that is involved in the concept of landscape.” [8] Philippe Descola reinforces saying that we should not confound “Sound Environment” and “Sound Landscape”, while the former refers to a direct listening of sounds from a place where we are present, and the later requires both selective recordings and a re-creation or composition - which is the artialisation dimension. But he also adds that “like a painting or a sculpture, sound recordings can provide a real experience on the subject. A sound landscape is heard - in the sense that its structure and what it refers to may emerge from the noise - only if we have already internalized the use of what *it is the landscape*.”

So it seems that we still have this question about the necessity of a perceptive schema concerning the hearing perception to be able to experiment and recognize a Sound Landscape.
Actually Descola mentioned[9] that Edmund Carpenter[10] also developed in the sixties the idea of soundscape in ethnology while studying an Inuit group from Canada. He discovered that the Inuit world is defined through sound rather than through sight. Sound reveals presences whose existence is proved by the echo of their action. More precisely according to Carpenter the soundscape is dynamic, always flowing, being under way to create its own dimension at any moment. A soundscape is not a surface like a Landscape (painting) but a sphere that spreads out in all directions from the listener.

Similarly, Steven Feld[11] worked for many years with the Kaluli (Bosavi) people of Papua New Guinea, whose culture is as well a hearing culture. Thus Feld learned during 25 years how to hear, how to perceive through hearing a place and as well he learned how to interact through sound with an environment. He studied and made recordings of “ambient sounds that Bosavi people sing with, to, and about.”[12]

He showed how sound can create a place and how place can create meanings. “It’s not only their relationship to the forest but to each other. The sound raises the question about the indexicality of voice and place, to provoke you to hear sound making as place making.”[13] This last remark brings up the question of territory i.e something that can be considered as landscape? In fact he specified also that “place resounds as a fused human locus of space and time. Local acoustic ecology can thus be considered a kind of aesthetic adaptation, a naturalization of place, or, put differently, a pattern of ecological and aesthetic co-evolution.”[14] He made a lot of recordings but then worked carefully on editing to give the possibility to novices to understand this concept coming from hearing culture. “When you hear the way birds overlap in the forest and you hear the way voices overlap in the forest, all of a sudden you can grasp something at a sensuous level that is considerably more abstract and difficult to convey in a written ethnography.” [15]

It is noteworthy that these two non-visual but hearing cultures (Inuit and Papuan) grew where the view can hardly give information about space. The rain forest of Papua New Guinea is of such a density that the sight immediately runs into her, no possible step back or to grasp any point of view. In contrast, the Arctic world of Canada is rather flat and uniform and without bumps or contrast to catch the eye. Thus in both cases hearing opens up to a possible perception, giving access to dimensions of distance, time and depth among other. Moreover sound is the result of action, movement, vocal expression interacting with the milieu.

In any case, sound is multi directional and attention is required, motion need to slow down because our body itself is a vector of sound, as part of this sound space. Taking up the title of a book written by Michel Chion[16] for whom sound implies meaning and construction of a world, we become “promeneur-écoutant” (listening-stroller).

However, when we have a visual education and we walk to discover landscapes, our other senses are also solicited. Now, we know that movement is central in perception of the world. Alain Berthoz tells us, quoting Poincaré, that "a motionless living being would never be able to acquire the concept of space." He specifies that "sight and touch could not give us the sense of space without the muscular sense."[17] Furthermore, "topokinesthetic memory, memory of space, is memory of the movement based on body movements associated with visual or acoustic marks" [18]. And a Landscape (even painting) is a space as a promise of motion, of walking through.

In fact Alain Berthoz speaks about the "cooperation of the different senses" while walking thanks to the intertwined perceptive senses. Moreover in a paragraph entitled *The coherence between seeing and hearing* of his book *Le sens du mouvement* , he specifies where is precisely built this perceptive coherence and its effectiveness : " We found [...] three sensory maps [...] sharing the same neurons : a visual map [...], a map of sound space [...] and a map corresponding to the different parts of the body [...]. These maps are unique to each species. [...] The most important is that these three areas of perception share a common zone: the retinal space." In addition, "there is a mutual reinforcement between visual and hearing inputs for each neuron where these two modes converge."

Moreover, the walker has a body and a brain that's root him in reality. He is the one who, by his involvement, will give "reality" to the space. He is going to construct it through his motion. The coherence of the spatial representation enables the efficiency and accuracy of reaction thanks to the "predictive character of direction movements.” Thus sounds inform us to the direction of the sound source, i.e. to an orientation of the space we are moving through.

Indeed, thanks to the sight we can anticipate the trajectory and as pointed by Alain Berthoz, I can "go where I watch." We could add “I can go where I hear”.

Thus "the multisensory nature of perception includes the presence of signals not coming from senses, but from the intention of movement"[19]. And the brain implements its mechanisms of anticipation of movement, especially by comparing the current sensory data to the data already encountered. Thus what is far gets close attesting the hypothesis of "proximity by distance" of Merleau-Ponty[20]. Then in its turn what is near becomes distant, in the constant ebb and flow of what surrounds us. Then a hierarchy of touching , of moving is established which allows there again to make a choice , to mark a delay in acting, to slow down the rhythm in the discovery, or rather in the construction of space. From sound to sound, like in a sound layered space, we move and perceive.

With regards to the perception of Sound Landscape we still seem to need a pre-established schema of hearing perception. Once again, memory can play a great role. Henri Bergson long ago already in his *Essai sur les données immédiates de la conscience* (1889), emphasized the subjective nature of perception and of awareness due to the role of filter played by memory. In *Matière et mémoire* (1896), he wrote that the memory "creates again the present perception, or rather it doubles this perception by sending back its own image [...]". The painter

Pierre Bonnard found there a confirmation of his research on sensations and his subjective and slow approach of a creation based mainly on memory of feelings. While on site in the countryside he was taking notes, making a large scale of touches associated to feelings or sensations of any sort. For him in fact sensations were preceding and nourishing perception. He would certainly have appreciated that in the year 2000, Edelman and Tononi showed that "every act of perception is to some degree an act of creation, and every act of memory is to some degree an act of imagination. Therefore, the biological memory is creative and non-replicative."[21] And they made it more precise adding that "the conscious perception and the memory should be taken as two aspects of one and the same process." [22]

Moreover, it should be noted that our "center of interest" seems to raise our consciousness: our perception "is reduced, in fact, in what interests [us]."[23] What Gerald Edelman specified and confirmed when he wrote that "attention highlights *the fragility* of the consciousness: it focuses the mind on its subjects and abolished or at least mitigated the surrounding. Indeed, it seems only possible to devote a specific attention to some objects or to a succession of thoughts at the same time." [24] Perception would come only as a limitation of the thing and as a hierarchical division between the foreground and background of the world.

Let's see now through the analyse of four art works using sound and mobility and inviting mainly our hearing and kinaesthetic but not visual perception, which kind of space we perceive and if some works can bring us close to a "Sound Landscape" perception or not. (Details will come during the presentation at the symposium).

First of all, as innovator taking into accounts the movement in music Karlheinz Stockhausen (1928-2007) created *Musik für ein Haus* 1968 with musicians and "promeneurs-écoutant".

Then Christina Kubisch, who incorporates to sound dimension since her first performance in 1970, invited in 2001 to discover through movement and hearing *Le jardin magnétique*.

Will follow a remarkable audio walk from 2007, a work by Christoph Mayer which deeply involved the "promeneur-écoutant" and which dealt with memory, history, past and present intertwined.

And finally one of my art works, *Là-bas est ton ici et là-bas sera ici* from 2008, an installation for a particular walk to discover sounds, i.e. to follow testimonies about biographies

and geographical displacements.

The current project involving a mobile smart device is at a state of a technical test mock-up and still in progress. The idea is to explore an environment, restricted to a given space, like a 'white cube' with no visual references. In such a place, cut off from visual clear meaning, we could focus at ease on listening perceptions; but through the use of some topographic sensors plus a microphone built in mobile smart devices, the “promeneur-écoutant” will influence his hearing. The first step of the experiment is to perceive a sound space as a whole, but as Descola was saying “this interaction makes that this place is a landscape for this individual but perhaps not for his neighbour.”[25] (The mock-up will be presented and it will able to test it during the symposium.)

The aim of this presentation was to give an idea of the path taken by my current research to challenge the notion of landscape through movement and hearing perceptions, thanks to a mobile device. We have just seen that one of the main constraints is our cultural perceptive schema.

This is why I would like to convoke Jean Rouch (1917-2004) the great ethnologist saying that “the only way to film is to walk with the camera, to take it where it can be most effective [...] the camera becomes as alive as the men it filmed.”[26] But he also wrote in 1973[27] about “tomorrow”, when “tomorrow will be the time of completely portable color video, video editing and instant replay (“instant feedback”[28]) [...] a camera that can so totally participate that it will automatically pass into the hands of those who, until now, have always been in front of the lens”. Today is Jean Rouch’s tomorrow. We have a portable mini camera and integrated camera on mobile smart device; no one would contradict Jean Rouch, specifically not people who survive in critical places and testify or give a sign of life thanks to their mobile smart device - and internet.
However with these mobile smart devices we can also walk without paying attention to our surrounding, isolated in a private bubble of sound and personal messages. And yet, thanks to many other sensors among other some detecting movement and a microphone, we are able to record and collect data about part of our behaviour. The “subject” of study is now the person who holds the device, i.e. the “instant feedback” does not concern only people “in front of the lens” but the holder himself. And behaviour in many aspects is leads by the surrounding. Could it bring us to open up our awareness and attention to the world and to others thanks to our other senses? Could it help to relax and blur the strong - even unconscious - cultural perceptive schema?

Preliminary note: Part of this presentation, mainly paragraphs about neurophysiology of perception, refers to the same reference[1]. Furthermore all quotes, when needed, were translated by the author of this paper.

[1] VEILLAT, Aline, *Espace-milieu: espace numérique envisagé comme espace palpable*, PhD dissertation from department of Aesthetic, Sciences and Technologies of Art, University Paris 8, 2002.

[2] According to the sound ecologist Bernie Krause (born in 1938) sounds categories.

[3] Raymond Murray Schafer, (born in 1933) is a Canadian composer, writer, music educator and environmentalist. He is known for his *World Soundscape Project*, concern for acoustic ecology.

[4] Bernie KRAUSE: "Careful listening gives us incredibly valuable tools by which to valuate tools by which to evaluate the health of a habitat across the entire spectrum of life."
http://www.ted.com/talks/bernie_krause_the_voice_of_the_natural_world

[5] MITCHELL, W. J. T., *Landscape and power*, The University Chicago Press, second edition 2002, p. 20.

[6] ROGER, Alain, *Court traité du paysage*, Ed. Gallimard, Paris, 1997, p. 18. - "A land is not from the outset a landscape and there is from one to the other, all the development of the art."

[7] DESCOLA, Philippe, chair d'anthropologie de la nature, Cours du collège de France 2012/2013, online.

[8] from DROUHIN, Julia, PhD dissertation *L'œuvre de la marche : créer dans les pas d'artistes flâneurs*, Paris VIII, 2011, p. 169 – quotation : BARBANTI, Roberto, *L'expérience du paysage sonore. Éléments de réflexion autour d'un archétype perceptif*. Sonorités, N° 5 (Traditions Créations Instruments Signes), septembre 2010, Nîmes : Éditions Champ Social, pp. 135-144.

[9] Philippe DESCOLA, chair d'anthropologie de la nature, Cours du collège de France 2012/2013/2014, online.

[10] Edmund CARPENTER (1922-2011) anthropologist, cinematographer and media theorist. He had collaborated for a while with Marshall Mc Luhan. He studied for many years Canadian Inuit culture which is a Hearing culture. He wrote a book in 1955 "Time/Space concept of Aivilik".

[11] Steven FELD (was born in1949) studied with Carpenter. He started first as musician then studied to be sound ethnographer (as he defines himself being critical of ethnomusicology), anthropologist as well as linguist.

[12] FELD, Steven, *Doing anthropology in sound*, in American Ethnologist, Volume 31 Number 4 November 2004.

[13] FELD, Steven, Ibid.

[14] FELD, Steven, *From Ethnomusicology to Echo-Muse-Ecology:Reading R. Murray Schafer in the Papua New Guinea Rainforest,* Essays in *The Soundscape Newsletter,* Number 08, June, 1994. This essay is a short abstract of his talk-slide-audio presentation at The Tuning of the World Conference on Acoustic Ecology, held at the Banff Centre for the Arts, Banff, Canada, in August 1993.

[15] FELD, Steven, Ibid.

[16] CHION, Michel, *Le promeneur écoutant, Essai d'acoulogie*, Ed. Plume, Paris, 1993, 195 pages.

[17] BERTHOZ, Alain, *Le sens du mouvement,* Ed. Odile Jacob, Paris, 1997, p.45.

[18] BERTHOZ, Alain, *Parietal and hippocampal contribution to topokinetic and topographic memory*. Phil. Trans. R. Soc. London B, 352 : 1437-1448.

[19] BERTHOZ, Alain, *Le sens du mouvement,* Ed. Odile Jacob, Paris, 1997, p. 96

[20][20] MERLEAU-PONTY, Maurice, *Le visible et l'invisible*, Ed. Gallimard, Paris, 1964, nouvelle éd. 1979, p. 170.

[21] EDELMAN, Gerald M., et, TONONI, Giulio, Ibid., p. 123.

[22] EDELMAN, Gerald M., et, TONONI, Giulio, Ibid., p. 204.

[23] BERGSON, Henri, *Matière et mémoire*, Ed. PUF, Paris, 1939, p.38.

[24] EDELMAN, Gerald M., *Biologie de la conscience*, Ed. Odile Jacob, Paris, 1992, p. 224.
[25] DESCOLA, Philippe, chair d'anthropologie de la nature, Cours du collège de France 2012/2013, online.

[26] ROUCH, Jean, *La camera et les hommes*, in de FRANCE Claudine (dir.) *Pour une anthropologie visuelle*, Ed. Mouton, Paris, 1979, pp. 54-71

[27] *Ciné-ethnography / Jean Rouch*, edited and translated by Steven Feld, Ed. University of Minnesota Press, 2003 - *Ciné-ethnography / Jean Rouch* is a long-overdue English-language resource that collects Rouch's key writings, interviews and other materials that distill his film making, ethnography and his own career.

[28] "instant feedback" or "audiovisual reciprocity" where the subjects in front of the lens can see and take part of the shooting, when the camera can pass to their hands to show something about themselves, about their world. The shooting becomes a collaborative action.

Biography

Aline Veillat was born in Réunion island and grew up till her last teenage years in Rabat in Morocco. Later she lived in Paris and Lausanne, and since some years she is working and living in Basel. She holds MA and PhD degrees in Aesthetic, Sciences and Technologies of Arts from Paris 8 University and Post-Diplom in Digital Media from Lausanne Cantonal Art School. After a period of theoretical research mainly in art and phenomenology to question the spatial perception in the time of interactive new media, she started to work as an artist. Like many artists, the final form of her works is determined as a function of the ideas she set out to explore.
Her works were exhibited in various places in Switzerland, Belgium, Poland, China and USA as recently in the Museum of Contemporary Art in Puerto-Rico. She went several time abroad for different artist-residencies in China, Canada, and USA. She is currently living and working in Basel in Switzerland.

Romain Barthelemy (FR)
Lecture Session 3

Navigating by Sound in my SmartCity+

Romain Barthelemy
Sound Designer ENSCI
www.romainbarthelemy.com
Roland Cahen
Head of the sound studio at
ENSCI-les Ateliers responsible for the project
http://roland.cahen.pagesperso-orange.fr/
ENSCI (École nationale supérieure de création industrielle)
www.**ensci**.com/

Translated into English by Gabrielle Cahen

Abstract:
SmartCity+ consists of an immaterial layer to be added to a real city, comprised of a map and a timeline. It is meant to allow people, services and located information to be expressed in real time and, more specifically, through the use of sound. This article is concerned with the phonic/auditory aspects of the user-experience. It seeks to explore an auditory enhancement of the urban experience on mobile devices.
In its most basic form, SmartCity+ offers to supplement reality with services providing geographically located auditory notifications. In this version it is necessary for sounds that are heard to be significant for the user in order to make it easier for them to learn how it works. Therefore we are mainly talking about extending the current phonic lexicon that is currently being used by existing platforms. It also required the development of new functionalities such as: the differentiation between different auditory notification, sound avatars and mediacenters. Certain services of the SmartCity + platform have also developed ways of contextualising auditory events and notifications (audioguide, localisation of contacts). Finally, in order to facilitate sequence memorisation, it was necessary to develop audio-graphic expressions of both itineraries and the calendar. In its more prospective and extended form, SmartCity+ creates an immersive and auditory augmented reality in situations selected by the user, by making use of spatialised sounds. In order to address these needs, we have chosen the metaphor of the sonar: an activator that is adaptable to usage and to full listening mode, and a mode for continuous activation for mobility.

Résumé :
La SmartCity+ est une couche immatérielle ajoutée à la ville réelle : une carte et une timeline liées, sur lesquelles les personnes, services, information situées s'expriment en temps réel notamment avec des sons. Cet article traite plus particulièrement des aspects sonores et de l'expérience utilisateur. Il pose la question de l'augmentation auditive de l'expérience urbaine sur les dispositifs mobiles.
Sous sa forme minimale, SmartCity+ propose une réalité augmentée par des services comportant des notifications sonore situées. Dans cette version il est nécessaire que les sons entendus soient signifiants pour les utilisateurs et que leur apprentissage soit facilité. Il s'agit donc principalement d'un travail d'extension du vocabulaire sonore qu'on rencontre sur les plateformes existantes, auquel viennent s'ajouter des fonctionnalités comme : la différentiation des notifications sonores, l'avatar sonore et les médiacenters. Certains services de la plateforme SmartCity+ font également appel à un travail de contextualisation des évènements sonores et des notifications (audioguide, localisation des contacts). Enfin un travail sur la mémorisation des séquences, porte sur l'expression audio-graphique des itinéraires et de l'agenda.
Sous sa forme plus étendue et prospective, SmartCity+ propose une réalité augmentée sonore immersive dans des situations choisies par l'utilisateur avec une spatialisation des sons. Nous avons développé pour cela la métaphore du sonar, un activateur adaptable aux usages, ainsi que le mode pleine écoute, un mode d'activation continu pour la mobilité.

INTRODUCTION

Adding to our immersive experience of the city on mobile devices

Our ability to recognise a large number of sounds in our daily environment shows that the quantity of acoustic stimuli is not an obstacle to understanding our auditory environment. We have no problem interpreting the events that we recognize, especially when they possess distinct timbers, when they are spatially distinct or when they are associated to objects, actions and contexts that we are used to. When several sounds come from the same mobile device, they come from the same place and therefore give the illusion of having a single cause. How can we make sure that sound signals emitted by mobile devices will be easier to differentiate and not ignored or perceived as being a nuisance? How can we integrate them to the way we experience our daily space in the same way as external sounds? Beyond crucial psycho-cognitive questions - notably those of attentional economy and sign-learning - our research intends to address how the acoustic expression of the immaterial aspects of the city can become a consideration in our daily interactions with the physical world.

Our hypothesis is that to be understood, sounds have to be not only distributed and immersive; but also intimately associated with actions and usage.

Leave the sound on

In our daily lives, there are times and places where we need silence for concentration and rest; but at other times, like when we commute to and from work - we are drowned in the hubbub of sound. Navigating these different environments is made easier by the fact that physical space is categorised by separate functionalities and closeted off by doors and walls. In the virtual world, structures are unstable and there are no doors.

Users of mobile devices often mute their machines, especially if they lean towards the noisier side of the spectrum. Sound is often considered - by default - to be a disturbance. We want to show that sound is not only useful, but indispensable. We could even go so far as saying that every sound is a disturbance in one circumstance and useful in an other; which by no means facilitates the work of the sound designer. Our project here is to make sound tolerable when it is useful, and discreet or absent when it should be, to dissuade the user from disabling it. Our objective is to change the user's attitude from "shut-up" to "speak if it's important for me to listen to you". If he or she needs to mute the device, they should be incited to reactivate these functionalities afterwards. In order to achieve this we suggest 1) an intelligent use-based design allying functionalities with their auditory expressions and 2) speedy access to the way in which the platform's sounds express themselves that is easily and quickly adaptable to use (c.f. SmartVolume or a Sound Density Selector)

Sound design of the user experience of a platform of services

The SC+ platform is not meant to realise the services provided by the phone itself, or meant to duplicate existing services, but to integrate existing and independent services in an environment dedicated to hyperlocability. To this end, it is not about giving sound to service functionalities, but about offering a choice of auditory functionalities, available to partner services. The default detailed settings set for each service and platform manager, can be modified by the user in the platform preferences.

A forward-looking approach to phonic navigation

SmartCity + is first and foremost a map and, as such, it must allow a synthetic representation of the urban space in order to facilitate the search for useful information. With the rise of mobile terminals and geolocalisation, maps have become sorts of parallel cities,

superimposed upon the real city. The mass of in-situ information habitually given by tangible sources such as street signs, surrounding sounds and human beings are supplemented or even replaced by a flow of contextualised data. In situations of mobility, auditory information is particularly useful given that our eyes are busy finding their way around, recognising obstacles, or controlling the direction of a vehicle. In these situations, our ears can supplement the visual modality to bring us information about non-visible aspects of navigation such as the danger presented by unseen vehicles, external events, or even interactions with people or with the environment.

Modeling interactive functions

For this project we principally used the following modeling tools: animation, video, MaxMSP and Unity 3D. MaxMSP allowed us to rapidly trial models at a very early stage of the project; whereas Unity was used to support the realisation of functional software units ready to be integrated and linked up with partner platforms.

GIVING SOUND TO MOBILITY: LIBERATING THE VISUAL

Specifying the phonic lexicon

The phonic lexicon of a digital interface must be concise; and yet transmit a precise and intelligible message. Therefore, it is crucial that sounds express their function in a very short period of time and that they should be instantly and easily identifiable, regardless of the listening context. We privileged the creation of sounds whose essential characteristics could be perceived in mono and in a limited bandwidth (between 200 and 7000 Hz). This facilitates their intelligibility on lower quality devices, such as integrated speakers. However, given that Smart City + is a multiplatform tool, sounds must also be adapted to higher-quality devices, such as headphones or Hi-Fi speakers: in stereo and with a larger bandwidth. We developed a phonic lexicon that would be less pleonastic for the listener and more informative when on the move. The number of items in the phonic lexicon has to be limited in order to make sure that the listener can remember them all. We looked for strategies to ensure that the size of the lexicon was developed in accordance with concerns about functionality and memorisation. Wherever possible, we chose to reinforce visual expressions with auditory ones and vice versa, so that users may access the information regardless of their modal sensory competence or the situation of use.

PERSONALISING NOTIFICATIONS

Thematic sound-function associations

To facilitate the appropriation of auditory notifications, we decided to let the user select an auditory universe for each known functionality (calendar, email etc.) For example, email could be expressed through the theme of birdcalls, boat-noises or circus-sounds. Notifications upon receiving new messages or for messages having been sent, delivered and read can also be selected from the same universe. The first stage in users' learning curve is to associate the universe (birdcalls) to the function (email). They can then go through subsequent stages such as learning to recognise the different types of notifications: urgent vs. non-urgent, reception of multiple vs. singular messages, etc. As soon as they have received the notification, and without having checked the screen, users can know how many messages they have received and how urgent they are.

Apposing suffixes to notifications: the example of the auditory avatar

The *auditory avatar* is like the auditory "profile picture" or 'signature' of the user in Smart City+. Thanks to this *avatar*, users can communicate with and notify their contacts. The auditory avatar permits the enhancement of certain notifications (messages, alarms) by incorporating them. In certain situations it renders optional the currently automatic recurrence to the visual interface. For example, a calendar notification, accompanied by an auditory avatar, reminds users both of the imminence of the meeting and the person with whom they are meeting.
Users can personalise their avatars when they complete their profile or pick one by default. This morsel of sound is constructed around a short vocal element. Users are encouraged to record their own voice, but can also "chose their voice" amongst a panel of propositions according to age and gender (see Fig. 1 in Appendix A). The selection offered is an ensemble of calls and interjections: they are universal in that they offer non-synthesised voice timbres. By doing this Smart City + seeks to offer auditory aesthetics and diversity we experience in real humanity.
A second stage in the personalisation process allows the user to select a genre (techno, classical, humour…), made of three short sounds that complement the voice, which insures good audibility in case of poor recording quality or listening conditions.

INDEXING AUDITORY POI (Points Of Interest)

Auditory icons

Smart City + is organised around the user's search for local POI. POI can represent local shops, friends nearby or even services provided by local government. POI are classified by category: each POI has its own auditory icon. The icon identifies each message notification, alarm, the opening of a *mediacenter* (a popup window containing informations about the POI) or the activation of a POI thanks to navigation tools such as the *sonar* (described further). POI categories are exclusive, meaning that a POI cannot be marked as belonging to two different categories. These auditory icons are created from short elements so as to rapidly dispense information. They illustrate the category they represent (child's voice for childcare, musical trait for cultural activities), in order to speed up the learning process and aid memorisation. The POI categories have an auditory grammar which has been voluntarily simplified so as not to confuse the user.

Learning through use

Even though we have taken care to create iconic sounds, we are aware that there is a part of subjectivity implicated in causal listening. So we are hoping that the context will aid in the learning process; but also because there will only be a limited set of sounds to memorise. The auditory icons are audible at the instantiation of each POI, during notifications; but also when POI are manually selected on the map. The multiplication of contexts of apparition in the interface allows users to memorise the significance of the auditory icon.

Prospective work on spatial and temporal sequences

A prospective piece of work was carried out better to memorise itineraries and the calendar by using sound synchronised with animation. The aim of this work was to encourage the user to recur to the visual interface less often when they have forgotten the information. The SC+ platform provides a service for itinerary planification in public transport, completed by a pre-visualisation and/or pre-audition functionality. An audio-graphic animation indicates the stages of the itinerary and offers a preview of the transit (see Fig. 2 in Appendix A). The visual mode

gives spatial, textual and iconic indications: location of starting and finishing points, changes, length of commute, line numbers, etc. whereas the sound illustrates segments of each mode of transport (tram, bus, on foot, train, bicycle, metro), and highlights the stages (departure, change, arrival). The audio-visual bi-modality should permit a faster memorisation for the itinerary. This system has also been modeled for the agenda (see Fig. 3 in Appendix A).

Audioguiding and localised notifications

On the go, the same system operates for in transit navigation, either during commuting time or throughout the day. It then functions like an audioguide: either in the form of contextualised notifications during transit and calendar updates as time passes; or by activating POI in our immediate environment during our commutes, which we will refer to as the 'auditory navigation' or 'full listening mode'.

APPROACHES TO AUDITORY AUGMENTED REALITY

Auditory navigation

This project uses the concepts of *auditory navigation* and of "*topophonie"* developed in the previous projects ICARE, PHASE, ENIGMES and TOPOPHONIES. A "*topophonie"* is a space, a geometry or an architecture of sounds, that is to say the structure of an ensemble of distributed sound sources (in a real, virtual or augmented space). *Auditory navigation* is the experience of the visitor in "*topophonies"*: that is to say the auditory or musical sequences resulting from the movement or actions of the listener. The sound sources are activated - that is to say triggered and controlled by what we call *activation modes*. For example, the most frequent activation modes used by mouse navigation are *clic*k and *roll*.

Sonification of POI (Points of Interest) and RTE (Real Time Events)

We can distinguish two categories of auditory elements in spatial or temporal representation that can be expressed during navigation on the timeline or on the map.

- POI are static points of interest (e.g. restaurant) or dynamic ones (e.g. contact) which are heard only when users' requests that they should be, for example when they search for restaurants close by.
- RTE are punctual elements in real time which are expressed at the very time it happens, for example when a parking spot becomes free.

Smart City+ offers a collection of activation modalities of the sound sources (POI) adapted to the usage of the platform:

1) Activities linked to selection and search

Individual triggering of POI upon selection or along with search results.

2) *sonar* and *torche* mode (see Fig. 4 in Appendix A)

The *sonar* function triggers POI present in a certain radius by a circular probe activated by a quickly touching the screen or holding it over the user's position. It looks like a ring or bubble around the user.

Torch mode is activated directionally by pointing the device or by manually aligning direction and distance on the screen.

3) The *full listening mode*.

Full listening mode

The *full listening* mode is an immersive mode. It corresponds to a sort of auditory "Street View". It can easily be activated while in motion by zooming in on the map (up to a scale of screen/20m) or by double tapping on the on-screen avatar. This is the visual and functional equivalent of a permanently active sonar around the user's avatar: by moving, users activate the POI which enter their bubbles (see Fig. 5 in Appendix A). The full listening mode is made of three auditory components. An immersive sound (a city ambiance) is activated with the "Map view" and its volume varies progressively according to the zoom level in order to give users the impression that they are "entering" the map. A drone (continuous sound) present throughout full listening mode informs users about the activation of their sonar around them. The sounds of POI met along the way are triggered when they enter the sonar perimeter.

ACCESS TO USER-PREFERENCES

Taking listening contexts into account

The transmedia vocation of Smart City +, as well as the mobility it requires, make it necessary for us to take into account the heterogeneity in contexts of use. Auditory needs and the disturbance sounds create vary enormously according to location (at home or on the street), the listening device (headphones or speakers integrated to the device) and the level of urgency of the

search for information. Users must be able to easily access a level of preference-management to adapt sounds to their usages.

Classification of acoustic elements at the interface

In order to provide an efficient auditory manager, we had to decide for each of the sounds how useful it is to users. Acoustic events fulfill different functions in a visual interface. Some of them complement visual functionalities (typing sounds), while others dispense specific information (sonar). Therefore they do not all have the same informational value. We have established a classification of three types of acoustic functionalities.

1) the purpose of *interface sounds* is to give an immediate auditory return upon an action performed on the device. They allow a more precise, faster manipulation that reduces visual attention and gives information about the interpretation of commands (e.g. validation or failure). They possess strong visual equivalences which users are familiar with.

2) *Auditory notifications* are important events. They are exterior to the user, in the sense that they do not directly depend on his or her actions. They aim to rapidly inform users regarding something which requires their attention in the application (e.g. reception of new messages or calendar alerts) at times when they do not necessarily have access to the visual interface.

3) *Advanced auditory functionalities* are auditory services which require a specific initialisation in the application. That is to say that the user has to activate them (e.g. using the sonar to scan surrounding POI or using the audioguiding). These functionalities have been specially designed for Smart City + and do not yet exist elsewhere (pre-audition of the day's program, pre-audition of a transit route, in transit audioguiding, sonar, auditory avatar). They need to be easy for users to suspend at times when they only require the visual information.

Designing SmartVolume

From this classification, we have imagined several interface propositions. Our aim in this project was not to design the visual interface but to find a way of accessing an auditory interface. For each proposal, the problem was not to finalise a graphic element, but to introduce different ways of managing the density of auditory demands in Smart City +. We need to allow users rapidly to update their preferences. Simplicity is a key factor to ensure that the sound does not get muted by default. However, this requirement goes beyond adding a new volume dial on top of

those that already exist in all currently available devices.

Listening modes

A selection of listening modes is already present on numerous mobile devices to manage ringtones, alerts and vibrating notifications. Most often the activation or deactivation of acoustic events is binary: auditory mode and silent mode. Here, four modes are offered to allow the user to vary the auditory density and the nature of audible sounds in function with predetermined needs (see Fig. 6 in Appendix A).

The chosen nomenclature corresponds to contexts of use that are comprehensible to the user (public place, soundlover) rather than being descriptive of the "level of sound". We even leave open the possibility for the user to personalise one of the modes for it better to correspond to their own use. Additionally, the concentric disposition should diminish the gradation effect, and therefore counteract the assumption of growing importance implied by a linear disposition.

SmartVolume

*SmartVolume_* (see Fig. 7 in Appendix A) is a selector of auditory density. It is a simple cursor which allows the user to easily adjust the density of auditory events produced by the interface, according to their level of importance. It is determined by default for each event, thanks to attributes (called *priority*) between 0. and 1. SmartVolume thus functions like a filter with a variable threshold to mute or play sounds according to their level of priority. Users can define the levels of priority for each service offered by the platform in order to compose their own SmartVolume. SmartVolume is presented as visual interface allowing the user to control the sound according to their needs.

CONCLUSION

This project addresses fundamental questions concerning the use of sound in augmented reality: the assumed nuisance, the need for attentional economy, the difficult question of how to make easily memorable sounds and the more general problem of ergonomy. Even though they are far from being resolved, this project offers concrete tools allowing us to project them into real situations. We have given the SmartCity+ platform a functional auditory interface where sound is more than a simple counterpart to the visual, it completes it. Thus, sound becomes a tool and a

semantic agent in its own right. User-tests of the application still need to be carried out in order to adjust the priorities and to improve the identification of the auditory icons, as well as to address the ergonomy issue.

THE SMART CITY + PROJECT: Navidis, Altran, ENSCi-les Ateliers, ESRI France, Grand Paris Seine Ouest, Issymedia, Le Cube, TelecomSudParis.
The Smart City+ project aims to define and develop a digital platform for the aggregation and distribution of content and of local services for citizens, collectivities and local economic, social or cultural agents. Smart City + builds on modes of representation and of urban data valorisation in real time 3D environments, synced to the "Cloud". Its objective is to inform, interact with and develop local economic activity. It is inscribed in the SOLOMO universe (SOcial / LOcal / MObile) with a multiplatform transmedia approach. www.smartcityplus.com/

ENSCI
Project workshop "Villes trans-apparentes" on mobile interfaces (gloss: Cities you can see through).
From January to June 2013, this project was carried out at L'ENSCI-Les Ateliers with twelve students of industrial design and led by designers Stéphane Villars and Patrick de Glo De Besse. During a whole semester, they spent three and a half days a week working on proposals for services and interfaces for the platform.
From September 2013 to January 2014, the experimental studio Sound Design SmartCity+ assembled a working group led by sound designer Roland Cahen. www.ensci.com

Acknowledgements
This article would not have been possible without generous contributions by Jonathan Tanant, Aurélien Marty, Florian Behejohn and the students of the experimental SmartCity+ Studio at l'ENSCI (Mayu AGARIE, Arto KUUSISTO, Mathieu EYMEOUD, Camille JEGO, Jean SENECAL, Tanita KLEIN, Zifan WANG).

FUGURES

Fig. 1: the recording interface offered is minimalist: record, select, play.
Legend: "Chose a voice OR record your own"

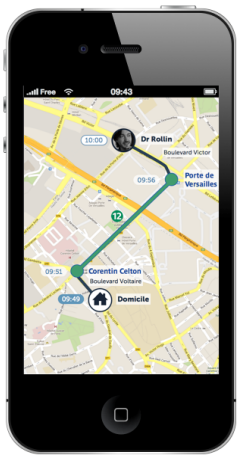

Fig. 2 : itinerary + audioguide

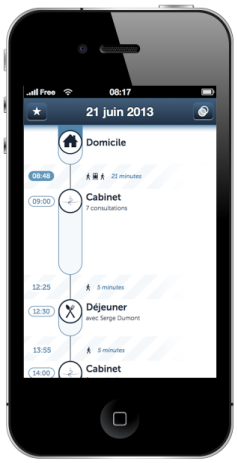

Fig. 3 : timeline + alerts

Fig. 4 : Model of the sonar, torchlight mode (directional activation)

Fig. 5: By walking around in full listening mode, users activates the POI that enter their bubble.

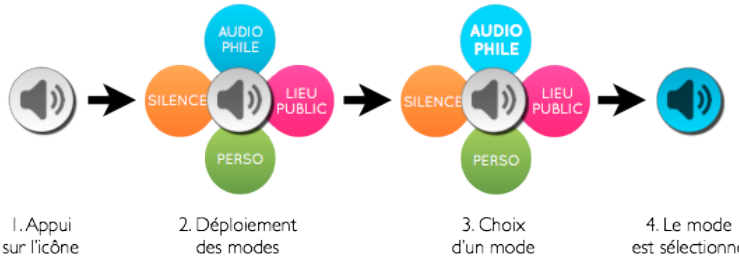

Fig. 6: User audio preferences: selecting an audio mode.
Legend: 1. Click the icon; 2. Modes unfold; 3. Choose a mode; 4. The mode is selected.

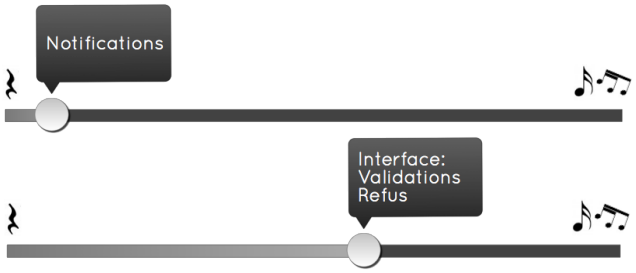

Fig. 7: User audio preferences: moving the SmartVolume changes the audio density of the interface.

Bibliography

Thomas Hermann, Andy Hunt, John G. Neuhoff, eds., *The Sonification Handbook* (Berlin: Logos Publishing House, 2011), accessed on March 23, 2014, http://sonification.de/handbook/

Olivier Houix, "Catégorisation auditive des sources sonores" (PhD diss., Université du Maine, 2003) accessed on March 23, 2014, http://articles.ircam.fr/textes/Houix03f/index.pdf

Pierre Schaeffer, *Traité des Objets Musicaux* (Paris: Edition du Seuil, 1966).

"Phase project", (Ircam 2003-2005) accessed on March 23, 2014, http://recherche.ircam.fr/equipes/analyse-synthese/lambert/phase/presentation/08equipe-ircam.html, http://roland.cahen.pagesperso-orange.fr/PHASE/PHASE.html

ENIGMES project (ENSCI 2006) accessed on March 23, 2014, http://projetenigmes.free.fr/wiki/index.php?title=Accueil

Topophonie project (ENSCI 2009-2012) accessed on March 23, 2014, www.topophonie.fr http://www.topophonie.fr/content/publications/46/file51695d1ee4da1.pdf

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Biography

Romain Barthélémy is a sound designer. He graduated in musicology in 2008 from Saint-Etienne University and National University of Ireland, Maynooth (ERASMUS), where he was taught musical writing, score analysis and computer music. After moving back to France, he studied musical writing and acousmatic composition at the Conservatoire Massenet (Saint-Etienne), under the direction of composer Diego Losa (GRM). In 2011, he joined the newly-created Sound Design Master's Degree in Le Mans (IRCAM-ESBAM), where he worked on user-oriented design methodology and interactive sound design. During his six-months internship at the research lab CEDRIC (CNAM), he was introduced to immersive virtual environments and interactive soundwalks by the composer Cécile Le Prado, through his work on her sound installation *Le Promeneur Ecoutant ("the listening stroller")*. The questions he researched about the role the sound design plays in cultural tours in his final year at ESBAM motivated his diploma project *Sapio#1* (an interactive sound scenography using Tangible User Interfaces). His later projects are a continuation of these works, exploring the link between sounds and space and the strength offered by this association, especially for the creation of virtual spaces that serve to enhanced real spaces.

Roland Cahen : electroacoustic music composer, sound designer, artistic professor and researcher in charge of the sound design studio of ENSCI les Ateliers
Electroacoustic music composer, sound designer, teacher and researcher in electroacoustic music and applied sound arts. Born in Paris in 1958
Member of the Radio France music workshops (75-79)
Studies with Pierre Schaeffer at the National Conservatory of Paris (77-80)
Studies and practice Theatre as an author actor, director, and performer(79-90)
Worked as composer and researcher at INA/GRM – IMEB – CICV Pierre Schaeffer— IRCAM – ART 3000-LE CUBE – Studio DELTA-P - "Espace Musical" (1981-86) spatialized music creation and electroacoustic music concerts.
Electroacoustic concert music *Murs et Murmures* (1st mention Bourges 1988), *Le Complexe du Simple* (Mention Bourges 1994), *Wind's Wings* (state commission 2000), *NanoBalad* (INA/GRM 2012)

Electroacoustic musical theatre "Théâtrophone" *Le Langage des oiseaux* (1980) *Tutti Média* (1989), *Tonmeister Orpheus* (1994) tape drama works, music for stage (theater, ballet…) for films (Apesanteurs…99, Mes insomnies 2003)
Interactiv works and Virtual Reality (MandalaElectronique 1996 - CD-ROM LS Senghor 1999 - Icare 1997/2000 - Bandonéon 2003, PHASE 2005, Tournez-sons 2005...)
Museography sound design (Quai Branly Museum, Royal Belgian Institute of Natural Sciences, MCUR, Cité des Civilisations du Vin...)
Teaching DME-Amiens (81 - 94) - Atelier de Création Sonore Montbéliard 94-2000 - Lille3 University (CFMI).
Professor in charge of the sound design studio of the National Superior School of Industrial Creation (ENSCI – Les Ateliers), responsible for research projects : ENIGMES, TOPOPHONIE, SmartCityPlus…
IRCAM MusiqueLab educational music applications commissioned by the Ministry of National Education (2001-2003), designer and composer for the research project PHASE with the Analysis and Synthesis team of the Ircam exposed at the Pompidou Center(2004-2006).
Most music and researches linked to spatial sound and music, kinetic music, audiographic navigation, topophony...
Winner of the "Grand Prix de l'Innovation de la Ville de Paris mention spéciale Design", "Topophonie"(Orbe).

Steve Jones (UK)

Lecture Session 1

Turning spaces into places: using mobiles to listen and explore a space to make music.

The Carry Principle: Strategies for Mobile Music Practice

Steve Jones
Music, Technology and Innovation Centre, De Montfort University, UK
http://steranko.tumblr.com
steve@amancalledadam.com

Abstract:
In design practice, what is referred to as the 'Carry Principle' defines the core elements of the mobile experience: small, personal, communicative, multifunctional, battery operated and always connected. These qualities have ensured that for many of us, some form of mobile device has become an indispensable, ever-present part of our lives. Smartphones and tablets have become a ubiquitous presence in our daily tasks of communication and accessing information, for work and for entertainment. Notionally they offer a sense of security and connection, but they can also offer affiliation and allegiance across communities.
Consequently we have rapidly adapted to a screen-based gestural language of scrolling, tapping, pinching and zooming. Developments in mobile technologies have meant consumer devices are capable of increasingly sophisticated sound processing. Mobile devices differ from computers in that we will usually always carry the device around with us, and their numerous sensing modes allow new possibilities and techniques for making music not possible on a laptop. A tablet such as an iPad affords an ideal interactive performance system; hand-held, self-contained, an autonomous sound-producing device, it enables a musician to perform in a wide range of live situations. But do music apps have the potential to liberate or re-entrench old working practices?
With the ability to create, exchange and consume music on a single, portable device, we are witnessing the emergence of a new sub-genre of 'mobile music'. The Carry Principle will be a series of site-specific performances using a mobile device, attempting to navigate across a wide range of sound environments, and ask the question can a mobile device be considered a new folk instrument?

Introduction

Barbara Ballard's 'Carry Principle' defines the core elements of the mobile experience: small, personal, communicative, multifunctional, battery operated and always on (even in a standby state) (Ballard, 2007: 231). These qualities have ensured that for many of us some form

of mobile device has become indispensable. Whether for work or entertainment, Smartphones and tablets are a ubiquitous presence when it comes to the business of communicating and accessing information. As the device moves further away from its original function as a communication tool towards one as a relational device, it becomes an enabler of creative production. Mobiles are highly personalised, they connect, receive, transmit and store our images, experiences and opinions, miniaturising the stuff of our lives, our memories, behaviours and habits. All the media objects held on our devices are digital material composed of digital code - mathematical representations that appear either visually, acoustically or kinaesthetically. This data can be subject to all manner of algorithmic manipulation, it can be "...warped, streamed, accelerated, slowed, supersaturated or attenuated" (Morris, 2006: 16). Lev Manovitch's observations on the convergence of computing and media technologies notes that when data can no longer be viewed from a single, fixed viewpoint, we are transformed from passive viewers into active users (Manovitch, 2001:27). Developments in mobile computing have meant that Smartphones and tablets are capable of increasingly sophisticated audio processing, and a proliferation of sound and music applications has seen the emergence of a new sub-genre of 'mobile music'. With the ability to play, record and exchange music on a single device, this article will ask whether a mobile - portable, hand-held and autonomous - has the potential to act as a new musical instrument?

Yet this mode of thinking also demands new perspectives of how we think of a musical instrument. It challenges established cultural practices and creates new tensions and social forms. Mobility is having an impact on how we relate to each other and our immediate surroundings, extending the limits of what the Internet has to offer to include the physical spaces we inhabit and the ways we perceive proximity. Hand-held devices are our agents with which we navigate these new spaces. With mobiles acting as shared agencies, is it possible to disseminate ideas that challenge assumptions of a musical instrument, our use of the word instrument, even our ideas of what we think of as music? Does mobile music practice have the potential to liberate us or will it merely entrench older working practices?

Defining a New Musical Instrument

Mobile devices differ from a computer in they are designed to be hand-held and remain

active even when powered down, and thus we usually always carry them around with us. In design practice what is referred to as the 'Carry Principle' defines the essential principles of the mobile experience: small, personal, communicative, multipurpose, wireless, battery operated and always connected. Such qualities have ensured that for many of us, some form of mobile device has become indispensable, an ever present part of our lives. They notionally offer a sense of security, offering us connection and affiliation with other networked users across diverse communities. Consequently we have rapidly adapted to a new screen-based gesture of language, tapping, tapping, pinching, and zooming. Sound app designers are beginning to explore the huge potential for sonic interactions using multi-touch gestures; a typical digital tablet has a wide range of sensing modes such as a camera, accelerometer, gyroscopes, compass, GPS system and microphone, that afford new possibilities and techniques for making music not possible with desktop or laptop computers. Although they may not yet have the memory or processing power of a laptop, a hand-held device's embodiment brings an interaction closer to the immersive sense of what Robert Rowe refers to as the "player paradigm" found when playing a musical instrument. For Rowe, the purpose of an interactive system is to encourage people "to engage in active music making rather than to simply absorb the music coming at them from… every side" (Rowe, 1999: 84).

In their research into musical interactions beyond the traditional piano keyboard, Professors Eduardo Miranda and Marcello Wanderely assert that an interactive performance system can be considered an instrument by virtue of its possessing sensor inputs, signal processing capabilities and a sound output (Miranda, Wanderely 2006:26). Atau Tanaka's collaboration with Adam Parkinson, their pioneering work "4 hands 2 iPhones" (2009), was an early example of explorations into the implementation of a mobile device's on-board sensors in a musical context, examining the potential of a Smartphone as an expressive and gestural device. Tanaka describes the iPhone as a "self-contained and autonomous sound-producing object that enables musicians to perform in a live situation" (Tanaka, 2010:5). It is the autonomous nature of the mobile device that perhaps allows it to be regarded as a musical instrument. However, the notion of an instrument is a metaphorical construct rather than a strict definition; the word instrument helps us to conceive its links to an artistic tradition of musical technique and creative practice.

In his dissertation "Mobile Phones, Group Improvisation and Music: Trends in Socialized

Music-making" Nathan Bowen traces a path demonstrating how mobiles are allowing artists to situate musical performances and sound art outside the concert hall or gallery. However, he admits there are difficulties when attempting to establish culturally understood metaphors and gestures associated with mobile phone music. Bowen opines that this correlates with public perception: that there is a lack of uptake in defining a mobile as an instrument in a cultural sense, and is of the opinion the mobile instrument is likely to remain defined by its indeterminate quality (Bowen, 2013:108). What does it look like to play a mobile phone? How should it be held? How does one become proficient at playing? One of the appeals with using a Smartphone to make music is its capacity to allow non-musicians access to creative expression. Often interactions with music applications are designed to be heuristic, enabling the user to learn its function very quickly through a process of trial and error. This approach can mean sound apps are often dismissed as toys rather than serious music performance systems, and there are still real anxieties regarding aesthetic authenticity and the cultural legitimacy of mobile technologies .

What We See and Do/What We Know

Adalaide Morris observes that new technologies are not readily assailable in terms of current cultural codes. Indeed, it seems we never have sufficient language to describe our technologically mediated world. For example, the first automobile was referred to as a 'horseless carriage', a term unable to prepare us either for the potential of the car or consider the changes it would have on transport and society in general (Morris, 2006: 3). Theories of embodied knowledge, neuroscience and cognition explain how we understand the world around us in two different ways: through sensations located in the lower brain and central nervous systems - instinct, emotion and touch - and through "learned knowledge, book knowledge and canonical convictions" (Varela, Thompson, Rosch, 1991). There is a gap between these two types of knowledge; of "what we know, because of what we see and do; and what we know because of what we think" (Morris, 2006: 1). Morris references Gertrude Stein's observation to describe this lag. Using the example of the battle plan drawn for World War 1, Stein suggests that the generals in charge imagined a "nineteenth-century war" that was in fact, and with disastrous consequences, "…fought with twentieth-century weapons" (Stein, 1998: 520). We are continually catching up when negotiating the transitions brought about by technology, a process

that is accelerated when understanding notions of 'distributed cognition. Technological change presents fundamental challenges in our understanding of what constitutes a musical instrument, and changes in musical styles are always extending the idea of what makes an instrument.

Ballard's Carry Principle dictates that mobile design is unstable and the constant introduction of additional features, or 'feature creep', is inherently part of the development process. Paul Théberge identified this feature as the intersection between consumption and use of technology. Instruments are defined through their use and not by their form; "musical instruments are not 'completed' at the stage of design and manufacture, but rather they are made-over by musicians in the process of making music." (Théberge, 1997:159-160). Therefore, as a musician's practice becomes more aligned with being a consumer of technology, de-differentiation and new technologies are weakening the old divisions between producers and consumers. The Internet is breaking down the distinctions between composers and performers as active, and an audience and users as passive.

In an article written for Organised Sound "The Mobile Device: A New Folk Instrument?" I compare and contrast the exchange of digital data with the effect of travel and mobility on the transmission of folk music, and its ability to absorb a wide range of influences while adapting to new sociological environments. Historically, our understanding of folk transmission positions it as the exchange of data between different communities passed down from generation to generation via oral traditions. The troubadour and the medieval jongleur exchanged data in the form of stories and songs between widespread communities, and the technology they used to augment their spoken or singing voices needed to be light and portable; stringed, wind and percussive instruments (Rojek, 2013: 177). These days musical exchange still involves oral traditions, but has become super-extended with broadcast media and the Internet. Now encrypted data is the primary media of exchange.

Space and Place

What relevance does place have in the context of networked mobility? As systems and tools become increasingly networked, when we ourselves become increasingly connected with media and information technology through our screens – moving us further away from the idea of being individuals – does mobility render notions of place obsolete? Firstly, there is a difficulty

when attempting to clarify the difference between place and space as they are often set in opposition to each other. A general perception of place is a distinct location, somewhere "proper, stable" (Morse, 1999: 195), whereas the idea of space is abstract and undifferentiated but shifts to a place when we get to know it better: when we "endow it with value" (Tuan, 1977:6). Much critical theory regarding mobility was written in the era before the existence of the Smartphone, as theorists began to analyse how mobile phones were changing our understanding of distance. Do they connect us by overcoming distance, or do they merely insulate users from the outside world? Most people will have some experience of overhearing phone conversations in public spaces, yet we might view this as the domestication of intimate conversation in a public arena. In "From Stabilitas Loci to Mobilitas Loci", Rowan Wilken argues networked mobility forces a renegotiation that significantly alters our understanding of place (Wilken, 2005). David Morley criticises the notion of mobiles transforming distance, claiming they are unable to transcend space but instead establish parallel networks. Despite all the talk of post-modern nomadology, the reality is often far more limited and localised: for instance the typical opening of a conversation with the words "Where are you?" or "I'm on the train" (Morley, 2003: 440). Wilken points out Derrida's observations regarding our attempts to overcome a sense of dislocation brought about by globalisation and mass communication, by focussing on the local and the home; "The more powerful and violent the technological expropriation, the delocalization, the more powerful…the return toward home"(Derrida, 2002: 79-80). Domestication and integration of technology through ownership and appropriation is a coping mechanism while we negotiate our way into a technologically mediated future.

So can audio mobility renegotiate the phenomena of space into something that feels like a place? As an electronic musician constantly in transit across two similar yet very different geographies and socio-economic territories – France and the UK - I have become dependent on mobile technology to stay connected with my private and work life, to remain socially co-present even if that can be a virtual presence. As my research is held outside the confines of a music studio, a place designed for "recognisable, manageable, understandable and unproblematic scenario[s]" (De Paula, 2013: 12) it is of vital importance to have light, portable and resilient equipment to document and record the shifting, fleeting ambiences of places and experiences. Travel brings me into contact with what Marc Augé' refers to as *non-places* – "… the air, rail and motorway routes, the mobile cabins called 'means of transport' (aircraft, trains and road vehicles), the

airports and railway stations, hotel chains, leisure parks, large retail outlets" (Augé, 1995: 79). For Augé, these ever-expanding non-places are the real spaces of our time. Perhaps mobile technologies, seen as "imperfect instruments, by which people try […] to maintain some sense of security and location amidst a culture of flow and deterritorialization" (Morley, 2004: 453) can reclaim impersonal transit space? The act of close listening is one method of re-hearing what might be dismissed as unwanted noise. In his book 'Electric Sound', Joel Chadabe discusses with the composer Paul Lansky the process of making his piece Night Traffic (1990).

> "*I sometimes use the computer as a camera on the sounds of the world and the sounds of the world then colour the music*." Paul Lansky

Lansky made recordings of passing cars and processed them with a computer in his studio, using the chaos of the sounds – noise and Doppler-shift elements – as a filter through which to hear melodies and harmonies. With the sound of the cars as an excitation source, "the cars become the music"(Chadabe, 1997: 134). To borrow from Paul Lansky, my own research involves making a series of site-specific sound studies using the iPad as a camera with which to capture the sounds of a space, which colour and form the music. The difference being the music is made on a single, hand-held device; the chaos of the sounds are manipulated in situ, in real-time, allowing the melodies and harmonies to augment and overlap with the real world.

In 'Sound Study: Edgware Rd is closed' (2013), I use the app Samvada to process the interior sound of a London underground tube carriage. Although the app is intended as a Sitar instrument simulation, for this piece I use only the accompanying drone function as an audio comb-filter system, operating a simple set of slider GUI objects allowing me to shift between the real-world and manipulated signals while modulating across harmonisations based on classical Indian raga tuning. Journeys on public transport are ideal environments for this kind of compositional work as they are punctuated by stops that lend a sense of musical development and recapitulation, with a changing ensemble of unknowing performer/contributors adding to the sonic texture every few minutes. Additionally, no one takes the slightest notice of someone standing or sitting with an iPad while wearing headphones.

'Sound Study: Underground/Overground' (2014) is another London transport piece, demonstrating how mobile sound processing has advanced in less than a year. The app Turnado

is of a new generation of music systems allowing up to eight separate processing arrangements to be simultaneously accessed and manipulated with sliders, dials, and multi-touch gestures. This affords a more rhythmic and dynamically changing sound world, yet this 'feature creep' of increasing complexity constantly requires new playing methods, presenting fresh challenges for the mobile music practitioner.

Rather than being isolated from the environment with headphones, the Carry Principle performances are intended as a set of intimate interactions with a space, an audience and their immediate surroundings, incorporating practices of close listening, field recording and free improvisation. The space informs the sound, it informs the play and acts as an excitation source. The audience are encouraged to listen, participate, or simply ignore the proceedings. The intention is that by using mobile apps to listen and explore a space to make music, we might transform spaces into places.

Conclusion

This article describes one aspect of my research relevant to this symposium. The research project is an investigation into new practices afforded by new technologies, examining strategies required for a nascent and emerging field of mobile music. My own personal interest is not in mobile technology so much as the new relationships that are taking shape between a user and their device, between a mobile user and other practitioners of music, of emergent mobile and social communication practices, and the undefined intersection between consuming and creating. Building on the tradition of the troubadour performer, a continuation of electronic music practices such as STEIM's research into self-supporting instruments, and the importance of what music theorist Kevin Dawe refers to as "the sonic and design result of travel", this research is an investigation into the impact of technological mobility on new music practices. It considers the immersive sense of play afforded by sound and music applications, and the potential of mobile devices to act as new musical instruments. This research is practice-based with an autoethnographical aspect, something of a contentious approach with regard to academic qualitative inquiry, but critical and reflexive narrative is necessary to furnish what Douglas and Carless describe as "past, present and future history… Happening simultaneously and repeatedly (in different contexts for different people)" (Douglas, Carless, 2013: 103).

Bibliography

Marc Augé, *Non-Places: Introduction to an Anthropology of Supermodernity*, trans. John Howe, London: Verso, 1995.

Barbara Ballard, *Designing the Mobile User Experience.* Chichester, UK: John Wiley & Sons, 2007.

Nathan Bowen, "Mobile Phones, Group Improvisation and Music: Trends in Socialized Music-making." PhD diss., City University of New York, 2013.

Joel Chadabe, *Electric Sound: The Past and Promise of Electronic Music.* Upper Saddle River: Prentice-Hall, 1997.

Kevin Dawe, *The New Guitarscape in Critical Theory, Cultural Practice and Musical Performance.* Farnham: Ashgate, 2010.

Jacques Derrida, Bernard Stiegler. *Echographies of Television: Filmed Interviews*. Translated by Jennifer Bajorek. Cambridge, UK: Polity Press, 2002.

Kitrina Douglas, David Carless, "A History of Autoethnographic Inquiry" in *Handbook of Autoethnography*. Eds. Stacey Holman Jones, Tony E. Adams, Carolyn Ellis. Walnut Creek, California: Left Coast Press, 2013.

Steve Jones, "The Mobile Device: A new folk instrument?" in *Organised Sound*, 18, 299-305, 2013.

Eduardo Miranda, Marcello Wanderely, *New Digital Musical Instruments: Control and Interaction Beyond the Keyboard*. Computer Music and Digital Audio Series 21. A-R Editions, Middleton, Wisconsin, 2006.

Lev Manovitch, *The Language of New Media*. Cambridge, MA: MIT Press, 2001.

Adalaide Morris, "New Media Poetics: As We May Think/How to Write" in *New Media Poetics: Contexts, Technotexts, and Theories,* ed. Adalaide Morris, Thomas Swiss, Cambridge, Massachusetts, London, UK: MIT Press, 2006.

David Morley, *What's "Home" Got to Do with It?: Contradictory Dynamics in the Domestication of Technology and the Dislocation of Domesticity*, European Journal of Cultural Studies 6.4 (2003), 435-458.

Rogério de Paula, "City Spaces and Spaces for Design", in *Interactions*, Vol. XX.4, July and August, (2013) 12-15.

Chris Rojek, *Pop Music, Pop Culture*. Cambridge and Malden: Polity Press, 2011.

Robert Rowe, "The Aesthetics of Interactive Music Systems" in *Contemporary Music Review*, Vol. 18, Part 3, 83-87, 1999.

Gertrude Stein, "Composition as Explanation" in *Gertrude Stein: Writings 1903-1932*, ed. Catherine R. Stimpson and Harriot Chessman, 520-529. New York: Library of America, 1998.

Atau Tanaka, *Mapping Out Instruments, Affordances, and Mobiles.* In Proc. New Interfaces for Musical Expression (NIME), 88-93, 2010.

Paul Théberge, *Any Sound You Can Imagine: Making Music/Consuming Technology*. Hanover: Wesleyan University Press, University Press of New England, 1997.

Yi-Fu Tuan, *Space and Place: The Perspective of Experience.* Minneapolis: University of Minnesota Press, 1977.

Francisco Varela, Evan Thompson, Eleanor Rosch, *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MA: MIT Press, 1991.

Online Resource

Rowan Wilken, "From Stabilitas Loci to Mobilitas Loci: Networked Mobility and the Transformation of Place." *The Fibreculture Journal*, Issue 6, (2005), accessed March 18, 2014: mobilityhttp://six.fibreculturejournal.org/fcj-036-from-stabilitas-loci-to-mobilitas-loci-networked-mobility-and-the-transformation-of-place/

Dom Schlienger (FI)

Lecture Session n°3

"Why acoustic localisation technique is better than optical tracking for audio-mobility"

Acoustic Localisation Techniques for Interactive and Locative Audio Applications

Dom Schlienger
Composer-Researcher
Siba, Centre for Music & Technology
http://www.siba.fi
http://creativemusictechnology.org

Abstract:
Reviewing the literature on positioning systems using acoustic source localisation principles for Interactive an Locative Audio Applications (ILAA) it becomes clear that Acoustic Localisation and Positioning Systems (ALPS) implemented on ubiquitous devices can provide an alternative to Motion Capture systems (MoCap) wherever multiple speakers are part of an application. Providing background on and defining the notion of ILAA, this paper argues that based on comparisons of recent applications in the literature, ALPS can provide competitive alternatives to MoCap, the system prevalently used in ILAA.

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1 INTRODUCTION

With the advent of multitrack recording technology and its possibilities for spatial distribution, the relation between the origin of a sound and the listener was essentially abstracted. Today, with

location aware mobile technology and almost ubiquitous internet access, we can use the position of a moving object in space as a dynamic parameter and map it, arguably, to anything. In the case of musical applications these mappings can be used for musical expression, to track gestural control for hyper instruments for example, or let a dancer control musical parameters through spatial cues.

The use of these spatial interfaces for musical applications are well documented in the proceedings of the international conference on New Interfaces for Musical Expression (NIME), for example. The importance of digital positioning technology in general is born witness by the yearly IEEE conference on Indoors Positioning and Indoors Navigation, and Ubiquitous Positioning Indoors Navigation and Location Based Service.

In Interactive and Locative Audio Appllications (ILAA), Motion Capture (MoCap) is the most commonly applied principle, using cameras to track movement. However, the question is if it is always the best choice. In our previous work [15], we found evidence that for some applications acoustic localisation techniques might perform equivalently to MoCap and often at a fraction of the cost.

In some scenarios acoustic localisation techniques could clearly outperform MoCap. MoCap requires a line of sight between the tracked object and the camera. If something obstructs this line, position data can not be obtained. An analogous situation for acoustic localisation, where an object obstructs the signal path between microphone and loudspeaker, is a lot less problematic due to the physical nature of the audio signal. In fact, the principle's feasibility is well documented [4,8,9,13–15,20], despite its rare implementation in ILAA. The implementation is particularly straightforward when multiple speakers are already part of the system, as is often the case in ILAA.

By comparing the performance of Acoustic Localisation and Positioning Systems (ALPS) with the documented performance of MoCap, we can further evaluate the principle's suitability for ILAA, and contribute to a growing body of work which advocates its implementation. ALPS are often cheaper and usually make better use of existing technology within ILAA, in accordance with the notion of ubiquitous computing, as our findings show.

The paper provides background on ILAA, followed by a discussion of technical aspect of ALPS and how they compare to MoCap and some MoCap hybrid systems. It then goes on to discuss the limits of MoCap for ILAA and why ALPS could provide alternatives, followed by a

section on future work and conclusive remarks.

2 BACKGROUND

2.1 Interactive and Locative Audio Applications

In the context here, ILAA are audio applications in which the position, or the change of position of an object in physical space gives a cue for some process to happen. In general, ILAA could also include audio applications where some process changes the physical position of something in the space, but for this paper the former definition shall apply.

The potential uses of positioning systems for interactive art, multimedia and interactive spatial music are well documented [24], and early concepts go back to the emergence of electroacoustic music in the 1950s. The potentiomètre d' éspace being an example thereof [10] , and the spatialisation schemes of Varèse et al. for the Phillips Pavilion at the Expo in Brussels 1958 [1], or Stockhausen's for Kontakte [18] . Admittedly, these spatialisations probably were interactive in nature merely by the absence of digital multitrack control. If the computers were available at the time to control dozens of audio track automatically, this option would have been embraced, effectively disposing of interactive control. However, the experimental spirit of the time, and an example of gestural control of spatial audio also in the modern interactive sense is visually documented by the photograph of Pierre Henry controlling the potentiom`etre d'´espace in Figure 1. Already in 1941, in a more mainstream but not less ground breaking vein, the spatialisation of the soundtrack for Disney's Fantasia, Fantasound [7], used several operators to control the panning of separate tracks over multiple speakers.

A more recent example for ILAA in the mainstream are interactive video game controllers, like Wii and Kinect, where spatial interactivity provides increased immersiveness, also through surround sound [2, 3, 15] to create a virtual space. The virtual space shall be defined here similar to Normandeau's definition in [12], as the audio space created for the listener by the composer or in paraphrase for the gaming environment, the developer. Virtual audio space can but does not have to be congruent with a real existing sound field in space. For the discussion on suitability of positioning technology for ILAA, this generalisation is helpful, as it provides a denominator for space as a concept in electroacoustic music, video games and spatial sound reproduction.

The very recent presentations held by Normendeau and Siegel at Sibelius Academy, both as guest performers at the 2013 SibA MuTe Fest [5] highlight exemplarily the interest of electroacoustic composers in ILAA. Compositions like Movements in Possible Histories or a Composition for 24 Windows [11], also at Sibelius Academy, in the surroundings of our research, as well as research conducted at SARC, Belfast; Locus Sonus Laboratoire Art Audio, Aix-En-Provence; Zentrum fu □r Kunst und Medientechnologie Karlsruhe, the activities of NIME, just to name a few, show the importance of the field for composers and musicians.

Electroacoustic spatial composition is just one area of ILAA where positioning technology can provide interaction. The ubiquitousness of mobile technology facilitates locative games like Papa Sangre [23], for example. Spatial audio interaction is a growing area in music technology, and is becoming increasingly pervasive. Various ongoing projects at institutions like Pervasive Media Studio Bristol, are examples therefore [19].

2.2 Acoustic and Local Positioning Systems

Using the principle of acoustic source localisation we can obtain the distance between a speaker and microphone by measuring the time delay of the acoustic signal, as we know the speed of sound through air a priori. If we know the distances for multiple speakers, a 3-D position can be triangulated. The accuracy of such a system lies within the low decimetre range and its latency is the same as for audio recording systems, in the low millisecond range. The latency derives from the buffer lengths applied, which means that at the cost of covered area, by shortening the buffer size, the latency can be reduced. This is useful for applications where small gestural movements need to be tracked, for example, in case of instrument control. The system is thus scalable. The presence of multiple loudspeakers is a prerequisite, which in most ILAA is given. Other than that, all that is required is a microphone. This makes the principle cheap for ILAA.

ALPS have not often been implemented to date. Rishab et al. presented a system which uses controlled ambient sound, i.e. pseudo random noise, as a signal to measure the time delays [14]. Random noise can be problematic for the use in ILAA, as the noise would need to be masked at all time by the audible signal. The system described in 2010 in [8] compares arrival times of a distinct signal on networked devices, applying a multiple receiver principle. The systems in [9] and [4] measure signals outside the limits of audible sounds, making them

effectively ultrasound. Our suggestion is for a one receiver multiple sender model, using the audible airborne sound which is already part of an ILAA directly as a measuring signal, as described in [15]. ALPS are rarely implemented like this, particularly not by measuring the time delays of the signasl carrying the audio content itself of an audio application, despite their documented feasibility in [4,8,9,13–15,20]

Our previous work, about the suitability of positioning systems for ILAA in general, compared specifications in the literature to user requirements obtained from early findings of an ongoing survey. The survey shows that optical tracking in form of MoCap provides good solutions as long as the requirement for line of sight between tracking device and tracked object does not cause issues. When this indeed does create issues, respondents revert to hybrid systems, where MoCap is combined with auxiliary systems using dead reckoning principles. Dead reckoning systems predominantly consist of inertia meters. In the literature the term inertial navigation system is thus often used. However, dead reckoning methods also include the use of compasses, providing a more general term. Dead reckoning systems usually require frequent updating with absolute data in ILAA, which predestines them for hybrid systems. On their own, they are usually only applied where absolute position is not necessary.

Further, the survey showed respondents' concerns about tracking as a privacy-sensitive issue. To have an opt-in choice is regarded as important. This can easily be achieved with the one receiver - multiple sender model. The control over privacy stays with the person holding the mobile device, the microphone.

3 COMPARING MOCAP TO ALPS

In the discussion on suitability of ALPS for ILAA one does not get around the fact that the currently predominantly used optical tracking systems are generally considered to be satisfactory. Not many people who use MoCap criticise it as there is not much to compare it to. Thus, it is in many cases the best available option.

However, the requirement of line of sight between a tracked device and a camera is an issue for many conceptual possibilities. Particularly when the tracked devices are to be on members of a crowd [21].

Also for the systems described by Normandeau for the Klangdom using ZirkOsc [6],

positioning information from ALPS could open new possibilities. In the examples discussed in Siegel [17] on interactive applications, where dance controls music, ALPS could provide interesting and dynamic possibilities.

In view of audio-mobility, the dependence of MoCap on cameras means that ad-hoc networks of ubiquitous devices using MoCap are unrealistic. The environment needs to be controlled and the tracked object defined by colour or shape. Even if line of sight could be established between mobile devices, in a multi user environment this would require some form of choreography. Despite its popularity, MoCap has a considerable disadvantage to ALPS which is inherent to the very nature of the camera and constitutes its limitation as an interface to gather spatial data. The camera provides a 2-dimensional view of space and the further away from the camera an object is, the less information we gain about it.

The following example does not want to be misunderstood as a criticism on the artistic quality of the work in question. The tracking system applied by Siegel for Two Hands, (Not Clapping) [16], was originally developed as an interface for dancers to interact with music, wherein a movement in the field of the camera is digitally registered. But interaction through this interface requires the dancer to adapt performance to the interface's characteristics. Due to the optical perspective of the camera, a moving object close to the camera causes more change in pixels than an object further away. That is, it provides a warped perspective. Thus the interface's resolution for a movement in space is not linear but proportional to the distance. As innovative this is for the performance of Two Hands, (Not Clapping), the fact that the interface weighs a particular amount of movement in one area of the performance space differently to the same amount in a different area makes it a poor interface for 3-D interaction. As a spatial interface, a lot of movement should be mappable to a pro rata equivalent. If this is not the case, additional information is needed, to differentiate between small cow very close, and large cow far away. ALPS could provide better results. N.B., not for Two Hands, (Not Clapping), where the warped perspective is idiosyncratic part of the composition, but for a more general spatial human computer interface. This is particularly poignant if the performance space in question does want to be understood as 3-dimensional, which is usually the case in ILAA, especially in implementations in ad-hoc networks.

By using multiple cameras, depth information is added in some MoCap systems. For

ILAA, this is a cost, which, in the presence of multiple loudspeakers, could be avoided by using ALPS.

It is evident that every medium influences the message by its characteristic [12]. This might not necessarily be negative, but it is understood that this influence can warp the data, as exemplified above. If the system is supposed to be a good interface according to the notion of ubiquitous computing, the influence of its characteristic, its visibility, has to be reduced [22].

4 FUTURE WORK AND CONCLUSIVE REMARKS

Looking at the existing literature and the early findings of our own research, the impression prevails that ALPS provide a competitive alternative for many spatially interactive applications, where audio is diffused over multiple speakers. The possibilities arising from ALPS implementation in ad-hoc networks stand in contrast with what is achievable with MoCap. MoCap's limitation as an ubiquitous interface for ILAA are further compounded by the intrinsic distortion of spatial data through the 2-dimensional depiction of space by a camera.

In the next steps of the research, it is considered of paramount importance to find ways of establishing requirements directly from the potential uses in musical practices. As ALPS are rarely implemented for ILAA, not much material is available to document precisely how the system will be used by musicians or any other early adapters. So insight needs to be gained experimentally. As very little music of spatially interactive nature exists, free improvisation suggests itself as a means to study interaction of space and audio. To use free improvisation as a methodology to explore the relation of organised sound and space is in itself a very interesting but vast field, which, as a means to establish user requirements, shall be explored in the future work.

FIGURES

Fig. 1. Pierre Henry at the potentiom`etre d'espace in a concert at the Salle de L'Ancien Conservatoire, Paris, 1952

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Bibliography

[1] Spatialisation et image : *la mise en espace des sons concrets et ´electroniques*.
http: //sonhors.free.fr/panorama/sonhors13.htm, 2014.

[2] K. Collins. *An introduction to the participatory and non liner aspects of video games audio.* Helsinki University Press, 2007.

[3] K. Collins, editor. *From Pac-Man to Pop Music: Interactive Audio in Games and New Media.* Ashgate, Aldreshot, 2008.

[4] V. Filonenko, C. Cullen, and J. Carswell. *Investigating ultrasonic positioning on mobile phones.* In Indoor Positioning and Indoor Navigation (IPIN), 2010 Inter- national Conference on, Sept 2010.

[5] Centre for Music and Sibelius Academy Helsinki Technology. *Mute fest 2013*.
http: //tinyurl.com/mqzl6nx, 2013.

[6] Zentrum für Kunst und Medientechnologie Karlsruhe. *Zirkonium*.
http://www. zkm.de/zirkonium, 2014.

[7] WM. E. Garity. "Fantasound*." Journal of the Society of Motion Picture Engineers*, 1941.
http://www.widescreenmuseum.com/sound/fantasound1.htm.

[8] T. Janson, C. Schindelhauer, and J. Wendeberg. *Self-localization application for iphone using only ambient sound signals.* In Indoor Positioning and Indoor Navi- gation (IPIN), 2010 International Conference on, Sept 2010.

[9] A. Mandal, C.V. Lopes, T. Givargis, A. Haghighat, R. Jurdak, and P. Baldi. *Beep: 3d indoor positioning using audible sound.* In Consumer Communications and Networking Conference, 2005. CCNC. 2005 Second IEEE, pages 348–353, Jan 2005.

[10] P. Manning. *Electronic and Computer Music*. Oxford University Press, New York, revised and expanded edition, 2004.

[11] L. Muredu and M. Mela. *Movements in possible histories or a composition for 24 windows.*
http://www.youtube.com/watch?v=ltqQVrVoHyE, 2011.

[12] Robert Normandeau. "Timbre spatialisation: The medium is the space". *Organised Sound,* 14:277–285, 12 2009.
[13] V. C. Raykar, I. V. Kozintsev, and Lienhart R. *Position calibration of microphones and loudspeakers in distributed computing platforms.* Speech and Audio Processing, IEEE Transactions on, 13(1):70–83, 2005.

[14] I. Rishabh, D. Kimber, and J. Adcock. *Indoor localization using controlled ambient sounds.* In Indoor Positioning and Indoor Navigation (IPIN), 2012 International Conference on, Nov 2012.

[15] Dominik Schlienger. "Indoors and local positioning systems for interactive and locative audio applications." MSc thesis. University of the West of England, Bristol, UK 2012.
http://creativemusictechnology.org/ MScAudioProduction99001618TextNoApcs.pdf, 2012.

[16] Wayne Siegel. *Two hands (not clapping).*
http://waynesiegel.dk/?page_id=24, 2010.

[17] Wayne Siegel. *Dancing the Music*. Oxford University Press, Oxford, 2011.

[18] Karl Heinz Stockhausen. *Kontakte*.
http://www.youtube.com/watch?v=aNt6a5xFOnE, 1959.

[19] Pervasive Media Studio. *Pervasive media studio*.
http://www.watershed.co.uk/pmstudio/, 2014.

[20] S. Tervo. "Localization and tracing of early acoustic reflections." PhD thesis, Aalto University School of Science, January 2012.

[21] Ryan Ulyate and David Bianciardi. *The interactive dance club: Avoiding chaos in a multi participant environment*. In Ivan Poupyrev, Michael J. Lyons, Sidney Fels, and Tina Blaine, editors, NIME, 2001.

[22] Mark Weiser. *Building invisible interfaces*. Presentation Slides, Novemeber, 2nd 1994.

[23] Wikipedia. *Papa sangre* — Wikipedia, the free encyclopedia.
http://en. wikipedia.org/wiki/Papa_Sangre, 2014.

[24] R. Zvonar. *A history of spatial music.* http://cec.concordia.ca/econtact/ Multichannel/spatial_music.html, 2005.

Biography

Dom Schlienger is a musician and composer-researcher. He's graduated with a MSc Audio Production from UWE Bristol in 2012 where he also did his BSc in Creative Music Technology in 2010. Now a doctoral student at Sibelius Academy Helsinki, Finland, he works on the development of an indoors positioning system for interactive audio applications on ubiquitous devices. He holds a graduate residency at Pervasive Media Studio Bristol, UK and also works as a freelance sound engineer and composer/sound designer for video and film.

Jessica Thompson (CA)

Lecture Session 3

Mobile Sound and (Re)Making Place

Jessica Thompson
Artist / Educator
University of Waterloo

http://uwaterloo.ca
http://jessicathompson.ca

Abstract:
Since the invention of the transistor radio, people have used mobile technologies to create privacy within the public spaces of urban environments. Devices such as iPods and mobile phones enable us to control social interactions in shared spaces -- ear buds signal to others that we are listening to music, even when nothing is playing, and moments of social awkwardness can be alleviated by text messages, games and social networks. While it is easy to blame our devices for disconnecting us from the sights and sounds of everyday life, the connections and interactions made possible through pervasive computing enable us to transform our experience of urban life by creating new modes of engagement in, with and through the places where we live, work and play.
As we increasingly use our mobile devices to filter, augment and curate everyday interactions, our understanding of 'place' has moved from geographic specificity to spatial indeterminacy. Through a discussion of my own practice and other related artworks, I will examine how mobile sound artworks that rely on the body for context can shift the parameters of spatial practice from the body's position within physical space to the liminal space articulated by the moving body, how broadcasting sound through the body can facilitate new modes of sociality in public spaces, and how these temporary conditions and connections may be explored though networked performance.

In the modern city, mobile technologies work as social filters. In any lobby or coffee shop, we see people communicating next to one another, but not to each other. In many situations our devices are used to avoid interacting with others – by appearing busy or unavailable, we are not obligated to interact with strangers. Since we can now connect to others from wherever we

find a network, our sense of place, home and territory has become less dependent on physical location and more dependent on our connections and affinities. Home is no longer we are from or where we live, it is wherever we are now.

My practice investigates spatial and social conditions within urban environments through interactive artworks situated at the intersection of sound, performance, and mobile technologies. My approach to both sound and media is greatly informed by my experience of walking in urban environments, which I consider to be a form of personal and spatial encoding. I began working with sound and technology simultaneously out of a desire to articulate the immediacy of walking while carving out a sense of place within the acoustic ecology of the city. Over the past decade, I have navigated these spaces through a gradual progression from headphone-based artworks to interactive pieces that integrate, through embodied interaction, the affordances of objects with the expressive potential of the body.

Through a discussion of my own practice and other related artworks, I will examine how mobile sound artworks that rely on the body for context can shift the parameters of spatial practice from the body's position within physical space to the liminal, temporary spaces articulated by the moving body, how broadcasting sound through the body can facilitate new modes of sociality in public spaces, and how these temporary conditions and connections may be explored though networked performance.

THE BODY AS SITE

Mobile technologies affect our understanding of place by positioning the body of the user as the primary site of reception. By positioning the 'body as site', mobile and wearable sound pieces shift the parameters of site-specificity beyond the realm of locative practice.

Over the past three decades, site-specific practice has expanded from conceptual artworks that rely on a specific location for context to artworks that conceive of 'site' through a set of parameters *that sit beyond physical location*. In *One Place after Another: Site-Specific Art and Locational Identity*, Miwon Kwon argues that *as increasing numbers* of artworks address 'site' through economic, political, or social conditions, our understanding of place has shifted from *geographic specificity to spatial indeterminacy*:

> Dispersed across much broader cultural, social and discursive fields, and organized intertextually through the nomadic movement of the artist – operating more like an itinerary than a map – the site can now be as various as a billboard, an artistic genre, a disenfranchised community, and institutional framework, a magazine page, a social cause, or a political debate. It can be literal, like a street corner, or virtual, like a theoretical concept. (Kwon, 2002, p. 3)

By broadening our understanding of site from a specific physical location to a set of shifting parameters, 'location' can instead exist as a set of temporary confluences that can engage audiences through a cognitive, as well as physical encounter with an artwork. By encountering 'site' through the body, gestures such as explorative walking become a form of cognitive mapping where the residual effects of the encounter represent a form of notation.

THE BODY AS CONTEXT

In *The Functional Site; or, The Transformation of Site-Specificity*, James Meyer defines this space as a "functional site" which sits opposite the geographically-specific "literal site." According to Meyer, the *functional site*:

> may or may not incorporate a physical place. … Instead, it is a process, an operation occurring between sites, a mapping of institutional and textual filiations and the bodies that move between them … the functional work refuses the intransigence of literal site specificity. It is a temporary thing, a movement, a chain of meanings and imbricated histories: a place marked and swiftly abandoned. (Meyer, 2000, p. 25)

Because functional sites do not 'privilege' place, *location need not function as a precondition*, and the moving body takes on new significance and authority. Movement through space engages the user in a series of shifting spatial parameters and through *cognitive*, as well as physical processes. In *Getting Back into Place: Toward a Renewed Understanding of the Place-World*, Edward Casey argues that '"if place is where we inscribe personal meaning, […] then we are still "in place" when we walk down the street listening to head phones or talking on a mobile phone. It becomes, however a different place with different inscribed meanings." (Casey, 2010, p. 6)

Soundwalking draws from this authority through the practice of listening equally to all

sounds within the acoustic environment. Hildegard Westerkamp describes soundwalking as "any excursion whose main purpose is listening to the environment … exposing our ears to every sound around us no matter where we are." (Westerkamp, ¶ 1) While all sounds originate from something, somewhere, the act of listening, without recording, positions the body as a temporary interface, where signals recombine and where *site, sound, and motion* coalesce, transforming exploratory walking into a form of personal, cultural and spatial encoding.

Sonic City by Lalya Gaye, Ramia Mazé, Daniel Skoglund and Margot Jacobs is a mobile artwork that re-imagines the urban environment as an interface for musical expression. The piece consists of sensors and a software interface that enables a user to "create a real-time personal soundscape of electronic music by walking through and interacting with urban environments." (Gaye et al, 2003) Sound is generated through a process of mapping 'discrete input factors' (incidental events, such as a car passing, or a sudden change in route) and 'continuous input factors' (ambient events, such as heart rate and light level) to patterns of MIDI notes. The artists consider mobility as a form of interaction that combines *gestural interaction and contextual awareness*, creating a sonic dialogue between the user and the various stimuli within the environment.

walking machine (2003, Fig. 1) is a wearable sound piece of mine that enables users to move through the city hearing the amplified sound of their own footsteps in real time. The piece evolved out of a desire to articulate the immediacy of walking while carving out a sense of place within the acoustic ecology of the city. While wearing the piece, users often explore the city as if in a playground, stomping on sewer grates, gliding through grass, splashing in puddles and jumping on garbage cans. The effect is that of a private game in public space, where the simple act of walking becomes a form of embodied listening, gestural interaction becomes a means of articulating presence, and play becomes both legitimized and liberated through technology.

Unlike locative sound pieces such as Janet Cardiff's *Her Long Black Hair or Teri Rueb's Core Sample, works such as Sonic City*, Christina Kubisch's *Electrical Walks,* and *walking machine* can be performed *almost anywhere.* While geography is implied by the body's position at any given moment, that *position is always changing*. *The only constant is the body.*

In the same way that mobile devices expand our understanding of site to include the body, we can also *expand our understanding of the body to include those devices*. The following section will examine how sound generated through the moving body heightens our experience of

the acoustic ecology of cities by extending the edges of the body not only into the site but also into the space of others.

NOISEMAKERS

In *Noise*, Jacques Attali historicizes economic development through sound, arguing that noise serves as a precursor to social and economic change. Conditions within cities are often *revealed through sound*, indicating *territor*y, demographics or functionality, and politicizing urban space through its ability to invade the acoustic space of others and to affect behavior. As we continue to experience space through the private modes of listening, we become increasingly uncomfortable with the everyday noise and noisemaking of cities. While mobile devices enable us to connect to others, by silencing the social, we lose out on some of the eclectic experience of urban life.

One of the most significant encounters that informed how I think about broadcast occurred on the Queen streetcar in downtown Toronto in the summer of 2004. It was rush hour. I was on my way to work and sitting towards the back of the streetcar. A few minutes later, a boy of about fifteen sat across the aisle from me and began to blast hip hop from his headphones as loud as he could. As we approached the downtown core, it became more crowded. Instead of moving to the back of the streetcar, however, most passengers who were standing stayed towards the front. The soundtrack was distorted but not ear shattering, there were plenty of seats around us, the youth looked more or less like a middle class kid from the suburbs, but nonetheless, full grown adults preferred to crowd together than to sit down near us. This seemed to please the teenager immensely, and he started to move around to the music and freestyle along to different passages under his breath.

Broadcasting sound through the moving body, whether through the act of walking or through gestural interaction with and through artifacts, can transform public spaces into social spaces through nonverbal modes of communication. Other artworks of mine, such as *Freestyle SoundKit, SOUNDBIKE, and Swinging Suitcase* have formal and conceptual affinities with both private modes of listening, where mobile devices such as iPods infuse the space outside the body with personal significance, and broadcast sound, which can instantly activate and politicize the social spaces of urban environments.

Freestyle SoundKits (2006, Fig. 2) are wearable sound pieces that generate and broadcast electronic dance beats as users move through urban environments, creating percussive soundscapes activated through collaboration, improvisation, and one-upmanship. Drawing from the language of boom boxes and low riders, the piece articulates the presence of the user giving voice to the body and blurring the lines between body, artwork and site.

In *SOUNDBIKE* (2005, Fig. 3) and *Swinging Suitcase* (2010, Fig. 4), anthropomorphized sound and gestural interaction combine to reflect and then confound the relationship between user and artwork. *SOUNDBIKE* is a mobile piece that generates and broadcasts laughter as it is pedaled through urban environments. The laughter starts when the bike reaches a cruising speed, and then responds to velocity, enabling the rider to compose sound with his or her body. The speaker, which works as signifier, is housed on the back of the bike within a bright yellow case, separating the user from other riders and immediately drawing attention. When the piece is engaged, the rider creates a roving broadcast and human counterpoint to the urban soundscape.

Swinging Suitcase generates and broadcasts the sound of a flock of small birds in response to movement. Vocalizations are constructed from source clips of house sparrows, which are arranged into responses that range from single chirps to social chatter to scolding. When the piece is swung, the "birds" begin to make noise, which calibrate to reflect the rate of swinging---accelerating and multiplying in response to the gesture of the user, and then confounding the interaction when they become "bored." As the user continually relearns the piece, the gestural interaction becomes more complex, shifting exploratory gesture into the realm of performance, and using the cognitive process of the user as a compositional tool. *As you 'play' the birds, the birds 'play' you.*

NETWORKED PERFORMANCE

In *Mobile Interfaces in Public Spaces: Locational Privacy, Control and Urban Sociability*, Adriana de Souza e Silva and Jordan Frith examine "how mobile technologies can be viewed as *interfaces to public* spaces, that is systems that enable people to filter, control and manage their relationships with the spaces and people around them". (de Souza e Silva, 2012, p. 5) Through a genealogy of mobile media starting with the pocket book, they argue that, rather than disconnecting us from physical spaces, mobile technologies work as social interfaces to

public spaces, enabling us to frame our experience through content of our own choosing:

> While some critics argue that mobile technologies lead to a disconnection from physical space, there is an equally strong counter argument by which we consider mobile technologies as an intrinsic *part of people's* experience of space … (Ibid, p. 45)

By generating media and sharing it with others, we situate ourselves within the spaces we occupy, transforming public to private through social interaction. In *Re-Place-ing Space: The Roles of Place and Space in Collaborative Systems*, Steve Harrison and Paul Dourish define place as a space infused with meaning:

Physically, a place is a space, which is *invested with understandings* of behavioral appropriateness, cultural expectations, and so forth. We are *located* in "space", but we *act* in "place". Furthermore, "places" are spaces that are valued. The distinction is rather like that between a "house" and a "home"; a house might keep out the wind and the rain, but a home is where we live. (Dourish, 2006, p. 69)

My recent projects investigate, through networked performance, the ways that mobile technologies both situate and displace the body, complicating our relationship to place, territory and community in both physical and virtual spaces. *Networked Derive* (2010, Fig. 5) is a collaborative performance that takes place simultaneously between two geographically separate locations. Using mobile phones, twitter streams and a simple mapping system, performers in both locations engage in a series of occupations that coincide with the movements through the other city. The piece draws from the strategy described by Guy Debord in his *Introduction to a Critique of Urban Geography* from 1955, where he describes a friend using a map of London to navigate the mountainous Harz region of Germany. *Networked Derive* follows a similar strategy, using paper maps containing one city per side, and positioning them slightly askew. As each city reports its location to the other, the city receiving the coordinates locates the spot on the map and using a pushpin, makes a hole to the other side, turns the map over, and goes to that location. The new location is then reported to the first city and the process continues. As users move from one location to another, each in their corresponding city, they form identical paths.

Triangulation Device (2013, Fig. 6) is a participatory sound piece that generates soundscapes using the movement of the body as a compositional device. The piece is performed

simultaneously between two users. Using GPS, Arduino, a MIDI Interface, and xBee Radios, each device transcodes the latitude and longitude of its user into musical (and non-musical) tones and simultaneously broadcasts the data to the other user, creating shared soundscapes that unfold and change as they walk. In the same way that performing through objects merges the affordances of those objects through the expressive potential of the body, as seen in works such as *Swinging Suitcase,* the *Triangulation Device* extends the edges of the body to the other user. By generating sound through the moving body, users are able to articulate social interactions through direction, speed and proximity, creating new modes of connection through improvisation and collaboration.

Mobile technologies enable us to filter, augment and construct our experience of the world around us, transforming 'space' into 'place' by replacing the acts of listening and speaking with sharing content and connecting with friends, family and contacts. As social networks facilitate more of our connections to the world, an increasing number of our everyday interactions are with 'people like us' --- those who we share common interests, backgrounds and affiliations. So, while mobile technologies enable us to experience a sense of connection within urban environments, increasingly, those connections leave out the variety of events, experiences, and communities that drew many of us to cities to begin with. Sound, then, through its physicality, itinerancy and invasiveness, enables us to re-make place by un-silencing the social and returning us, in meaningful and tangible ways, to the many places we call home.

FIGURES

Fig. 1. walking machine — 2003 Jessica Thompson

Fig. 2. Freestyle SoundKit — 2006 Jessica Thompson

Fig. 3. SOUNDBIKE — 2005 Jessica Thompson

Fig. 4. Swinging Suitcase — 2010 Jessica Tho

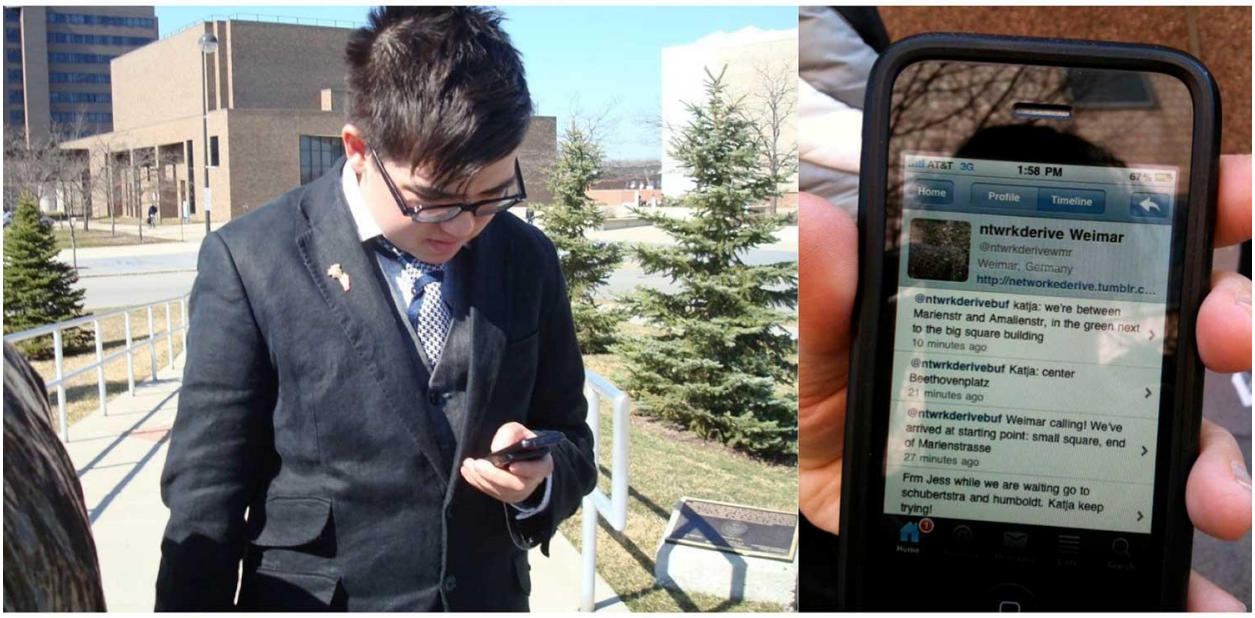


Fig. 5. Networked Derive — 2010 Jessica Thompson

Fig. 6. Triangulation Device — 2013 Jessica Thompson

Bibliography

Attali, Jacques. *Noise: the political economy of music*. 10. printing. ed. Minneapolis: University of Minnesota Press, 2009.

Bull, Michael. *Sounding out the city personal stereos and the management of everyday life*. Oxford: Berg, 2000.

Cardiff, Janet, and George Bures Miller. "Walks." Janet Cardiff & George Bures Miller. http://www.cardiffmiller.com/artworks/walks/index.html (accessed March 5, 2014).

Casey, Edward. *Getting back into place: toward a renewed understanding of the place-world*. 2. ed. Bloomington, IN: Indiana University Press, 2010.

Debord, Guy. "Introduction to a Critique of Urban Geography." The Situationist International Text Library/Introduction to a Critique of Urban Geography. http://library.nothingness.org/articles/SI/en/display/2 (accessed March 29, 2014).

Dourish, Paul. *Where the action is: the foundations of embodied interaction*. Cambridge, Mass.: MIT Press, 2001.

Farman, Jason. *Mobile interface theory: embodied space and locative media*. New York: Routledge, 2012.

Gaye, Lalya, Ramia Mazé, and Lars Erik Holmquist. "Sonic City: The Urban Environment as a Musical Interface." Proceedings of the 2003 Conference on New Interfaces for Musical Expression (NIME-03), (Montreal, Canada) 109-115.

Gaye, Lalya, Ramia Mazé, Daniel Skoglund and Margot Jacobs. "Sonic City @ Future Applications Lab." http://redback.sics.se/fal/projects/soniccity/ (accessed March 5, 2014).

Harrison, Steve, and Paul Dourish. "Re-place-ing space: The roles of place and space in collaborative systems." Proceedings of the ACM Conference on Computer-Supported Cooperative Work CSCW'96 (Boston, MA), 67-76. New York: ACM

Kubisch, Christina. "Electrical Walks: Electromagnetic Investigations in the City." Christina Kubisch. http://www.christinakubisch.de/en/works/electrical_walks (accessed March 29, 2014).

Kwon, Miwon. *One place after another: site-specific art and locational identity*. Cambridge, Mass.: MIT Press, 2002.

LaBelle, Brandon. *Acoustic territories sound culture and everyday life*. New York: Continuum, 2010.

Meyer, James. "The Functional Site; or, The Transformation of Site-Specificity" Space, Site, Intervention: Situating Installation Art, ed. Erika Suderberg. Minneapolis: University of Minnesota Press, 2000.

Silva, Adriana de Souza e., and Jordan Frith. *Mobile interfaces in public spaces: locational privacy, control, and urban sociability*. New York: Routledge, 2012.

Westerkamp, Hildegard. "Soundwalking." Soundwalking. http://www.sfu.ca/~westerka/writings%20page/articles%20pages/soundwalking.html (accessed March 5, 2014).

Biography

Jessica Thompson is a Canadian media artist and an Assistant Professor in Hybrid Practice in the Department of Fine Arts at the University of Waterloo. Her practice investigates spatial and social conditions within urban environments through interactive artworks situated at the intersection of sound, performance and mobile technologies. Her projects range from headphone-based artworks that generate sound through the moving body to interactive pieces that integrate the affordances of objects with the expressive potential of the body. Drawing from everyday experience and influences such as body art, locative media, phenomenology and the politics of broadcast, her artworks use sound to create reciprocal dialogues between body, artwork and site through exploratory gesture, embodied interaction, improvised choreography, and play. Thompson's current research investigates the ways that sound reveals spatial and social conditions within cities and how these conditions may be articulated through networked performance. She is particularly interested in the ways that mobile technologies both situate and displace the body, complicating our relationship to place, territory and community in both physical and virtual spaces. Her work has shown in exhibitions and festivals such as ISEA (San Jose), the Conflux Festival (New York), Thinking Metropolis (Copenhagen), (in) visible Cities (Winnipeg), Beyond/In Western New York (Buffalo), the Deep Wireless Festival

(Toronto), NIME (Oslo), Audible Edifices (Hong Kong) and The Persistence of Peripateticism: Artists' Walks (New York). Her projects have appeared in publications such as Canadian Art, c Magazine, Acoustic Territories (Continuum Books) the Leonardo Music Journal, and in numerous art, design and technology blogs. She is represented by p|m Gallery in Toronto. For more information, visit jessicathompson.ca.

SESSION 4: Perception and (Audio) Mobility
Friday April 18th

Moderator: Fabrice Métais

Jean Cristofol (FR)
Lecture, session 4

Probe and Chart in a Multidimensional Space

Carte et sonde dans un espace multidimensionnel

Jean Cristofol
Teacher, Theoretician
Ecole supérieure d'art d'Aix en Provence
http://www.ecole-art-aix.fr/
http://www.plotseme.net/

Abstract:
The models of the probe and the chart (or map), represent both two different types of relationships to the environment and two different ways of producing meaning. On the one hand, the map presupposes the projection of a space, distant from self – a remote representation. It involves the production of a standardized representational system which empowers it as an independent form. The probe assumes that the subject is in a position of immersion in an environment, of which it informs itself actively, by emmitting signals that return as echo. It involves on the subject's part, an activity or movement that produces a variation of the field – unless there are perceived disturbances, caused by a foreign body moving in the field. From this point of view, there is, in the logic of the probe, an asymmetrical reversibility that needs to be taken into consideration. What distinguishes the two models is the position of the subject and the way that this position qualifies. These two different "positions " serve two distinct ways of constructing meaningful situations . The first is born within the complexity of a relationship between symbolic elements and figurative elements and is clearly in the domain of production of representation. The second is based on signals that are perfectly neutral in themselves but which become interpretable through the variations they return. Rather than an opposition between the visual and the auditory, it is this opposition between two semiotic systems and two logical situations that appears to me as the basis of the distinction between map and probe. It is related to transformation of the environment and is largely mediated by the flow of information.

Résumé :
Les modèles de la carte et de la sonde dessinent à la fois deux types différents de relations au milieu et deux façons différentes de produire du sens. D'un côté, la carte suppose la projection de l'espace posé hors de soi dans une représentation distante. Elle implique la production d'un système normé de représentations qui l'autonomise comme

une forme indépendante. La sonde suppose que le sujet se trouve en situation d'immersion dans un milieu qu'il informe activement à partir des signaux qu'il projette et dont il reçoit l'écho en retour. Elle implique une activité ou un déplacement qui produit une variation du champ généré par le sujet, à moins que ne soient perçues des perturbations provoquées par un corps étranger qui se déplace à son tour dans le champ couvert par le sondage. De ce point de vue, il y a dans la logique de la sonde une réversibilité asymétrique qui doit être prise en considération. Ce qui distingue les deux modèles relève de la position du sujet et de la façon dont sa position le qualifie. Or ces deux "positions" différentes répondent à deux modalités distinctes de construction des situations signifiantes. La première se constitue dans la complexité d'une articulation entre des éléments symboliques et des éléments iconiques, elle relève clairement de la production d'une représentation. La seconde repose sur des signaux parfaitement neutres en eux-mêmes, mais dont les variations qu'ils manifestent en retour deviennent interprétables. Plus qu'une opposition entre le visuel et l'auditif, c'est cette opposition entre deux régimes sémiotiques et deux logiques de situation qui me parait fonder la distinction entre carte et sonde. Elle relève d'une transformation du milieu, largement médié par les flux d'information.

I will start by discussing the introductory text to this symposium. This text is for a large part built around a distinction between two figures:
- That of the map - a fixed representation of space ;
- That of the probe , that is to say, modes of exploration of a field of experience determined by movement and displacement. [1]

Of course, this text clearly points out that these two cases; the map and the probe are linked and mixed in many ways and are often complementary. We know that the techniques of sensing, used in the general sense that we adopt here, can participate in the creation of a kind of map of a territory being explored. Various surveying actions may be ported to a spatial configuration. For Example, imagine a sonar screen that translates a set of feedback signals produced by variations in the depth of the seabed into an image. The notion that echolocation allows bats to build a mental map of their environment is based on the same principle.

However, the map and the probe are suggested here as being representative of two opposing models between which, ways of thinking, perspectives and ways of being –but also approaches, practices and conceptions of art– are distributed.

On the one hand the model of the probe is proposed as a way to approach the specificity of sound practices and more generally as an essential feature of artistic practices of mobility, since they engage a dynamic relationship between production and context.

On the other hand, the model of the map refers both to the production of a detached, autonomized representation –specifically an image– and the conception of the artwork as immobilization and externalization in the form of a symbolic object.

The balance swinging between, on the one hand, the long history of images fixed in time and, on the other hand, real-time processes and interactions.

This distinction made between these two models invites us to question mobility not only as a matter of circumstances - the fact that technological development puts at our disposal essentially mobile devices and that artists appropriate them to produce forms adapted to their functionality- but also as a way of questioning these practices, their meaning, their consequences, and by extension, the issues they deal with.

To resume, one might say that the model of the map refers to a conception of art centered on the notion of representation, whereas the model of the probe emphasizes the necessarily fluctuating relationship of a subjects position, immersed in an environment that it explores .

1) MODELS OF THE CARD AND THE PROBE

It is first necessary to clarify the distinction between these two models. They appear to define two different types of relationships to the environment and two different ways of producing meaning .

A map involves the projection a space situated beyond self as a remote representation, an image of the world. The probe assumes that the environment is perceived from signals that the subject projects, the effects of which it receives in return. This implies an activity or movement that produces a variation of the field which is therefore generated by the subject. The subject then, finds itself undissassociable from an environment that it "informs" in the sense that it generates its form and that it captures as an information set.

Thus, what distinguishes these two models is primarily a matter of the subject's position, taken in

its broadest sense, and how it is defined by its position : overlooking externality on the one hand, immersion , proximity and mobility on the other.

These two different "positions " correspond to two distinct ways of constructing meaningful situations. The first is the complexity of a relationship between symbolic and mimetic elements and clearly belongs to the domain of the production of representation. It tends towards the production of an object –the map– that inscribes the representation, but also immobilizes the subject by constituting its *point of view* in an externality that we might consider as virtual, for example we“overlook” a traditional map, however, as I will develop, this position might also be “within” the map.
The probe involves emmitting signals that are semantically neutral in themselves, but which, through the variations they return, become interpretable. However, the variation is produced by the movement of the perceiver or the perceived object, in any case, it is inseparable from movement in a field which is fundamentally dynamic.

It follows that the map gives us the projection of a representation of space that meets two requirements: that of a representation in which our presence aquires an identity, but also a pragmatic understanding of the possibilities of action. This both builds our relationship to the whole with respect to which we are just an element and it guides us or provides us with a means of orientation and a relative appreciation of the elements arranged in that whole. From this point of view , the map says both " This is what your world looks like" and " This is where you find yourself ." It projects a version of the world, by definition invisible to me, as a spectacle but it also invites me to project myself into it, to inhabit the imaginary place I'm supposed to occupy, or I can relate to the distant figure that is given to me. This imaginary immersion explains the evocative power of maps, their fantastic capacity of suggestion and their invokation of reverie. Hence the map is endowed with a narrative force. All maps tell a story.

The probe introduces us to an evolving environment whose limits are imperceiveable and who's temporary center is always situated at the source of the probe itself. That which constitutes the subject as the center is not its fixity but rather its mobility or its ability to detect the movement of a signal. This is the case of echolocation in bats for example. There is center in this case because

a signal is emitted, that is to say the transmission of a fraction of energy which loops back imparting its variation. Here to a space is created, but rather than being the space of representation, rather it is the space of exploratory activity, a sensorial extension and a dynamic reverberation. This space is no longer an emptiness defined and constrained by form, but a fullness –a medium traversed by undulations (waves). The probe implies the existence of a "field", whether that "field" is material, energetic or informational.

The case of the map assumes that knowledge of external reality is embodied in a mediated form that is independent. It tells me that I know the world because I externalize a representation, and it is in this representation that I recognise it. And the act of knowing takes place through the correspondance between what the map shows me and the experience that I can make of the world.

The model of the probe on the other hand refers me to the actual experience of the world in which I am and where my actions occur. It assumes that my relationship with the environment is continuous –because it is the repetition of emissions or probes that can reveal meaningful variations– and somehow immediate, because the sounding is both what informs me about the world and what binds me to it –my relationship to it. Here, knowledge appears within the way in which exloratory structures behavior and that production in itself offers a framework of possibilities.

This is what I wish to approach by pursuing the idea that, what distinguishes models of the probe and the map, touches on the double question of the position of the agent and the method of producing meaningful situations. I propose to place this in a singular context, which is that of changing borders at the beginning of XXI century.

2) FROM THE BORDER AS A DIVIDING LINE TO THE BORDER AS FLUX CONTROL

The issue of the map and mobility leads me to discuss the research in which I have been engaged over the last two years in the program *The Antiatlas of Borders* [2]. *Antiatlas Of Borders* is a transdisciplinary research project that brings together many participants: researchers from

different disciplines, artists and art theorists, as well as experts from the industrial sector and other professionals. It starts from the observation that over the last thirty years, there has been a considerable transformation of the nature of borders. They have become a major factor in the political, economical and human issues of our societies. They occupy a significant role in multiple ways, for example, the issue of migration, the extension of control systems and the impact of the flux of finance on daily life. Borders are present in our collective imagination and they pose the question of our future as citisens of democratic societies. Significantly , many artists have begun to work on or around the issue of borders; intervening in border areas, hijacking *(detournent)* surveillance systems or disrupting control devices.

Borders pose, in quite a new way, the question of their representation, not only because traditional forms by which they were represented have clearly become inadequate, but because the very question of representation has become an issue and a subject of ideological confrontation. When, 25 years ago, the Berlin Wall fell, and the divide between the West and the Soviet bloc seemed to disappear, while the process of globalization grew and Europe widened, some thought we were witnessing the end of borders. It seemed as if we were passing from a partitioned world to an open world. whereas, In fact, we have rarely traced as many new frontiers and above all we have never built so many walls and separating barriers in the world. Far from disappearing, borders are becoming increasingly present and increasingly active.

And these evolutions do not solely concern the lines that shape the world map, they apply above all to the reality of what is included in the very notion of borders. This leads us to question the relationship between modes of organization of space, the political, cultural, scientific and law enforcement uses made of representation and multiple forms of what may be called mobility. If we use the term *anti* Atlas is also to underline the impossibility of accounting for today's borders through cartogrphy only, when the logic of the devices in which they are embodied is based on the flow of information.

Borders are traditionally represented by lines that draw territories. They assume the uniform continuity of space that determines the cartographic representation of space. We do not always take sufficiently into account, the fact that maps are not only a representation of the reality of

border divisions. They also participate in their production. This is true, in a general sense, in that classical –linear and abstract– borders were defined during the same periode that saw the appearance of the modern map. It developed and imposed itself, as a vehicule of knowledge in an increasingly precise and technically standardized, mathematical and geometrical framework. But it is also true from a more practical point of view, the mere fact that maps were needed to define the design of linear boundaries, and project them onto the varied and irregular reality of the terrain. Maps accurately reflect the reality of "classical" borders. But these borders could not have been imagined, designed and then drawn as they were, without the development of the cartographic representation of space.

To say that the cartographic representation of linear borders no longer reflects the reality of current borders, it is firstly to witness the transformation of our relationship to space and the way we represent it. The linear representation of the classical map assumes a separation of spatial and temporal dimensions. It gave us a purely synchronic vision of territorial division, a given moment, fixed as in an image and placed before the eye of the beholder and their external vision. The externality of vision is the fundamental condition of cartography and the synchronic organization of its elements –distribution of places– is its working principle (rationale). Of course represented movement animates this space, but it is not noticeable, except through symbols that are also fixed and immobile. Canals or roads indicate the possibility of movement, but the movement remains secondary and determined by the organization of space. Today inversly, it is the rather the organization of space that bows to the logic of movement and flow (flux).

Cartographic representation of space appears to be a satisfactory approximation as long as circulations fall into a roughly homogeneous scale. But when the movements diversify and dissociate to draw spatiotemporal spheres that independent and largely separate, the spatial representation can no longer be reduced to the homogeneity a continuous spatiality. Streams of flux are multiple and they are not reducible to one another : financial flux, flux of goods, flux of knowledge and information, flux of people are obviously related and dependantt, but they do not necessarily constitute a homogeneous whole. They draw relatively autonomous spheres that coexist in specific, complex forms of spatio-temporality. Borders as linear modes for dividing

territories are metamorphosing into devices that are nonlinear, reticular, punctiform or "trajectal" composing strongly differentiated strategies and hierarchical controls.

Thus, the issue of mobility has become central, not only because it is part of a situation, but because it produces form, value, standards (normes) and law. There is, for example, the emergence of a right to mobility, that is taken for granted by some but completely denied to others -including through violence- which is inseparable from the fact that mobility contributes to determinng value in both economic and symbolic terms. It also produces poetic and aesthetic effects –that is to say that it engages the place of the subject as an actor and as a transformer of that space– that have become an irreducible part of cartographic reasoning. There overlooking viewpoint from which we can build a static image of the overall organization no longer exists. We are constructed in the perspective that registers us in a moment that is relative to the path that constitutes our being.

3) THE PLACE OF ARTISTIC PRACTICE AS AN EXPLORATORY APPROACH

This is exactly what seems to me to characterize the practices of most artists working in one way or another, on or with borders. Borders have become a "field" of artistic intervention and not just an aspect of landscape, for example, or a decorative element for a fictional work. It is the border itself, in its reality, that artists are confronting.

I suggested earlier the idea that what distinguishes the two models of the card and the probe, is both the question of the place of the subject –whether artist or viewer / listener– and the way of producing meaningful situations. The first component is definitely that of the point of view, the shift of the gaze, from the exteriority constitutive of our traditional relationship to representation, to sensitive forms of exploration of situations. We can consider that the concept of immersion can account for what characterizes situations that are proposed, whether they are reported, documented, restituated or whether they are directly engaged in a form of living experience. In all these cases we are dealing with the revelation of a hidden or imperceptible reality, the activation of situations that would otherwise remain unnoticed or inactive, the decyphering of illegible processes and operations, or the production of pertubations without which we would

remain indifferent to situations completely integrated into everyday banality. And in all these cases the question is one of constituting situations as perceivable events doted with significance for us or, to put it another way, as explorable situations.

But it is the concept of exploration that I wish to retain, in its relation to aesthetic questioning. If the classical idea of contemplation seems to me to accompany –without difficulty– our relationship to objectified representation in plastic (fine art) forms –and thus correspond to the model of the map– the idea, less widespread, of exploration –or the exploratory nature of artistic practices– seems to correspond to the kind of situation which the model of the probe accounts for.

The notion of exploration was already present in our first distinction between the two models of the map and the probe. If we accept that both correspond to the types of practices, the first is a practice that is proposes to build the relationship with its "object" through representation, where the second is a practice that proposes to seize a situation through a process of exploration.

But poseing alternatives in these terms can be misleading. Obviously, the representation may result from prior exploration, which is rendered when serving its purpose (when in use?). And in turn it offers itself to the spectator, as an object for exploration, an activity which is inventive in nature. In fact, the essence of the exploratory character in the probe model is that it is in itself, that which constitutes the aesthetic relationship. It is considered as situation and as process, in the here and now of experience. The probe model proposes neither totalising point of view nor a second hand and time-delayed experience. It offers us the dynamic but necessarily partial and provisional reality, a moving experience. And he invites us to build knowledge by developing strategies that engage us as subjects. Subjects who are no longer facing objects, but engaged in situations.

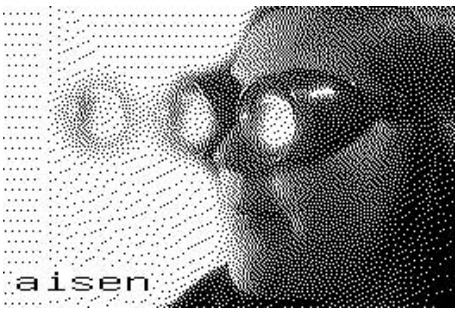
[1] Available on the website of Locus Sonus (http://locusonus.org/w/index.php?page=Symposium8). One can for example read:
We propose to consider the audio- mobile technologies from two points of view which can be illustrated by the concepts of mapping and survey. In the case of maps, we project as part of a representation (diagrammatic and abstract). In the case of the survey, we activate the environment around us and we reap what making information about this space.

We propose to Consider mobile audio technology from two point of view. These can be assimilated to maps and sounding . In the case of maps , we project space and trajectory through schematic representation while in the case of sounding , we activate the environment around us and in so doing collect information about it through feedback.

[2] http://www.antiatlas.net/en/

Biographie

Jean Cristofol est professeur à l'Ecole Supérieure d'Art d'Aix en Provence où il enseigne la philosophie et l'épistémologie et il est chargé de cours à l'Université d'Aix-Marseille (master pro arts plastiques). Il travaille principalement sur la relation entre arts et technologies, ainsi que sur les formes de temporalité et de spatialité et sur leurs médiations. Ses recherches ont essentiellement porté ses dernières années sur les notions de temps réel, de flux et de fiction. Il est membre du comité scientifique et artistique de L'antiAtlas des frontières.



Aisen Caro Chacin (US)
Lecture, session 4

Echolocation Headphones: Seeing Space with Sound

Aisen C. Chacin
Lecturer & Post Graduate Fellow
Parsons, The New School
http://newschool.edu
http://aisencaro.com

Abstract:
Echolocation Headphones is a project that studies new applications for parametric sound technologies. This study emphasizes on augmentation of the auditory sense by enhancing our current ability of processing omnidirectional sound by providing a focal point to audition, similar to a visual focal point. Currently, human echolocation is being explored by the blind who have reached an increased understanding of sound and spatial relationships. In other species echolocation is facilitated by different evolutionary traits that differ from the current human senses. These headphones provide the opportunity for focal audition similar to a focal point in vision, depicting a more detailed spatial image of the parameters of the space surrounding the subject.

The Echolocation Headphones are a new application for parametric sound that aids auditory spatial location. This study emphasizes the augmentation of the auditory sense by enhancing our current ability to process sound through providing a focal point to audition, similar to a visual focal point. Currently, human echolocation is being explored by some members of the blind community who have reached an increased understanding of sound and spatial relationships. This tool was designed for both blind and sighted individuals in mind. This technology is beneficial for some kinds of blindness because it could provided a focused acoustic beam for spatial mapping, unlike omnidirectional mouth or cane clicks. It is also a training apparatus that allows sighted people to learn how to navigate space through sound. The Echolocation

Headphones' sensory-mixing functionality is to translate auditory processes to visuospatial skills.

PRECEDENTS

The perception of allocentric space is a visuospatial skill that includes navigation, depth, distance, mental imagery, and construction. These functions happen in the parietal cortex at the highest level of visual cognitive processes. (Pullin 2009) An important function of the parietal lobe is to integrate sensory information, such as the manipulation of objects. (Blakemore & Frith 2005) It includes the somatosensory cortex and the dorsal stream of the visual cortex. The dorsal stream is referred to as the "where" or the visuospatial processing, and the ventral stream as the "how", such as the vision for action or imagination. (Goodale & Milner 1992) (Mishkin & Ungerleider 1982) Acoustics can also inform the visuospatial processes, because of the sound waves' sensed timed arrival, processed by parietal cortex. Accounting for the speed at which sound reaches your ears, can result in realistic effects generated in sound playback. Professor Edgar Choueiri from Princeton University founded the 3D3A Lab to study fundamental aspects of spatial hearing in humans. (3D3A, 2010) The lab has developed a technique to filter sound playback with a three dimensional effect, making it possible to simulate the a fly circling your head with normal speakers, without headphones. He explains that our brains only require a few cues for locating the source of sound. The first being, the time that it takes for sound to reach one ear versus the other, and the difference between the two time intervals. The second cue is the level differential of the sound arriving at the two ears. In order to achieve this same principle with two frontal left and right speakers the sound must be recorded with two microphones equally spaced to the position of the ears on a human head. Dr. Choueiri has developed filtering techniques for 3D-audio playback that cancel the crosstalk between two speakers. This prevents the cues from the left speaker to arrive at the right ear and viceversa. These filters are effective in providing the brain with the right information for processing spatial audition from an artificial playback environment with no headphones required. (Wood, 2010) This same principle of audio spatial attention used to recreate 3D-audio playback simulations can be applied for echolocation. Daniel Kish, Fig. 3.23, is the president of the World Access for the Blind (2010) an organization that helps individuals echolocate; their motto being "Our vision is Sound." He describes himself

as the real batman, and has been echolocating since he was a year old. (PopTech 2011) Kish has mastered echolocation through the interpretation of mouth clicks to gain understanding of his spatial surroundings. In some blind individuals, the brain has appropriated functions of the visual cortex to have a heightened sensitivity for sound in spatial processing. The dissemination of this technique has helped hundreds of blind people to regain "freedom", as he describes it. (PopTech 2011) People who are using this technique can navigate space flawlessly, ride bikes, skateboards, and ice skate, including the ability to locate buildings hundreds of yards away with a single loud clap. The clicking is a language, that asks the environment- "where are you?" with mouth sounds, cane tapings, card clips on bicycle wheels. (World Access 2010) These clicking sound waves sent to the environment return imprints of their physical encounters, as if taking a sonic mold of space.

The Topophone, Fig. 3.25, was invented by David Porter Heap in the United States in 1880. Its purpose was to amplify the sensation of particular sounds. The wearable parabolas he created could be tuned to the pitch of the sound to be detected. His device was later adopted by the army in order to serve as a defense mechanism to detect enemy combatants. (Porter, 1897) This device became particularly useful once the airplane was invented, as it aided the location of airborne bombers. During the second World War in the 1940s, the Allies created radar technology giving them the benefit and great advantage of spotting enemy planes over hundreds of miles. Radar utilizes the same principle of detecting the imprint of reflected sound by measuring the resonance of a semiconductor crystal, or a rectifier. (PBS 1999) Without radar technology other WWII combatants had to rely on their own sense of hearing with auditory extensions, such as the topophone and acoustic mirrors.

EXPERIMENTATION & FUNCTIONALITY

The first instance of this idea surged while I was experimenting with a parametric speaker in an open backyard of a mountainous area in Los Angeles. I held the speaker to my ear, closed my eyes, and began to scan the environment. The imprint of my spatial surroundings reflected in the returning sound was perceivably accurate by at least 200 feet. This idea of holding the speaker to beam sound away from my ear was inspired by my then recently acquired knowledge of Daniel Kish's experience with echolocation. It seemed to me that achieving his level of sound mapping

mastery could only be acquired based on rigorous practice. People who are not used to perceiving spatial information through sound would normally have a hard time differentiating the surfaces of their surroundings 200 feet away based on sound alone, but by utilizing a parametric speaker the threshold for auditory spatial location lowers and its effect is more immediate. A parametric speaker uses a focused acoustic beam, and it does this by sending intermittent high frequency sound waves, Fig. 3.26. One of the waves remains at a constant ultrasonic signature and the other is equal, except it also includes the sonic frequency of the sound being played through it. For example one ultrasonic wave is 30 KHz, the other is 30+ KHz (plus the added audible sound wave). When the waves reflect from a surface they collide and their equal frequencies are subtracted to produce a differential the audible sound, which is the added sound wave. This added soundwave can come from any device that plays music and has a headphone jack, such as music from an mp3 player. This is similar to the filtering that was being done by the 3D3A Lab in Princeton. Spatial behavior of sound waves can be calculated and affected programmatically by accounting for the time intervals between sonic signatures. The parametric speaker utilized in this project was created by a Japanese company called TriState, Fig. 3.27. (Tri State, 2012) The availability of these speakers is limited, and therefore very difficult to attain. There are a few other parametric speakers such as the SoundLazer, a successfully funded Kickstarter project, created by Richard Haberkern (2012). The original and more sophisticated version of parametric speakers is the Audio Spotlight by Holosonics, invented in the late 1990's by Joseph Pompei. (Holosonic 2002) Naturally these speakers are of the highest quality in parametric sound, and their prices reflect their sophistication. TriState offered the most economical and attainable speaker of this sort at the market at the time. (Tri State 2012) The focus was directed towards the functionality of the device rather than the technical recreation of a parametric speaker. Once the speaker arrived from its long journey from Japan, I began thinking about the integration design of the speaker as a wearable echolocation device. One idea involved the ability to control the rotation of speakers, similar to the dexterity and movement that animals such as dogs and cats possess on their ears. Should there be two speakers in order to inform both ears independently from each other? Thinking about a binaural hearing spun ideas of having two speakers, but while testing it became apparent that the sole speaker and the latency between the ears was crucial for the nature of echolocation- seeing through sound. It occurred to me that members of the blind community wear dark glasses. In the book “Design Meets

Disability", Graham Pullin, (2009) describes glasses as a type of assistive technology. Appropriating the sensory function of glasses to be the placeholder for headphones seemed like the perfect opportunity for aiding audition. The priority of this interface is to place the sense of hearing at the center of the design Fig 3.28. Welding goggles are designed to provide as much protection as possible from the harsh light that is produced when fusing metal. They are designed to introduce as little light as possible, which make them attractive for the acoustic-spatial training necessary for sighted subjects. The glasses are not entirely depriving the sense of sight purposefully, so that sighted users can get accustomed to mapping spatial information from sight to hearing. Another useful aspect of the inherent design of these welding goggles, is the ability to open and close the obstructing panel holding the speaker. After incorporating the parametric speaker from TriState and the welding goggles, the next step was to add a 12V 1 Amp battery and charger circuit. This was the most important upgrade to the design because it allowed the user to have the freedom to explore their surroundings without being limited by the electrical connections to the wall. In order to create an enclosure for the electronics of the parametric speaker and the added battery charger circuit, I decided to incorporate concave resonator plates inspired by the Topophone. This was a great solution for integrating the electronics and the goggles, and the challenge shifted to finding the right plates. I searched for aluminum bowls and other concave surfaces that could amplify the resonating signals, and found the oddest solution, the rotary top of a trash can. This solution is an example of the playful visualizing mechanics that occur in the ventral stream. Stripping objects from their function and adopting their form for other uses also functions with a similar process of visuospatial mapping, Fig. 3.29. In order to add a compartment for the electronic components, I used a vacuum forming machine. This technique would allow me to make a custom shape to fit the head plates. At first, I wanted to create a sort of helmet that kept the electronics on top of the head, Fig. 3.30. Through playing with the pieces of a lid and testing different forms of integration, it became clear that adding the compartment to the back of the head was a safer and more aesthetically cohesive design choice. Once the compartment shape was finalized it was vacuumed formed on to the amplifying parabola. Then, both forms were detailed with chrome trim originally used for car doors. This physical extension to the ears had a sonic amplification effect and helped the recollection of sound.

EVALUATION OF POTENTIAL

This case study also stimulates the mapping function of the visual cortex while aggregating spatial information, similar to the spatial processing of tactile maps on the tongue explored my PopMatrix experiment. The tests displaying the feasibility of sonic visuo-spatial location through the Echolocation Headphones as a training device for sighted individuals, are positive and more immediate than the electric pulses on the tongue. I have found a new application for the parametric speaker as a tool for echolocation that appropriates its original function by focusing the experience outward as a wearable device. Usually these speakers are targeted toward crowds, such as information sound beams used for museum or advertising displays. These headphones provide the wearer an opportunity for focal audition as one scans the surrounding environment. The differences in sound reflection inform a more detailed spatial image. This scanning method is crucial for perceiving the lateral topography of space. The constantly changing direction of the detection sound beam, the contrast in sound is what informs the spatial surrounding. The mp3 player connected to the Echolocation Headphones has is loaded with a track of continuous clicks and another of white noise. I have found that noise is the most effective sound for this echolocating purpose. When demonstrating his method to an audience, Daniel Kish created a "shh" sound to show the distance of a lunch tray from his face. Noise works well because it provides a long rage of tonality at random, this eases the detection of level and speed change, Fig. 3.31. Beyond the applicability of navigation, this tool is also useful for differentiating material properties such as texture. Sonic perception can also inform the somatosensory cortex about physical object based on the surface's acoustic deflection. In one of his studies Göran Lundborg tested the feasibility of artificial somatoception through a system of contact microphones applied to the fingers utilizing sound for tactile substitution. (Lundborg et al. 1999) I conducted a series of experiments with different subject to determine that the use of the Echolocation Headphones facilitates the distinction of materials based on sound as the only informative stimuli. Subjects were able to identify distance and resonance within the first 2 minutes of wearing the device. I found that it is very easy for the wearer to identify metals and plastics in comparison to cloth and cardboard because of their different material porosities. The more irregular the surface the less likely it is for sound to reflect from the surface. This is why foam and cork are used to line the walls of recording studios. When experiencing the

echolocation headphones, one of my test users Joi Ito, noted a very beautiful analogy from noise to space. He said that in blindness one can finally see it all when it rains. The noise that occurs with the dripping of rain creates a detailed map of the environment. This notion of utilizing sound to navigate space is not particularly useful for sighted subjects, but this device depicts the experience of sensory substitution and it exemplifies the agility and plasticity of the brain's perceptual pathways.

FIGURES

Fig. 3.22 Echolocation Headphones, User: Galina Rybatsky

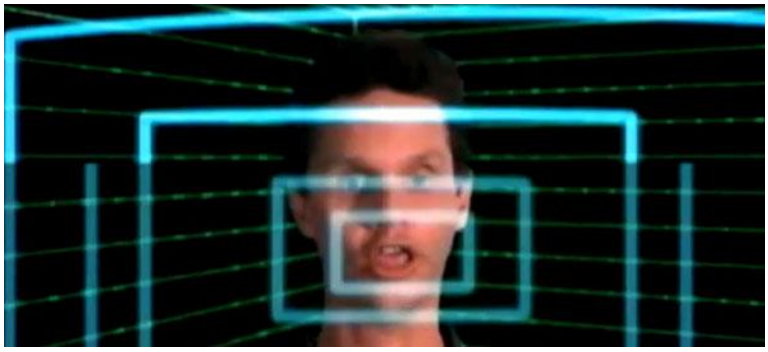


Fig. 3.23 Daniel Kish: Echolocation Methods for Spatial Interpretation

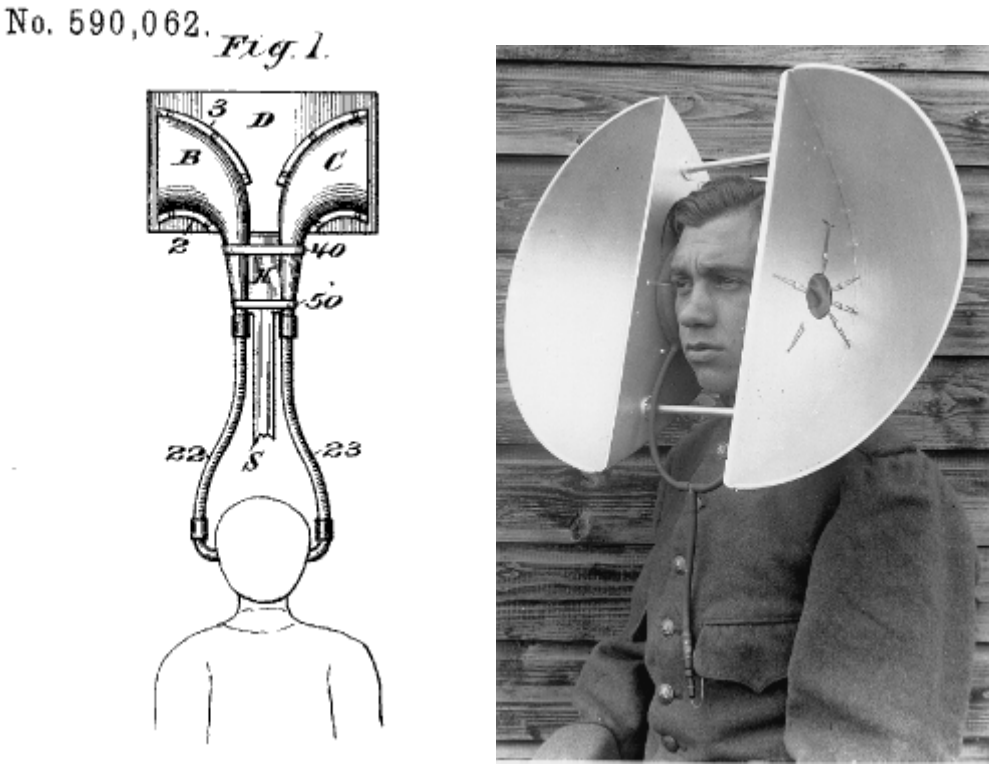


Fig. 3.25 Topophone (left) 41 WWII Military Bomber Detector (right).

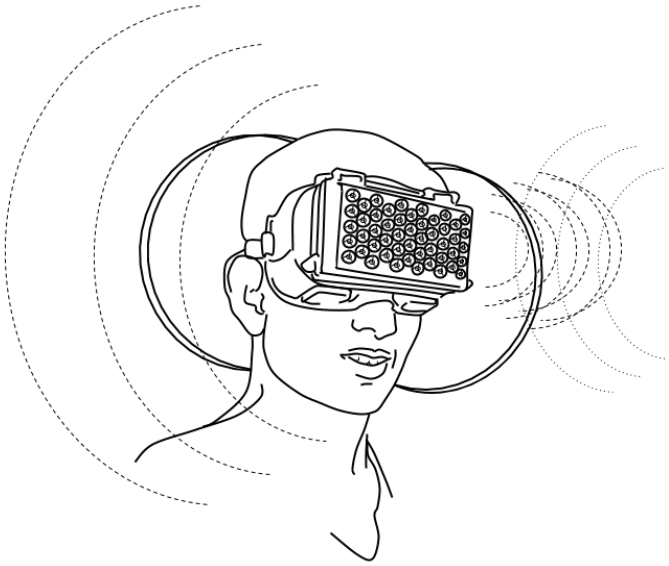


Fig. 3.26 Echolocation Headphones: Sound Interaction Diagram

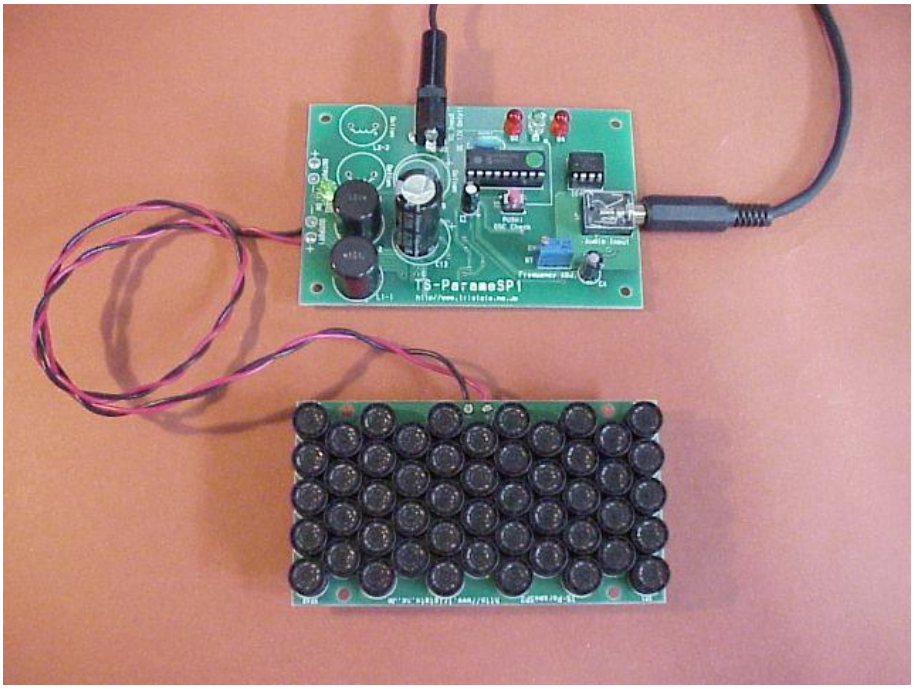


Fig. 3.27 TriState Parametric Speaker

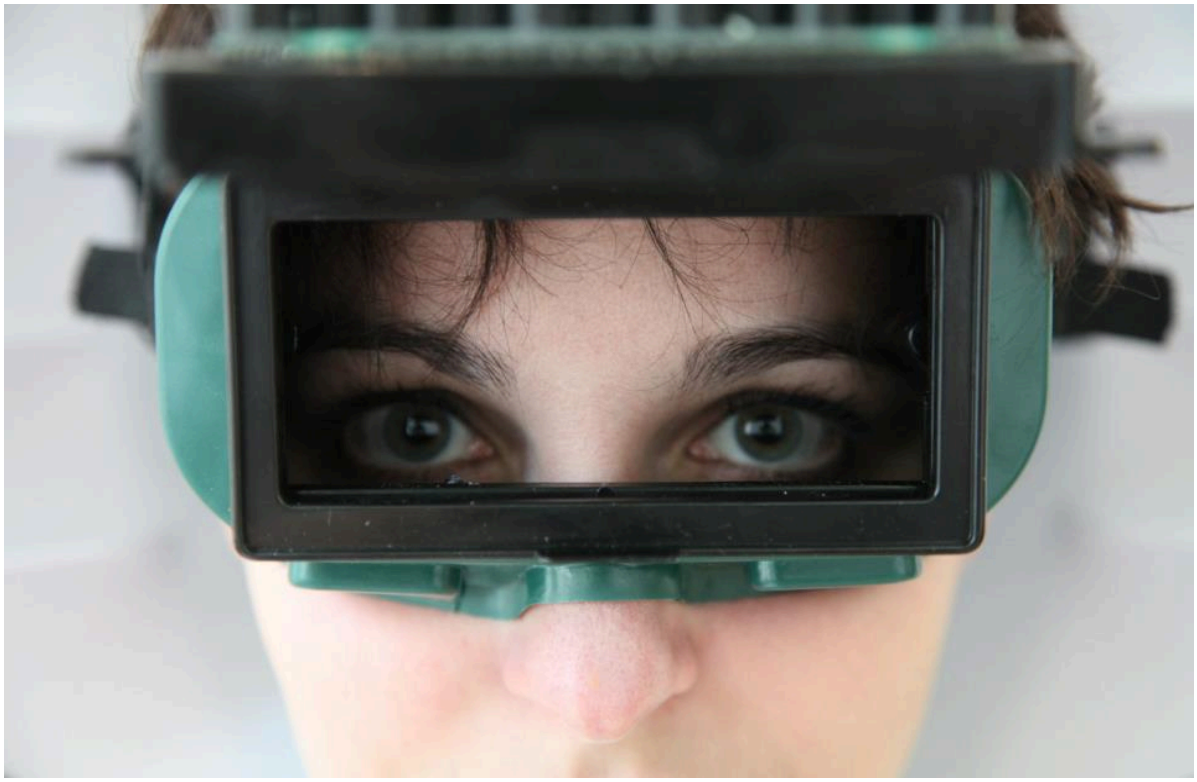


Fig 3.28 Echolocation Headphones: Goggle Functionality

Fig. 3.29 Echolocation Headphones: Profile View

Fig. 3.30 Echolocation Headphones: Back View

Fig. 3.31 Echolocation City Walking

Bibliography

1. 3D3A. "3D3A Lab at Princeton University." 2010.Accessed May 20, 2013. <http://www.princeton.edu/3D3A/>

2. Blakemore & Frith. 2005. "The Learning Brain." *Blackwell Publishing*. ISBN 1-4051-2401-6

3. World Access for the Blind. 2010. "Daniel Kish, Our President | World Access for the Blind." May 20, 2013 <http://www.worldaccessfortheblind.org/node/105>

4. Goodale MA, Milner AD. 1992. " Separate visual pathways for perception and action." *Trends Neurosci*. (1):20-5.

5. Holosonic Research Labs. 2002. "Holosonics." Accessed May 20, 2013 <http://www.holosonics.com/

6. Lundborg, Göran, Rosén, and Lindberg. 1999. "Hearing as substitution for sensation: a new principle for artificial sensibility." *The Journal of hand surgery* 24.2, 219-224.

7. Mishkin M, Ungerleider LG. 1982. "Contribution of striate inputs to the visuospatial functions of parieto-preoccipital cortex in monkeys." *Behav Brain Res*. 6(1): 57-77.

8. Mayer, Alfred M. 1880. "Patent US224199 - TOPOPHONE - Google Patents." Accessed May 20, 2013 <http://www.google.com/patents/US224199>

9. Porter Heap, David. 1897. "Patent US590062 - TOPOPHONE - Google Patents." Last Updated 2011. <http://www.google.com/patents/US590062>

10. PopTech. 2011. "PopTech : PopCasts : Daniel Kish: Blind vision." Accessed May 20, 2013. <http://poptech.org/popcasts/daniel_kish_blind_vision>

11. Pullin, Graham. 2009. *Design meets disability*. The MIT Press.

12. PBS. 1999. "Radar During World War II - PBS." ScienCentral Inc, and The American Institute of Physics. Accessed May 20, 2013. <http://www.pbs.org/transistor/background1/events/radar.html>

13. Haberkern, Richard. 2012. "Soundlazer." Accessed May 20, 2013 <http://www.soundlazer.com/>

14. Tri State. 2012. "http://www.tristate.ne.jp/parame-2.htm - Topsy." Accessed May 20, 2013. <http://plus.topsy.com/www.tristate.ne.jp/parame-2.htm>

15. Wood, Mike. 2010 "Introduction to 3D Audio with Professor Choueiri". Video Format. *Princeton University*.

Biography

Born in Boston, MA, Aisen Caro Chacin is a regenerating composition of cells that produce a woman, a Venezuelan, a Spaniard, an U.S. American, and an animal whose patterns of migration are not based on seasons, but rather chance, chaos, and opportunity. Her curiosity led her to research the intersecting fields of art, science, and technology driven by conceptual forms of inquiry and design thinking resulting in functional prototypes. She is a professor of the MFA Design and Technology Parsons, teaching Physical and Creative Computing, The Material

Spectrum Lab, and The Digital Self. Her radar is on Human Computer Interaction HCI- designing new interfaces for how we perceive the world; and discovering the limits of digital media. Featured as an inventor in Future Tech by Discovery Channel, awarded and published by PopSci, she looks forward to finding other suspended disbeliefs in her pocket. She is a creative technologist, a STEAM engine, a bucket of ideas open to merge and exchange with other buckets.

Gaëtan Parseihian (FR)
Poster, session 4

The process of sonification design in the case of guiding tasks

Gaëtan Parseihian
Researcher, CNRS-LMA
www.lma.cnrs-mrs.fr
http://www.gaetanparseihian.braneproject.com/
http://metason.cnrs-mrs.fr/
http://www.sensons.cnrs-mrs.fr/Cosmos.html

Abstract:
Thanks to the development of research in data processing and auditory display, the use of sound in user interfaces has considerably grown over the past few decades. Employed as a means of conveying and revealing hidden information, sonification exploits the ability of the human auditory system to recognize temporal and spectral changes and patterns. In some cases, it has also the advantage of relieving another sensory modality, for instance the visual system when it is overloaded or busy with another task or even supplying some function of it when visual information is not available (e.g. if the user is physically visually impaired, if the visibility is reduced such as a smoke environment or if the useful information is not contained in the visual modality). Taking advantage of the relationship between auditory and sensorimotor systems, and of the fact that sounds represent an ideal means of transmitting dynamic behaviour, sonification can be a valuable assistance for applications that imply the perception of one's own body gesture/motion and is an ideal candidate to support the design of guidance applications. In this talk, I will discuss the process of sonification design in the case of guiding tasks. After a brief review on sonification techniques and more precisely on the Parameter Mapping Sonification (PMS) approach, I will motivate the need for a generic methodology of PMS design. I will then introduce a methodology built on a disconnection between the sound and the data-to-display, and propose the definition of a taxonomy of informative sound strategies based on the manipulation of fundamental attributes of sound perception like pitch, loudness, tempo, and timbre. The design of several sound strategies will be proposed and their perceptual influence on the guidance will be discussed by analysing some results obtained by a guiding task on a pen tablet. In particular, the obtained results reveal relevant information related to the prediction of the user's performance in term of precision or rapidity for a chosen sonification strategy and constitute a first step toward general guidelines for mapping data onto sound dimensions.

Biography
Gaëtan Parseihian received a Ph.D. degree from the Université Pierre et Marie Curie (Parie VI), France, in acoustics, signal processing and computer science applied to music. He completed his Ph.D. on binaural sonification for navigation aid under the supervision of Brian FG Katz at CNRS-LIMSI, in Orsay, France. He currently holds a post-

doc position in the COSMOS team at CNRS-LMA, and works with Mitsuko Aramaki, Richard Kronland-Martinet and Sølvi Ystad on the MetaSon project. He is particularly interested in the design of generic sonification methods as well as the means to improve sonification aesthetics. His main research interests include sonification, auditory guidance, 3D sound, spatial perception, human computer interaction and augmented reality.

Fabrice Métais (FR)
Lecture, session 4

Of God's Word Terrestrial Acoustics: A Missed Call

Acoustique terrestre de la parole divine : un appel en absence

Fabrice Métais
artist, researcher
Locus Sonus
www.fabricemetais.fr

Abstract:
To bring in *the name of God* in the context of a symposium dedicated to the question of "audio mobility" technologies and practises in art is mainly a provocation aimed toward the somehow mainstream tendecy in modern era (and, although in a less evident way, in the so-called post-modern era) to consider the subject as first a free, active, perceptive and reasoning *agent*. As Levinas pointed it, when facing the *otherness* of the other, the significance of meaning and experience can't ultimately be described and considered only within the dialectical totality of what *is* and what *is not*. "To be or not to be" is not the ultimate question, but rather to *whom* this very question is to be adressed to. From a critical reading of husserlian and heideggerian phenomenologies, Levinas gave us promising clues for understanding the significance of the phenomenon as being firstly rooted (*rooted without roots*, beyond or below principles) within ethical *responsibility* and erotic *desire*. Therefore my aim is not to question the existence of God but rather to try - with Levinas - a radical reformulation of the existence of the world as the way for the subject to touch or be touched by the radical alterity of "what" is not reducible to the self : subjectivity as *being-in-the-world-for-the-other*.
Focusing on the auditory dimension of experience, rather than on its imperious visual one - although without falling into a too atomistic conception of sense - could open a path in that direction since the passivity of the relation to the world could be more patent in hearing than in seeing.
But beyond an audio-focused reading of Levinas' philosophy, I would like to question it with a specific concern with technologies. Since Derrida has pointed out the originary compromission of transcendantal idealism with the contingency of material inscription, we ought to consider that the ways through wich the subject and the other get in touch with each other - the ways through which the concreteness of the ethical and erotic relation *actually* happens - are *historically* constructed. The embodied relation with alterity occurs through an augmented body where nature and technics are not ultimately to be opposed: the *externalisation* of functional possibilities in tools and technological devices is a zoological feature of the human specie (Leroi-Gourhan). The human's body being thereby modular - having parts of itself outside of itself - the gestures through which the subject gets in touch with the other is not only prolongated *in the present* by held long distance transmission devices, but it is also suspended outside of any phenomenon - outside any *present* - through the regime of inscription.

By confronting levinassian phenomenology with the idea of a technologically augmented body, I will try an innovative view about what is at stake in "audio mobile" technologies: considering postively the non-immediacy implied with transmission and inscription devices will offer new clues for a phenomenological approach of the "urgentness" of the ethical relation and the voluptuousness of erotics.

The word "God" struggles to be a word. It aims towards what can't ultimately be contained in words, towards that which exceeds the realm of being. With Levinas : « we propose to call religion the bond that is established between the Same and the Other, without constituting a totality. » (Levinas 1979, 40) Apart from the dogmas of established "religions", here there is question of how subjectivity makes contact with radical alterity and how technology takes part in the "acoustics" of this contact. Levinassian's phenomenological descriptions of the relation with the other will be confronted with the idea of a technological augmentation of embodiment. An innovative approach to subjective temporality as impatience will be introduced by using the mobile phone to challenge the distinction between orality and inscription.

THE "EXPERIENCE" OF LOVE : A RADICAL EXPOSURE

Nobody knows what love *is*. One may say that love *is* a feeling, but then it could be argued that reifying feelings is just a way to empty them of their inherent bond with subjectivity - a way to miss their specific significance. Therefore to talk about love one must talk about the *experience of love*, a singular concern for subjectivity. To describe, consider, talk about the experience of love, one might first want to refer to the "science" of subjective experience, the science of phenomena : phenomenology.

But it is not given that phenomenology could provide a convincing account of the "experience" of love. According to Levinas, it is only by taking phenomenology to its very limits (Sebbah 2001) that ethical love (or concern) and erotic desire can be approached. Indeed, since husserlian phenomenology first aims to make a solid grounding for the veracity of objectivity, it might not be convenient to apprehend the radicality of the encounter with the “other *as* other”. And when in heideggerian existential analytic the significance of the phenomenon ultimately refers to the boundaries of the Dasein's structure, it is not obvious how the subject could be in touch with something - someone – that/who would positively exceed the

totality of its ontological realm. By first focusing on the description of the experience of the *face to face* situation, Levinas points to a phenomenality where the direction of the relation between the subject and the exteriority is reversed :

> « Here, contrary to all the conditions for the visibility of objects, a being is not placed in the light of another but presents itself in the manifestation that should only announce it; it is present as directing this very manifestation - present before the manifestation, which only manifests it. » (Levinas 1979, 65)

Unlike strictly perceptive phenomenality, when facing the other the subject is not constituting exteriority through intentionality, in a movement that goes from itself to the outside. The otherness of the other penetrates subjectivity by directing the phenomenon. Thereby, reaching the limit of an intentional phenomenology, Levinas insists on the radical passivity of the ethical (and erotic) relation to the other : “The absolute experience is not disclosure but revelation" (Levinas 1979, 65‑66). For Levinas, the revelation of the alterity of the other through its “speaking face” is an irruption *into* the world of a significance that exceeds the phenomenal realm - a radical alterity coming from a radical elsewhere, positively unreachable through the realm of the possible. When for Heidegger, the significance of being refers to its negation in the ultimate possibility for the Dasein to *not be* - i.e. “being-towards-death” - Levinas points out that the mystery of death is not "experienced" by the subject in a virile relation to its own finitude but in the concreteness of the ethical relation to the other as mortal. Thereby, subjectivity is described as a tension of *responsibility* - it emerges in the urge occurring between being called and the possibility of answering. In the whole *active* part of subjectivity - perception, action, constitution, freedom, possibility - lurks the significance of a radically passive exposure to alterity. Somehow, Levinas operates a copernician-like revolution of phenomenology since the subject ceases to be the center of the world that it constitutes, but rather emerges from its relation to the otherness of the other, from its relation to a radical exteriority.

BETWEEN PHENOMENOLOGY AND TECHNOLOGY

My intention here is to engage in a discussion between levinassian phenomenology and technology. The precarious possibility of such a dialog relies on two arguments. The first refers to husserlian analysis of the subject's embodiment as a chiasmus : the subject's body is an interlacing between, on the one hand, a *leib* (a constituting body, phenomenological power/exposure) and a *körper* (a constituted object, observable and describable). Through this interlacement between the *constituting* and the *constituted*, a dialog between phenomenology and objective description can be established[1]. The second argument, inspired by Leroi-Gourhan's paleo-anthropologic approach (Leroi-Gourhan 1964), states that tools and technological devices are a prolongation, an *externalization*, of the human body - and thereby share the same constituting/constituted chiastic structure. It is only through this interlacement - in the tool itself - of a phenomenal dimension *and* a describable objectivity that a place for a dialog between phenomenological inquiries and technology (as a discourse on technological *objects*) can be found.

For Leroi-Gourhan, technology is a zoological feature of the human species[2]. Just like the lion has sharp teeth, and the giraffe has a long neck, the human has tools[3]. But an important difference is found in the fact that, unlike the lion's teeth and the giraffe's neck, human's tools are separable from the biological body : they can remain by themselves in the world, waiting for a subject to take them and use them. A Human's body is a modular body - a body that is naturally incomplete, with parts of itself situated outside of itself, outside of actuality, within the realm of virtuality.

Tools are considered to be part of the body in two related ways. They are part of the actual body when they are taken in hand and used, they take part in the constitution of the experienced world : for example, the world experienced by a subject equipped with a hammer is one in which everything *is* fragile and breakable. But tools are also part of the body when they are not in use, being there as potentialities which constitute the world : the experienced world of the human subject is a world of tools - i.e. a world in which *virtuality is essential*. If such an approach of the experienced world as a world of (technical) possibilities has been largely explored by Heidegger in his *Being and Time* (Heidegger, Macquarrie, et Robinson 2008), my concern here is to develop a phenomenological approach to technology primarily concerned with the relation to the other – that is to say including precisely that which positively exceeds

the realm of the possible.

If, on the one hand, Levinas should be our guide for a phenomenology in which the core of meaning relies on contact with the otherness of the other, on the other hand, it should be noted that the question of tools - the question of an augmented embodiment of the relation - is not directly addressed in his philosophy[4]. Through the vocabulary he uses (face to face, orality, eyes, mouth, etc.) and the concrete situations he mobilizes as prototypical examples (the caress, maternity, the gift of a loaf of bread etc.), he most often refers to relationships that objectively rely on the *co-presence* of the subject and the other. The objective distance between bodies is "small" and negotiable for the unequipped biological body - the power of a natural voice, the length of an arm, the distance reachable by a non-augmented sight. It seems as if, in his descriptions of the ethical/erotic proximity, Levinas explicitly, does not consider the case of contact with the other occurring through the *mediation* of an externalized embodiment.
Since humans have always been technical animals, there is nothing new in the fact that their relationships have been mediated. Also, technologies specially dedicated to the contact between humans have been around for a while - we can take paper/ink/enveloppe/address/mail-box as a typical example of such a technology. Through the dynamics of “digital convergence”, the mobile phone has undoubtedly become *the* technology of today’s mediated relationship to the other.

MOBILE PHONE AND EXPOSURE

If the mobile phone might appear as an individualized technical object (Simondon 1989), to understand its technology it has to be thought as part of a whole communications network system. The question of embodiment is not only the question of the body of a sole subject (using tools), but that of an embodied (and augmented) relation to the other.

> « The sensible - maternity, vulnerability, apprehension - binds the node of incarnation into a plot larger than the apperception of self. In this plot I am bound to others before being tied to my body. » (Levinas 1998, 76)[5]

The mobile phone then is not only a tool for action and perception that the subject can

use freely; it is not only a tool that increases its powers over the world, its powers of constituting the world; it is not only an augmentation of the *I can* aspect of subjectivity. It is primarily an augmentation of the exposure to the otherness of the other. The ringing of the phone is not only *perceived* but is rather an interruption of the phenomenon : when the phone rings, the subject does not only *receive* the information that someone is trying to reach it, but rather it is struck by the emergency of a call that it is mandated to answer.

Even if the freedom to not answer remains, the injunction to answer precedes the decision not to : the phone is a device of exposure, a device of revelation, an extension of the other's body that extends right to the subject's ear, a device of restlessness, un-quietness, interruption of the phenomenon by the symptomatic emergency of a call coming from a radical alterity. Also, in mobile phone technologies, we can see a specific articulation between the pre-freedom exposure to the other, and the freedom itself : one can always, turn one's phone to "silent mode", or even turn it off. The mobile phone is not only a tool that the other uses to strike the subject, it is a place of negotiations between radical exposure and free will. Mobile phone functionalities incarnate the ethical dilemma between the other and self since the subject keeps some control of the way through which his phenomenality is to be interrupted. Thereby it is also a technology of violence, a technology of deceit, a technology through which the subject *can* reduce the other to a manageable object. The very tension of subjectivity - namely, responsibility - incarnates through mobile phone technology, between the radical exposure to alterity and the imperious autonomy of ipseity.

ORALITY AND INSCRIPTION

I would like to investigate this idea of an externalized relation as an issue regarding subjective temporality, where the negotiation - the meaningful tension - between the self and the other is incarnated within a technological mediation. To do so, I propose to firstly discuss the traditional opposition between orality and written words. Before attempting to challenge this distinction, it is necessary to recall that there is a long history of philosophical debate around this distinction. It goes back at least as far as Plato who relates - in his *writings* - the second dialog of Socrates with Phaedrus (Plato 2012). For Plato (or rather for Socrates), oral language is the only form that guarantees integrity, since the one who speaks *comes to the assistance of*

his own speech, he is *present* along with the ideas his speech expresses. On the other hand, the written speech is separated from its writer and thereby under the threat of misinterpretation. Nobody is there to assist it, to protect it from misreadings, to guarantee its truth. According to Derrida (Derrida 1967), since Socrates - and despite the fact that his words were transmitted through the writings of Plato -, orality and presence have always been privileged in (western) philosophical traditions, and subsequently in linguistic science. This is true until the advent of phenomenology, with the husserlian idea of "living speech" (Husserl, Dummett, et Moran 2008) – life in conjunction with idealities. Written words are only considered as a derivative – solely a helpfull mnemonic, having no inherent role in the dynamics of meaning. As introduced above, this privilege given to oral speech - and to the co-presence of the speaker and the listener that goes with it - is still predominant in Levinas' philosophy :

> « The unique actuality of speech tears it from the situation in which it appears and which it seems to prolong. It brings what the written word is already deprived of : mastery. Speech, better than a simple sign, is essentially magisterial. » (Levinas 1979, 69)

For Levinas – as for Plato – the privileging of orality is founded on the co-presence of s/he who talks, alongside his/her speech. The absence of the orator in written speech is only considered negatively. Derrida is the first philosopher to consider the absence of the talker positively. He emphasizes the suspension of contact between the writer and the reader, through the conservation of a material inscription and outside of any experienced present (Derrida et Leavey 1989) (Derrida et Lawlor 2011).

Mobile phone practices seem to challenge the strictness of the distinction between orality and written language : for example, when refer to "instant messaging", are we talking about something instantaneous, happening in flow; something where the speech is assisted by the one who talks; something where the speaker remains close to his/her speech, are we talking about something that resembles orality ? Or are we talking about text, something that shows itself as letters and written words with explicit punctuation marks, something that will stay recorded somewhere as a trace ? And what about a "voice mail" ? Is it writing practice since it implies a recording and since the moment of talking is distinct from the moment of hearing ? Or is it oral since one actually hears the voice of the other with the singularity of their vibrating

body rather than dealing with the neutrality of the anonymous letters of the alphabet ? Ultimately, even a regular phone call challenges the traditional opposition between oral/presence and writen/absence since the peculiar presence of the caller is fueled by the significance of absence.

Beyond the opposition of orality and inscription, I wish to compose with two different but not mutually exclusive dimensions of contact with the other : on the one hand, the "presence of the otherness" of the one singular other within his speech (Levinas), and, on the other hand, the possibility of a suspension of contact, exterior to any phenomenality, through the sustainability of inscription (Derrida).

TIME OF IMPATIENCE : SUSPENDED CONTACT

A "missed call" is not only the contrary of an incoming call that is *actually* received. I would argue that this is a separate functional mode of mobile phone technology. The mobile (and the whole network behind it) functions as an inscription device, a technology of a suspended contact between the subject and the other. This idea of a suspended contact will be confronted with the levinassian conception of time as developed in *Time and the Other* (Levinas 1987). In this early text, Levinas introduces the idea of time as intimately related to desire - a positively unpredictable future coming from the other. The erotic relation is the prototypical situation for his analysis :

> « [The caress is] a play with something elusive, a play absolutely without aim or plan not with that which may become ours and our self, but with something other, always inaccessible, always in the future. The caress is the anticipation of the pure becoming, without content. It is made up of this intensified hunger, of promises ever richer, opening new perspectives onto the ungraspable. It is nourishing by innumerable hungers. This intentionality of pleasure [*volupté*], directed purely and simply towards the future itself, and not an anticipation of any future events, has always been misrecognised by philosophical analysis. » (Levinas 1987, 89)

Through this phenomenological approach to the caress, Levinas gives an account of

subjective temporality that is radically different from those developped by Husserl and Heidegger. A time that has nothing to do with projected possibilities, or re-presentations of memories - for Levinas, the past as memories and the future as anticipation do not differ ultimately from the phenomenal present, they are only the presence of the past and the presence of the future, and not the past or the future themselves. The future as desire has nothing to do with the present, but is directly *inspired* by the radical alterity of the other, positively in-assimilable in a living phenomenal present. Levinas here opposes a subjective time lived (or suffered) as desire, to the somehow classical description of time as anticipations and memories.
But by refering to the prototypical situation of the caress, Levinas seems to once again privilege the experience of a minimal mediation between the subject and the other, a skin to skin contact, a situation objectively describable as a co-presence. We might assume that through the contact of naked bodies the caress reachs, in climax, a minimal phenomenality, *without aim or plan*, thereby asymptotically tending toward a phenomenality without world, a phenomenality submerged by alterity. However I would argue that *eros* starts long before *actual* skin contact, when the distance between bodies remains to be overcome - typically through letters, phone calls and messages; written words and signs. *Eros* occurs in the mediation of an externalized embodiment, through the inscriptions suspended outside biological bodies. *Eros* starts outside the realm of actuality, where gestures are suspended beyond any phenomenal presence, yielding to the contingency of material inscription.

I argue against the unquestioned privileging of spacial proximity, co-presence and immediacy; I wish to consider positively the significance of distance and absence within contact. Because, when mediated through inscription, contact gestures do not reach their target instantly, thus the absolute future of desire, the one that is absolutely extraneous to the present and positively unpredictable, has to flirt in some way with the time of memories and anticipations; retentions and protentions. When I send a message, I *know* - I *anticipate* - that it is going to *take time* for the other to get back to me. The time of desire is dilated through anticipation – *contaminated* by the time of clocks and programs.

Moreover, when mediated through inscription, the erotic contact does not occur through an uninterrupted flow of touch but rather it is quantized in packets: in the instant when I press the "send" button, I send a given *quantity* of gesture, a given quantity of contact. The positively unquantifiable contact with otherness flirts with the predisposition of technology to quantize –

the physical constraints of the envelope or the limited number of characters of the sms message. Thereby the caress leaves the realm of flux to occur as distinct quantized *events*. The erotic relation is paced by technology, occurring as a sequence of punctual events - memorized and anticipated events. Through the realm of inscription - through the non-immediacy of suspension - the erotic relation is not only experienced in the out-of-the-world experience of a skin to skin climax, but also in the voluptuousness and impatience of a future that is both desired and anticipated - a sequence of events, a love *story* where the gap between events is haunted by an absent other. Time as impatience relies solely on the contamination between, on the one hand, a relation to the absolute otherness of the other (Levinas), and, on the other hand, the suspension of the gesture in the materiality of an inscription (Derrida). Time as impatience is the realization of *eros* through the realm of an externalized embodiment, when bodies are not restricted to their biological limits but have parts of themselves exterior to themselves. Mobile telephony, as both a technology of contact with the other and a technology of inscription, is a technology of impatience, a technology of haunting.

CONCLUSION

In this short text, a dialog between levinassian phenomenology and a philosophy of technology has led to a description of subjective time as a voluptuous impatience. Of course, from this starting point, many questions are still to be adressed : for instance, the question of the subjective experience of space, the significance of distance as an obstacle to go through to reach the other ; the question of the third (person) and therefore the question of justice ; the question of the specificity of digital/computational technology where the inscription is not static but ruled by the efficiency of automatic calculations ; the question of the essential precarious nature of a contact exposed to contingency ; etc.

Finally, in a reflexive movement, the last question of this text concerns is own role and position. Is it just some written words condemned to being a future archive – a participation in the anonymous accumulation of knowledge ? Or is it a letter - language still somehow inhabited by the desire of its writer - still desperately looking for a particular someone to be addressed to ?

R.S.V.P.

[1] For determinant that it could be, I am not going to engage here into a detailed analysis of this argument. It has to be noted that it has been deployed, in the context of an analysis concerning the constitution of subjective spatiality, in (Lenay et Sebbah 2001). In this text, one could read : « L'action [au sens phénoménologique] est constituée comme mouvement articulatoire [observé dans l'objectivité], la spatialité du corps propre est constituée comme dimension spatiale d'un bras liant ces articulations, etc. Et cette constitution se fait de manière à ce que les relations objectives qu'entretiennent entre eux ces répondants (mouvement, stimulation tactile, dimensions de l'organisme) soient suffisament "équivalentes" aux relations qu'entretiennent dans l'ordre de la genèse les composantes de l'expérience (action, sensation, spatialité du corps propre). On "retrouve" ainsi dans l'objectivité la *forme même* de l'activité de la conscience. » p. 68. It has to be noted also that those investigations take place in the context of a husserlian/merleau-pontian phenomenology. Taking them to keep their efficiency in the context of a levinassian phenomenology would lead to some deep reformulation.
[2] And by stating that, Leroi-Gourhan definitly challenges the traditional opposition between what is natural and what is artificial.
[3] About this topic, see also the ancient greek myth of Prometheus and its reading by B. Stiegler (Stiegler 1994).
[4] Apart from the noticeable exception of the text entitled « Heidegger, Gagarine, and us » (Levinas 1997) where the question of embodiment is actually adressed but not in the perspective of an augmented embodiment of subjectivity.
[5] The "aperception of self" is here a reference to the husserlian descriptions of the subject's body. For Levinas, beyond, or before, a matter of perception, the body has to be the very organ of ethics and eros, the organ of gift and enjoyment.

FIGURES

Bibliography

Derrida, Jacques. 1967. *De la grammatologie*. Paris: Editions de Minuit.

Derrida, Jacques, et Leonard Lawlor. 2011. *Voice and Phenomenon: Introduction to the Problem of the Sign in Husserl's Phenomenology*. Evanston, Ill.: Northwestern University Press.

Derrida, Jacques, et John P Leavey. 1989. *Edmund Husserl's Origin of Geometry, an Introduction*. Lincoln: University of Nebraska Press.

Heidegger, Martin, John Macquarrie, et Edward Robinson. 2008. *Being and Time*. New York: HarperPerennial/Modern Thought.

Husserl, Edmund, Michael Dummett, et Dermot Moran. 2008. *Logical Investigations. Volume 1 Volume 1*. London; New York: Routledge.

Lenay, Charles, et François-David Sebbah. 2001. « La constitution de la perception spatiale. Approches phénoménologique et expérimentale ». *Intellectica* 32 (1): 45‑86.

Leroi-Gourhan, André. 1964. *Le Geste et la Parole, 1 : Technique et langage*. Vol. tome 1. 2 vol. Paris: Albin Michel.

Levinas, Emmanuel. 1979. *Totality and Infinity: An Essay on Exteriority*. Springer.

———. 1987. *Time and the other and additional essays*. Pittsburgh, PA: Duquesne University Press.

———. 1997. *Difficult Freedom: Essays on Judaism*. Baltimore: Johns Hopkins University Press.

———. 1998. *Otherwise than Being, Or, Beyond Essence*. Pittsburgh, Pa.: Duquesne University Press.

Plato. 2012. *Phaedrus*. CreateSpace Independent Publishing Platform.

Sebbah, François-David. 2001. *L'Epreuve de la limite : Derrida, Henry, Levinas et la phénoménologie*. Paris: Presses Universitaires de France.

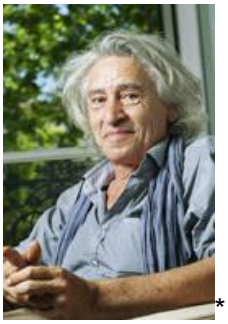
Simondon, Gilbert. 1989. *Du mode d'existence des objets techniques*. Aubier.

Stiegler, Bernard. 1994. *La technique et le temps, 1 : La faute d'Epiméthée*. Vol. tome 1. 3 vol. Paris: Galilée.

Biography

Since 2005, Fabrice Métais' conceptual and artistic research has focussed on the confluence between, on one hand, an interrogation of desire and meaning, and on the other hand, an interrogation of technology. Conceptually, his work links the two through phenomenological (or related) theory, (in particular Emmanuel Levinas's work), and

through schools of thought that consider technology as anthropologically essential and constitutive (Derrida, B. Stiegler). Situated between relational aesthetics and media art, his creative practice opens the implications of this reflection beyond ideas and text, in the shape of installations, performances or sound works. Fabrice Metais obtained his Masters degree in Engineering in 2005 (University of Technology of Compiègne), And his Phd (entitled: " touching the other through the world : phenomenological, ethical and erotic approach of the technology ") in May, 2013, from the University of Technology of Compiègne. His theoretical PhD was completed by an installation / exhibition to be visited by two: " Amour Augmenté, Dramaturgie ".

 *

Samuel Bordreuil (FR)

Lecture, Session 4

« In Between Marching Band and Sound Walk » : Space, Mobility /Sonic Mobilization and their Concrete Coordinates

« Entre Marching Band et Sound Walk » : de l'espace des mobilités à celui des coordonnées concrêtes des mobilisations sonores

Samuel Bordreuil
Researcher
AMU/CNRS, LAMES
www.lames.cnrs.fr

Abstract:
(Audio) mobility and (generalized) connectivity are the two key words of this symposium. What new art forms or renewed contents this new "sonic frontier" will deliver, nobody knows yet, and it is our goal to start to document and assess together these experimentations and their potentialities.
Though we need further inquiries on them, I would like to sketch a framework (addressing this topic) in order to steer the attention towards matters possibly overlooked. On the one hand I propose to pay more attention to the concrete coordinates of these new sonic performances; on the other I would like to loosen a little bit the vise that links mobility and connectivity, if only to get a better sense of their current "grasping together" and for what effects: a stand back of sorts.
I will start with a digression about a furiously mobile, though poorly connected, musical form: the "marching band". From there I will develop a) about a critical feature affecting whatever new sonic trajectory is opened up in urban spaces: namely that they encroach upon or "overflow" other previous land uses; and contend that b) this background of "contested spaces" yields a dramatizing component (to use a Deleuze concept) which imbues both the esthetic and convictions brought about by these "new musical moments". I will rely on some findings of a study we conducted in Marseille, ten years ago about folk genres popular down there in 90's: Techno Music and Raggamuffin.
I will conclude with some open questions bearing less on the "sampling" and "composing/mixing/ "musicking" side of these new sonic devices, but rather on their potential in matters of shaping up new "communities" or "public" around their uses.

Résumé :
Si l'on parle d'audio mobilité, ce n'est pas évidemment de la mobilité du son dont il s'agit (par construction mobile), mais de la mobilité des organons destinés à accueillir et transmuer ce mobile là ... Mais parler de mobilité à ce sujet se décline dans une autre temporalité que la temporalité physique, mais dans celle, sociale, du temps propre aux mobilisations nécessaires pour faire advenir un sonore désiré. Ce qui a cru, ce dont le temps a diminué, c'est le temps pris à ces faires. Ce qui a cru c'est une formidable puissance dans la mobilisation des ingrédients nécessaires aux performances musicales (à la « documentation et/ou sampling », à l'installation des scènes d'émission, à la composition en temps réel). On parlerait aussi bien en terme d'émancipation – de capacité à tenir dans ses mains, sous ses doigts, de quoi propager ces essors musicaux. Sans préjuger de la suite, il est certain que de nouveaux parages esthétiques se dessinent à l'horizon. Et il importe d'ouvrir un front de veille sur ce front là. Dans ce cadre on fera l'hypothèse que l'on identifierait mieux les possibles de cette ouverture, en ne durcissant pas l'opposition entre un audio placide à l'origine et un audio désormais mobile. Mais en revenant en arrière pour identifier où, quand et comment les offres sonores (et principalement musicales) ont toujours déjà été hantées et nourries par la mobilité et, par là même, ont exploité les différents possibles de mobilisations autour du son qu'elle recélait. Non pour dire que « rien de nouveau sous le soleil » mais, à l'inverse, pour mieux spécifier la portée des vecteurs de mobilisation qui sont les nôtres et les effets dont ils seraient capables. Dans cette présentation on s'appuiera notamment sur un travail réalisé il y a 10 ans sur ce que des genres musicaux populaires doivent aux coordonnées mobiles ayant présidé à leurs essors et contribué à en décanter les formes.

INTRODUCTION

I will propose to widen our scope of attention in three directions.

First, towards our actual urban soundscape, "always already" replete with mobile sounds – the point here being that among this spectrum of mobile sounds some of them pertain not to mobile objects but to mobile ... subjects (I will comeback to that point).

Then, I will add some kind of historical depth to this picture, and I will do that in focusing on some typical forms of audio/sono/mobility in our musical cultures that emerged vigorously twenty or thirty years ago – Hip Hop, Sound Systems and Techno music to name them. As we know this turning point in musical genres was brought about by an increase in their instrumental mobility. What use have they done of it, will be my question? But instead of trying to trace back the link in between new mobility and potential new sounds (or sonorities) I will be more interested in the spatial effects that these "mobile sounds" have had upon the map, the ecology of urban musical performances. In short: rather than: how it comes that they generate new sounds? I will start with a simpler question: where did they go? Where did these new "riders on the sound", actually ride them ... through what kind of landscapes? And did they contribute to subvert those landscapes. So, my narrative starts with the question of space, and, as I will try to

demonstrate, does not stay at this level, in so far as "space matters" even in aesthetic processes. In a way here the concept of "relationality of space" (Doreen Massey) is a critical one, but even more if we are able to import into the analysis, its symmetrical: that of the "spatiality of relations" – another wording for the Deleuzian concept of "dramatizations", as I will develop it later on.

From there, and lastly, I will try to situate this new musical audio mobility in the context of the communities busy at propelling them: the question being, rather than about the use of mobility, about the connectivity side of the equation. What kind of collegium could we envision that would nurture those "musical moments" to come?

SOUND AS A KEY MEDIA FOR URBAN MOBILITY

I know well that the central topic of this symposium is "audio mobility" and not "sono mobility" ... It is seemingly more about recorded sounds, audible sounds and about new ways of playing them while "on the move". My take on this topic will be more about the "where" of these running sounds than about the "how" to (better) play them. Whatever these new kinds of mobile or mobilized sounds are or will be they have and will have to be played ... somewhere. To this should be added that, given the freedom of movements that these new devices bring with them, the question of the locations where they will or could be performed, is both an open and a relevant one.

So, to the extent that they could be performed in urban contexts, it is relevant to start by situating them on the backdrop of urban soundscapes, and to steer the attention towards certain features of those soundscapes regarding their mobile sounding components; if only because it will be amidst of this "noisy"(?) company that they will be displayed.

Of course, sounds are mobile or are not! If not, nobody would ever hear them. Then, sounds can be "emitted" by objects, mobile or not. The Doppler effect helps us to discriminate in between static springs of sound and mobile ones. But further down, some of those sounding "mobiles" are sheer objects, but some others are, so to speak, piloted from within. Actually a significant part of those sounding mobiles in urban space belongs to the piloted kind: a whole collection of moving hybrids, harnessing a human agent and some technical and material components. To alert, or alarm is their central function, displayed in a huge variety of pitch, tone,

length, timber et c ...

But there is more to it. It is not simply that we have here a whole gamut of mobile sounds, it is that those mobile sounds are aimed at regulating the crisscrossing of a quintessentially plural mobility; that is the commingling of a huge amount of lines of traffic which urban life, not only generate but too – in some sense – "boils down to". In other words we have here an audio mobility for the sake of a self-regulation of urban mobility taken as a whole. So much so that we could say that urban sounds are for a large part "pulsed" by the collective management of these critical contingencies, aimed as they are at preventing and taming down possible collisions. This might be obvious, but the idea that we should hear the "soundtrack" of a city as the aural transcription of a choreography of bodies on the move – and skilled at that – I think that we should give it a chance of ... (I would say) having it resonating for a while in our minds ...

Now even if the end result could have some aesthetic overtones, the building bricks of this concert are made for practical ends: namely for clearing the circulation. Opening a passageway ahead ... There is not much artistic intention, even expressive ones ... At least further than asserting a right to continue a trajectory. The function of the mobile sound is to signal a position and a trajectory.

Skipping now to the marching band, its purpose is more than opening a way, though it is expected that, as the marching band comes, the attendance around will clear up the place. But here, understandably, the sound is more than a signaling of a move to come. And this can be said on two accounts: for one there would be no move (to be signaled) if it were not for the sound that is propelling, fueling the bodies that move (so the sound is at the beginning of it and not just as a side effect); second, if there is still, a signaling function of the sound, alerting everybody in the vicinity that a band is coming, the practical function of it is not that people should stay away but, to the contrary, that they should enter (in a way or another) in the sonic bubble the band is carrying on with it. It has an enticing function. Be part, at least for a while, of the transient world that shows up.

Now, as we all know, there are some martial overtones (or undertones?) in the practice of this "art form" ... A "war machine" side to it, at the extreme: a sort of military troop advancing, presumably in a hostile territory, therefore "pumping up the volume"; either to scare possible opponents or to reassure the members of the band (or both). Here the archetypal (and biblical)

reference would be that of “the polyorcetic brass band”. This band which, as we are told in the bible, made crumble and tumble the “walls of Jericho ”. I must mention here that this reference was actually revived in the Marseille Ragga Culture of the end of last century, The “Fanfare Polyorcétique de Jo Corbeau” being one of the sounding vehicles by the means of which this culture manifested itself in the street of the city. But, on the other hand, I think we should not stick too closely to this military function, and seize it as a variation in a larger kind of exercises, aimed at having the upper hand on some patches of land. To be sure this “agonistic” component can be keyed in more amenable guise. In Carnival parades the “taking back of the street” is framed from the start as being transitory. A bracket opened and closed in the stream of daily lives. In the same vein, one can think of the tradition of ethnic or minorities parades. The assertion of strength does not always need to be turned against other constituencies. What is at stake is more likely a public display of “forms of life”, begging for and actually implementing a public ratification/recognition of those forms.

Still, in all of these endeavors, a territorial component is at play. To the extent that those moves are about claiming some kind of legitimate sovereignty upon a given area ... those notions constituting the core of this concept of territoriality.

I will conclude on that point. In our brief “panoramic” survey of different forms where sounds and mobility are narrowly tied together, in the sense that you could not have one – the move- without the other – the sound (and of course the other way around, that is the sound without the move), we stumbled on that “art form” (the parade) which relies on the deep working together of those two components ... Now what puzzles me at that point, is that “parading” is not meant to convey ambient sounds but, rather, to deafen or muffle them; or, more aptly, to subdue them.

“MMM”: (MARSEILLE AND ONE OF ITS “MUSICAL MOMENTS”: 1980- 2000).

Still this way of tying together Sound and movements in urban places is just one among others. And the brief survey I will give of the “musical moment” that took place in Marseille 20 years ago will give me some opportunity to pull other strings (linking sound and mobility)[1].

Viewed from a distance and talking about these genres the link is obvious: new sounds, new ways of “musicking”, were brought about (likely enough) by some increase in instrumental

mobility. But a closer look should yield some insights that would help us to "unpack" different components in that global linkage.

To start with, those new sounds can be aptly characterized as containing two kinds of mobility: an outward mobility (that is some freedom in the locations and dis locations of musical performances); and too an "inward" mobility - that is one coming from within and due to the sampling practices ... But those two kinds of mobility did not show up all at once. Relying here on some materials of our study, though this junction eventually happened, it took nonetheless some time to achieve this end result.

I will sketch this process in few steps, paying attention to some of its critical junctures and in order to render salient the interplay that took place in between ecological and stylistic features: a sort of cross relevancy that fostered the development of those genres.

First, we shall place radios at the center of the picture. As we know radio was the birthplace of DJ'ing. The word itself keeps trace of it. As we also know there took place an ongoing and progressive "re profiling" of the job of the DJ's, extracting from them new skills, and new ways of performing their tasks. They started as "selecta", selecting discs, and inserting some words in between different musical tracks in order to present them. From there they gradually speeded up the tempo, having the disks to slide and glide on each others ... and therefore (and in so doing) dislodging the "bla bla" from its interstitial (and non musical) status to lift it up, installing it "above" (as a voice over) granting it by the same token a musical quality, that of (another) "flow".

What interests me is the fact that this story – plausible as it is- was here reshuffled or reenacted in no times and yet at a specific space scale: that of an entire city...Time wise it took 2 or 3 years for the local kids to cover the distance of the road opened by their predecessors and to catch up with them. In the process they revisited and reanimated the various profiles (or posts) in the radio sound production line, gaining at the end of it some good professional expertise.

But there is another side of that story that matters too. Beside its rapidity the fact that it took place all at once at the city scale was also of critical importance. Soon in the eighties and in a couple of months, tens of new radio stations opened up affording enough room for a hundred of would be DJ's to experiment this new "radio art" and display their progressive mastering of it. Why did this sudden local radios blossoming happen? The answer is that it coincided with the spread of the free radio movement due to the victory of the Left in 1981 ...

So, to wrap it up, here we have two different kind of soaring dynamics - say a musical and a societal one – that are on a collision course, thus providing for some kind of beneficial side effects. On the one hand, radio is gaining a central role in the evolving musical cultures (it is more about providing new templates for "musicking" than it is simply about diffusion), and on the other, the huge spread of radio stations is multiplying the number of performers, thereby widening the collegium of local experimenters in this new "sound art form".

But, on a closer look, there are three features of that "MMM" that I would like to comment and linger on for a bit, because I think that the interplay that took place in between these three features was of critical importance, not only regarding the local popularity of those musical genres but too regarding their aesthetics and content.

I will start with the experimental component of those tentative endeavors at mimicking the "art and the ways" of their masters. What strikes me here is that those explorations, instead of being run "backstage", in a laboratory kind of environment, were displayed, immediately "front stage"; that is "on air", broadcasted as they were at the attention of an entire city.

The second component is about this "front stage" dimension. In what sense is a city a stage? There are so many of them into every city. Conversely, and when it comes to radio, the audiences stretch very often to a larger scale than a city one. Precisely here lies the novelty of the "free radio" movement as it was enacted in Marseille context. For the first time ever, there was a whole new brand of sounds, both emitted from within the city and available in every points of it; that is, not to be heard outside of it ... We don't know what the "sound of a city" is really about. It is a matter of conflicting interpretations. But at that time the city – as such – became a sounding entity. Was it the sound "of" Marseille? In a sense, who cares, to the extent that it was a sound "from" Marseille that came into being. I would say that this added a new layer to the notion and the reality of a city as a collective body. Sound made for an extra "embodiment" of the city, as it were.

The third component pertains to the "displacement and reworking of musical conventions" operated by these new brands of music. The critical point here is that the eventfulness (and playfulness) of musical performances came to be a central criterion in the aesthetic assessment. The expertise in rebounding, just in time, just on right tones became of central importance. But this would come all the more with the "landing" of a new template of musical performances, installing as its centerpiece the "call and response" structure. Thereby,

inserting in those performances a coefficient of horizontality that run against the ways radios function – I would say on a more vertical mode.

So, with these three threads in mind I think we are in better position to understand what happened next – and on two accounts.

On the one hand the conditions were ripe for these new sounds to exit the radio stations walls, and to overflow in urban places, be they squares, streets, stadiums, cafés and the like. To put it otherwise, the new template evoked above begged (so to speak) for an enlargement of the circles of its "embedded protagonists". And this was quickly enacted in the form of the "open mike ritual".

On the other hand, and as I said, the fact that the city was, so to speak, placed under a single new sounding bell, allowed for a citywide crisscrossing of sounds emitted by hundred of performers, echoing and challenging each other. Therefore I think that coming out of those musical "reverbs" and perceived from within this "echo chamber", what started simply as some sounds emitted **from** Marseille and at the attention of its inhabitant, was slowly but surely replaced by something that came to be heard as **the** sound **of** the city ... It's sound track so to speak.

MUSIC ON THE MOVE, URBAN PLACES: A RECIPROCAL TEST

Now, to skip to the next point "on my list" I will address the question of what can be said about this overflowing and its eventual effects? I borrowed the Deleuzian concept of "dramatization" in order to better analyze those effects. The idea underlying this concept is simple: dramas are about forces and space; about forces confronting each other in a same space and, in so doing, either intensifying themselves or re specifying their content or their aims. That is what dramatization refers to.

How to apply this conceptual framework to our Marseillaise Storyline? Simply with the idea that whenever happens an overflowing of a specified endeavor, spreading outside of its ordinary or traditional precincts, this means by the same token an encroachment upon other use values characteristic of the locations "invaded". Therefore, one might expect some protestations, contestations and, in the wake of them, some counter justifications, this "ad lib". All in all, it was reasonable to expect that those overflowing would generate or trigger a sense of claim

justifying (so to speak) the move. As though the move was immediately doubled by a rationale to be invoked in order to claim that move as right (according to a set of values deemed relevant under the circumstances at hand)[2]. In that sense one could say that there is a political (or proto political) performativity inherent to those musical overflowing. Or, if you will, something akin to a "cause", lying in or embedded in each of those musical overflowing.

Indeed such process happened and, given the specificity of the various musical genres, they promoted contrasted rhetorical lines ...

Briefly put, what techno events mostly encroached upon were patch of lands situated at a distance from crowded places, but still, private properties. So, they were soon enough framed as a sort of frontal attempt to legal order, and that master frame in turn came to be dramatized by the interventions of those (the police) in charge of defending this order. And this made for the narrative of "TAZ", which on the one hand fitted perfectly "the action in course", and on the other, offered its supplemental glue to double the musical coalescing by an ideological (or proto political) one.

To the contrary the encroachment proper to the two other brands of DJ's musical culture, were from the urban kind, rather impinging on public places, and claiming, in their performing wakes, other kinds of legitimacy, rested upon other kinds of values.

For them the dramatizing component of their urban (sounding) overflowing consisted mostly into taking up with local traditions of ... overflowing! Meaning festive traditions. This is what they were good at. But this should not be taken as a trick, used to insert themselves fraudulently into those traditions in order to subvert them. To the contrary, the territorial pretense they asserted and performed in the wake of their own ways of overflowing the city was in their mind justified by the fact that they were embodying the real sound of the city; they were up to retrieve this real sound. "Back to roots" was the motto. And it came, from the start, out of another political rhetoric: a rhetoric grounded on the "discovery" that reggae music came from the margins of the British empire; that words of their song, though in English were above all in bad English – that is dialectal. Thus equating this peripheral situation and subaltern linguistic status, to their own situation: they too were living in a peripheral city (Marseille as opposed to Paris) and speaking a despised variety of French: le parler marseillais! This said, it is not enough to say that their performances simply expressed that rhetorical line: they, so to speak, "fueled" it by their "parading" the streets, giving it more intensity and, reciprocally, heightening the

conviction of the performers that they were right. The conquest of "La plaine" neighborhood was the peak of that musical moment, the space time were the dramatizing effect of these nomad music was at its highest!

CONCLUSION: TWO KINDS OF LANDSCAPE AND HOW TO BEST FIT IN?

I started with a "zoom back" kind of approach, in order to relocate the possibilities afforded by new audio mobile devices in the context of urban soundscapes, already ripe with fleeting sounds. On that matter, obviously, I have no tips or even advices to transmit. But, given the freedom of movement yielded by these devices, given the opportunities of "sounding in the open" that are one of their promises, I think useful to bring in this open sounding context in the design of the sonic performances not only as a recorded content, but also as such, that is as an actual context; at least to the extent that they will be displayed within it. Either to lean back against it, or to play the contrapuntal card? I don't know. But this deserves some attention.

Then, I skipped towards another kind of scape – though "I did not tell". That scape, the one the kids of the "MMM" would travel through on a daily basis, would be better characterized as a "communities scape": a tapestry of circles one was belonging to, or not. And this raises the question of the connectivity that was available at this moment. Remember: it was pre Web and Digital equipment. In one word, those "collectives" were poorly wired; still they were "glued". How came? The answer I proposed is that, beneath the effective connections in between "nodes" of social networks (conveyed either via the cell phones, or the face to face encounters in the streets of the city) there was "running" or "insisting" another kind of "commonality" and sense of it. That, I would say, which characterizes a "public". Such a collective has some paradoxical features. It consists of members that are **not** tied to each other, except for the single fact that they are following the same unfolding stories, or plays. To which should be added this other critical component: in so doing, in following the same stories the pervasive sense that they were "in sync" with so many "followers" soon takes hold; in turn fostering a sense of belonging to a wider community, as "imaginary" as it can be[2]. Now, to the extent that following critical developments implies more than often to take side on such or such issue of global concern, one can understand this doubling up of musical tastes by "cause like" convictions, and its ensuing spiraling effect.

Now, in what ways are those considerations relevant for the topic at hand in this symposium? My suggestion is that in order to better understand the community side of the question we should widen the approach beyond its technical component, though, obviously, the availability of instant connections in between "field recorders" is worth exploring and putting to test. But we should replace this "connectivity factor" into the larger frame of our current ecosystem of information: that is an ecosystem in which we are not simply networked nodes but also, members of larger though imaginary publics.

Actually, in some of the papers presented in this meeting, a line is drawn in between Sound Art experiments and more global issues. The theme of "Environmental awareness" provides obviously some "Frame bridging" opportunities, allowing for the interlocking of different constituencies or "milieus" (be they naturalists, landscapers, designers, neighborhood associations, et c ...).

Again, I have no tips or advices regarding the inscription of the "audio mobile constituency" to come into that other landscape: the "public landscape". Yet, I think that to pay attention to this transversal dimension that is designing audio mobile performances taking it into account is important. At least, this is what I wanted to stress out in this paper.

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[1] In the following, I will rely on a study conducted with Raphaël Sage et Gilles Suzanne, on that « musical moment ». See :
http://lesondelamaison.free.fr/4U/MARSEILLE%20ET%20SES%20MOMENTS%20MUSICAUX.pdf
And for a summarized presentation : « Une place créative ? Marseille et ses moments musicaux : ragga, rap et techno » (in **Des cultures et des villes**, André Bruston Ed, Editions de l'Aube, 2005) ; pp 299-318.

[2] Here the key références are the works of Gabriel Tarde (**L'opinion publique et la foule**), Benedict Anderson (**Imaginary communities**) and Tamotsu Shibutani (**Improvized News**).

Bibliography

Anderson, Benedict, *Imagined Communities*, London, Verso, 1983

Bordreuil, Samuel, SAGE Raphaël, SUZANNE Gilles, in *Des cultures et des villes* : « Une place créative ? Marseille et ses moments musicaux : Ragga, Rap et Techno », pp 299-318. La Tour d'Aigues, Editions de l'Aube, 2005.

Shibutani, Tamotsu : *Improvised News,* Indianapolis : The Bobbs-Merill Company, 1966. 262pp

Tarde, Gabriel, *L'opinion et la foule*, Paris, PUF, 1901.

Biographie

Directeur de Recherches Emérite au CNRS (Laboratoire d'accueil, le LAMES à la MMSH d'Aix en Provence) - 2011 -2013 : Responsable Scientifique de l'IMERA (Institut Méditerranéen de Recherches Avancées), Institut membre du RFIEA (Réseau Français des Instituts Etudes Avancées). Il y a animé notamment l'axe Art/Sciences avec Roger Malina. Sociologue urbain au départ, il s'est plus particulièrement intéressé à la question des espaces publics et, au delà, à celle des formes et processus de la construction des publics. Cette thématique a été déclinée aussi bien sur les scènes des mobilisations urbaines et politiques (recherche sur « la sphère publique » post Katrina à la Nouvelle Orléans), que sur les écologies attenantes aux performances artistiques. Il porte enfin une attention particulière – et transversale – à ce que l'entrée progressive dans « l'ère numérique » apporte comme mutations dans la texture même des publics et de leurs espaces. Quelques publications significatives de ce point de vue : « L'histoire de la 'Dog Poop Girl' revisitée : usages et mésusages d'un médium hétérotopique », Réseaux, N° 138, automne 2006. « Politique de la reconnaissance, politiques de la sociologie », in La reconnaissance à l'épreuve (sous la direction de JP Payet et A Battegay), Presses Universitaires du Septentrion, 2008. « Dans la compagnie des passants », in Marcher en ville, (sous la direction de Rachel Thomas), Editions des Archives Contemporaines, Paris, 2010 ; pp 99-114 « "New Orleans post Katrina : les usages du Net par gros temps", Metropolitiques.eu, 8 juin 2011. (dossier spécial Katrina préparé par JS Bordreuil et St Tonnelat). « Ambiances, Partage d'ambiances et prisme interactionnel ». in Ambiances urbaines en partage (Sous la direction de JP Thibaud et CR Duarte), MetisPresses, Genève, 2013.

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