Electroacoustic Music Beyond Concert Performance

10 – 14 JUNE 2014 | BERLIN | GERMANY
UNIVERSITÄT DER KÜNSTE BERLIN,
MASTERSTUDIENGANG SOUND STUDIES
IN COOPERATION WITH TECHNISCHE UNIVERSITÄT BERLIN,
FACHGEBIET AUDIOKOMMUNIKATION AND FREIE UNIVERSITÄT BERLIN
**Conference Committee**

Fabian Czolbe (Berlin)  
Julia H. Schröder (FU, Berlin)  
Volker Straebel (TU, Berlin)  
Martin Supper (UdK, Berlin)  
Marc Battier (MINT-OMF, Université de Paris-Sorbonne, France)  
Leigh Landy (MTI, De Montfort University, UK)  
Daniel Teruggi (INA/GRM, France)

www.ems-network.org
Dear EMS14 participants,

The Berlin University of the Arts is delighted to host EMS14 at the Institute of Sound studies, home of our postgraduate Master’s programme. This program is in many ways similar to the EMS members’ courses. We combine musical studies with a focus on electroacoustics with research in sound design, auditory architecture and auditory culture. As many of our professors and students specialise in sound art, we found it logical to suggest a theme at the fringes of electroacoustic music studies : “Electroacoustic music beyond concert performance” You will have many opportunities to experience sound installations in our evening programme and Berlin’s club music if you choose to do some “fieldwork” after hours.

We specifically would like to thank the EMS directors, Marc Battier, Leigh Landy and Daniel Teruggi who suggested an EMS in Berlin issue. Furthermore, Sound Studies is very pleased to collaborate with the Technical University of Berlin, Department of Audio Communication and the Free University of Berlin.

I wish you all a great EMS14
Prof. Dr. Martin Supper
Master’s Program Sound Studies
Universität der Künste Berlin

Welcome to EMS 2014. The Electroacoustic Studies Network directors are thrilled that this event is being held in Germany for the first time and are particularly happy that the event’s steering committee brings together specialists from three renowned Berlin universities, the University of the Arts, the Technical University and the Free University, all three having made enormous contributions to scholarship related to innovative musical practices, not least regarding electroacoustic music and its related field of studies.

The steering committee have chosen the timely theme, “Beyond Concert Performance”, opening up discussions related to alternative sites, both real and virtual, sound art and much more alongside the normal EMS thematic areas. This choice will bring together specialists from within music and the fine arts. We shall discover how these approaches and vocabularies can meet within this electroacoustic music studies event.

Now into its second decade, the conference this year saw the largest number of both submissions and acceptances, underlining the healthy outlook of both the EMS initiative and the field as a whole. We wish you all a very exciting conference in this very dynamic cultural city!

Marc Battier, Leigh Landy, Daniel Teruggi
EMS founding directors
The Audio Communication Group at Technical University Berlin (TU) fosters our school’s long-standing tradition of bringing together research in the sciences and engineering with the humanities and awareness of the arts. Its Electronic Music Studio, founded in 1954, marks this link. Since the 1970s, our program has been closely connected with the University of Arts Berlin, and we also invite visiting composers and scholars in the course of the Edgard-Varèse-Guestprofessorship for computer music, funded by the German Academic Exchange Service.

I feel fortunate that the Audio Communication Group is collaborating with the University of Arts’ Sound Studies Program in hosting the 2014 EMS conference. This year’s keynotes will be given by Helga de la Motte-Haber, who has taught in TU’s musicology department, and Miller Puckette, who holds the Edgard-Varèse-Guestprofessorship this semester. We are also glad to support the accompanying presentation of sound installations.

I welcome all participants in this year’s EMS and I am looking forward to five intense days of presentations and fruitful exchange. I would like to express my thanks to the speakers, the Conference Committee, my colleagues from TU and everyone else involved and making this happen.

Prof. Dr. Stefan Weinzierl  
Technical University Berlin  
Chair of Audio Communication Group  
Dean of Humanities

Electroacoustic music beyond concert performance is in the meantime an everyday common aesthetic experience, be it in ringtones, earphones in the subway, or sound installations in transit passages at airports, not to mention the immense increase of electroacoustic phenomena in countless genres of popular culture, which include, of course, cinema and feature films on TV. While it took a long time for electricity to become an integral part of art music, electroacoustic developments went hand-in-hand with the mass-media phenomena of early radio and the talkies. Institutions such as Bell Laboratories and several radio corporations became homes for electroacoustic music much sooner than concert halls, such as Carnegie or the Viennese Musikverein, which to this day exhibit a remarkable kind of xenophobia regarding music without performers. Music consumption, however, underwent a deep change in the past century, ever since the arts began to be transformed by developments in audio technology. Similar to Cologne or Stockholm, Berlin also has electronic music studios: the studio at the Technische Universität, being where Karlheinz Stockhausen’s spherical music auditorium for the Expo in 1970 in Osaka was developed, as well as the merging of art and music in the internationally acclaimed Berlin Klangkunst scene. And now I wish to warmly welcome all of the participants of the electroacoustic music network conference to Berlin.

Prof. Dr. Albrecht Riethmüller  
Head of the Musicology Department  
Freie Universität Berlin
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<td>17:00 Sound Installation I</td>
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<td>10:30</td>
<td>Andrea Szigetvári</td>
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<td>20:30 keynote lecture by Helga de la Motte-Haber</td>
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<td>11:00</td>
<td>Simon Emmerson</td>
<td>Listening in time and over time – the construction of the electroacoustic musical experience</td>
<td>17:00 The ritual of the electroacoustic concert</td>
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<td>Fabian Czolbe</td>
<td>&quot;Klangkunst&quot; goes mobile</td>
<td>13:30 Peter Batchelor</td>
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<td>Evaluating Acousmatic Compositional Strategies within Public Sound Art</td>
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<td>Hannah Bosma</td>
<td>Playing Loudspeakers, Unsettling Concerts, Gender and Performance in Interdisciplinary Electroacoustic Music</td>
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<td>Volker Straebel</td>
<td>Louis and Bebe Barron's &quot;Electronic Sound Images&quot; for the Science-Fiction Movie &quot;Forbidden Planet&quot; (1955/56)</td>
<td>15:00 lunch</td>
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<td>Tatjana Bühme-Mehner</td>
<td>Searching for Safety: The concert listener beyond the limits of the concert hall</td>
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<td>Lindsay Vickery Notating the Sonic Environment</td>
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<td>Tom Adams Monty Adkins Digital Music, Digital Distribution</td>
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<td>Aaron Einbond Composer as curator: uncreativity in recent electroacoustic music</td>
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<td>Teresa M. Connors Bringing Forth a World Sound Installation as a Process of Cognition</td>
<td>Viviane Waschbüsch The stance of German “New Simplicity” composers on sound art</td>
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<td>12:00</td>
<td>Ian Stevenson Into-Place-Sound: Sound Installation Art</td>
<td>Sonya Hofer “Atomic” Music: Navigating Experimental Electronica and Sound Art through Microsound</td>
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<td>Nicola Baroni Carlo Benzi Gesture analysis and rhetoric. Hyper-cello as an algorithmic composer.</td>
<td>Panos Amelides Universalizing the acousmatics: storytelling and culture-specific works</td>
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<td>14:30</td>
<td>Heather Frasch (Re-)Contextualizing Meaning with Physical and Sonic Objects in the work of Hanna Hartman</td>
<td>James Andean Towards a Narratology of Acousmatic Music</td>
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<td>Owen Green Four Small LLEAPPs for Electroacoustic Music Studies: Notes on performance strategies from a series of participatory electronic music workshops</td>
<td>Diego Garro From ‘concert’ to ‘screening’: visual anecdotes in Electroacoustic Music presentations</td>
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<td>Session 10 – chair: Miller Puckette</td>
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<td>Jack Nagle Kerry Hagen How Live is Real-Time?</td>
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<td>Jin Hyun Kim An Action-Oriented Sonic Experience: Taking multimodal and interactive electroacoustic music and sound art into account</td>
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<td>Theodoros Lotis Site and Time Specificity in the Performance of Live Electronics.</td>
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<td>Per Anders Nilsson Control or Play?</td>
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<td>Session 11 – chair: John Dack</td>
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<td>Jean-François Denis</td>
<td>Dawn of Sound &amp; Time:</td>
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<td>Suk-Jun Kim</td>
<td>12:00: Anthony Tan</td>
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<td>Taking Time and Taking Place:</td>
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<td>14:00: Makato Mikawa</td>
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<td>Satoshi Morita</td>
<td>15:00: Mikako Mizuno</td>
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<td>16:00</td>
<td>Gary Kendall</td>
<td>16:00: The Feeling Blend:</td>
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<td>17:00</td>
<td>Ellen Flugge</td>
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<td>Giacomo Albert</td>
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## Friday, 13 June

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<th>Time</th>
<th>Panel I</th>
<th>Session 17 – chair: Jost Muxfeldt</th>
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<td>Massimo Avantaggiato</td>
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<td>Frédéric Dufeu Alain Bonardi</td>
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<td>Alba F. Battista</td>
<td>New dimensions of musical enjoyment. The Analysis problem: Luc Ferrari through the Aesthetic-Cognitive Method</td>
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<td>Pierre Couprie Mikhail Malt</td>
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<td>10:00</td>
<td>Michael Clarke Frédéric Dufeu Peter Manning</td>
<td>Barry Truax Riverrun (1986/2004), a case study from the TaCEM project, exploring new approaches to techniques of analysis and re-synthesis in the study of concert electroacoustic works</td>
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<td>Bruno Bossis Laurent Pottier</td>
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<td>11:00</td>
<td>Jean-Louis Di Santo</td>
<td>Analysis of Incidences/résonances by B. Parmegiani with an acoustamic score</td>
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<td>11:30</td>
<td>Giuliano Obici Alexandre Fenerich</td>
<td>Symphonie pour un Homme Seul - dé-acousmatized (SPHUS-d)</td>
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<td>Cecilia Taher</td>
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<td>Bai Zhao</td>
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<td>Georg Hajdu</td>
<td>Disposable Music</td>
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<td>Doug Van Nort</td>
<td>Approaches to Distributed Agency and Shared Musical Meaning in Electroacoustic Improvisation</td>
<td>Sound Space &amp; Wave Field Installation</td>
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## Saturday, 14 June

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<td>René Mogensen</td>
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<td>Emily Richmond Pollock</td>
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<td>Simon Atkinson Kerry Francksen</td>
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This paper will examine how the emergence of the electroacoustic soundscape has introduced new, extended forms of musical and sonic performance challenging the way “traditional” fixed media and live electronic pieces are performed and received. Soundscape is a wide concept. Here we will use Barry Truax’s definition which states that it is:

“a form of electroacoustic music characterized by the presence of recognizable environmental sounds and contexts, the purpose being to invoke the listener’s associations, memories, and imagination related to the soundscape”.

Environmental sounds have been widely used in electroacoustic music since Pierre Schaeffer coined the notion of “musique concrèt”. According to his theory, the recorded sound material used in electroacoustic music should be disguised, so the original "meaning" of the environmental sounds are detached and replaced by "meaning" derived from the play of abstract forms. In the musique concrèt context the abstract musical intentions of the composer are brought to the foreground. The reception is challenged by the composer’s skills to form a construction, where the referential meaning of the sounds constituting the form do not play an important role.

The growth of the soundscape as a genre can be dated twenty years after Pierre Schaeffer’s initiative, and in some cases can be viewed as oppositional to his conception whereby the environmental context remains central to the intention of the composer. In extreme cases the composer’s intervention can be reduced to the choice of environment, and the recording of sounds present. When the abstraction and composition of sonic material no longer takes precedence, it becomes necessary to question and extend our existing definitions of what constitutes the activities of composition and listening.

From the analysis of a number of pieces bearing the attributes of soundscape composition as defined earlier, one can find that the absence or limited use of abstract transformation of sonic material and it’s organization are replaced by different methodologies of mediation regarding the referential context. Composers re-present their source sounds in many ways. The location of the sound objects, the time and other conditions of the recording, become or remain intrinsic to the auditor’s aesthetic, cognitive and affective experience. The ways in which the works are mediated become crucial both to the works themselves and subsequently in defining new paradigms of sonic performance and it's reception.

This paper seeks to describe and analyse examples of soundscape composition through close attention to the various strategies of referential and contextual – 8 –
mediation deployed by their respective composer/creators.

The following methods of mediation will be discussed:

- describing the concept (e.g. Luc Ferrari: Presque Rien No. 1)
- written narration (e.g. Peter Cusack: Dangerous Places book and audio cd)
- documentary aural narration (e.g. World Soundscape Project: Soundscapes of Canada)
- poetic aural narration (e.g. R. Murray Schafer, Bruce Davis, Brian Fawcett: Okeanos, J. Cage: Roaratorio)
- adding referential (e.g. folk) music (e.g. Cage: Roaratorio)
- embedding the soundscape in multimedia (photos, videos) environment (e.g. Peter Cusack: Dangerous Places book and audio cd, Marek Choloniewski & European Bridges Ensemble: GPS-Trans11, Dé(R)ive.)
- creating interactive websites (e.g. Peter Cusack: www.favouritesounds.org)
- sonification processes, soundwalks (e.g. Christina Kubisch: Electromagnetic Soundwalks)

Selective bibliography:
Listening in time and over time – the construction of the electroacoustic musical experience

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The relationship of ‘music’ to ‘sound art’ is increasingly being discussed. This seems to take two forms: firstly a discussion of terms – the meaning of words. Thus ‘is there a distinction in meaning?’ tends to become ‘is all music really sound art?’ (and vice versa!). On the other hand this discussion may be based on a greater engagement with substance: what distinguishes these two descriptors in their practice. Practice in this case embraces ‘the total musical fact’ (after Molino/Nattiez), from conception to reception in both sonic and social dimensions.

A first stage distinction has often been made. Music maintains a ‘beginning-middle-end’ paradigm and demands attention from start to finish, while sound art can be ‘sampled’ (with potentially asynchronous listening) without damage to the creator’s intention – indeed it may be part of that intention. Clearly such a simple dialectical divide has been eroded and a continuum tentatively established. Human performance of any kind tends to be designated ‘music’ but may be sampled as if it were ‘sound art’ (especially) if extended in time and (crucially) if the venue allows or encourages movement of the audience. The roles of composer, performer and listener may even become blurred – or at least reconfigure in new ways.

But this in turn might be too simple! To what extent can the demand for concentrated and extended listening be compromised? And what are the consequences? Notwithstanding our expectations and previous descriptions, in ‘open’ spaces I have frequently observed focused listening for extended periods. Furthermore there are issues of signal to background noise ratio within the listening space. What function can dynamic range and frequency range have in ‘lo-fi’ spaces? The transposition of a narrative work intended for complete listening into an environment where sampling is encouraged clearly generates a new kind of ‘work’.

And conversely the freedom of some sound art (sound installation, for example) to create the unexpected for an unpredictable audience cannot necessarily be disciplined into a narrative chain or any other kind of through-composed ‘logic’. (It is an interesting question whether this assumes, in turn, a sense of something external propounding that logic). Nonetheless there may be strategies to create shaped short-term experiences that can indeed be woven together by the listeners in many different
ways that can all make some kind of aesthetic sense.

Several kinds of hybridization (and maybe compromise) are at work here. This paper will try to make some kind of sense of this often confusing field of creative possibilities. The discussion will start with issues of listening and the ‘forming’ of experience in a variety of spaces, and the varying demands that different approaches to the artwork make on memory. I shall go on to discuss the formation of what are termed ‘local forms’, sometimes ‘fractal forms’ - small segments that reveal shape and order of larger structure. These are designed to be grasped at shorter and more immediate timescales and to be meaningful ‘moments’. At the other extreme of timescale we may have ‘flux’ and ‘drift’ forms that seem to suspend the passing of time in their slow change.

Analysis will be conducted from (sometimes personal) observation of works and performances such as – Stockhausen’s *Moment Form* in practice (eg. *Kontakte, Momente, Telemusik*) – ideal and real mobility of form; Cage’s *Roaratorio* - live performance version (London 1987) as prototype ‘concert installation’ contrasted with the *Hörspiel* recording.

Kaffe Matthews’ performance in Tate Modern’s Turbine Hall (2010) – interactive listening and performance practice; the performer-audience relationship.

Selective bibliography:


Huberman, Anthony (2004), Interview with Kaffe Matthews, *Bomb* magazine, 89 (Fall 2004), republished on [www.annetteworks.com](http://www.annetteworks.com).

The ritual of the electroacoustic concert

Robert Normandeau
Université de Montréal

"The medium is the message"
Marshall McLuhan wrote in 1967 that the medium is the message. But the question facing us today, sixty years after the "invention" of electroacoustic music, is what exactly is the medium, and how do the characteristics of that medium differentiate it from instrumental music? One can approach the question in different ways, but certainly one of the most relevant is in terms of considering space as a compositional parameter. It is this dimension that most determines the specificity of electroacoustic music. Composers have clearly adopted the space as an internal writing parameter (Chion: 1988), but what about producers presenting this music in concert halls? Is a conventional hall with a frontal stage well adapted for a spatial representation? Is putting rows of uncomfortable chairs in black-box theatres really a new, attractive and appropriate way to present this music? Do rehearsal practices (or lack of them…) actually reflect the concern of composers working the space parameter in situ?

Concerts in domes of speakers
One possible alternative are concerts using a dome of speakers (Kupper: 1988). What is the specificity and interest of such a dome?

The primary interest lies in the fact that the dome represents a model of our perception in some ways: we stroll around with a permanent perceptual dome around our heads (Sazdov, Paine and Stevens: 2007), since our sound perception is semi-spherical (it could be spherical but in most cases, the ground prevents it). The second advantage is that the physical dome combined with the proper software (Chandrasekhar, Goßmann and Brümmer: 2006; Pulkki: 1997) allows a transfer of works from one hall to another without needing to change the spatial characteristics of the diffusion strategies. In other words, it is already possible to determine a standard in presentation, independent of the venue, as it is done with feature movies. In addition, speaker domes are increasingly present today (we will inventory this, but at the last census, there are at least a dozen).

Unconventional halls…
Another possible alternative is the use of halls that bear no resemblance to the traditional concert hall. Most improvised or live "underground" music now takes place in bars or lofts whose primary function is not musical. Many of these events attract a curious and non-conventional public that
would not necessarily come to a more classic presentation, especially in an academic place.

… off-institutions…
Electroacoustic music has become an institution whose main center of activity is in educational centres and more specifically in the music conservatory and university. These productions seem to want to emulate professional concerts with international guest artists, high quality sound and a captive audience, but they are rather almost always held internally, often without ticket sales and benefitting from little or no advertising, especially towards the general public, who is increasingly difficult to reach. Although this type of concert has a role to play in academia, I believe is is suffocating the genre, folding it in on itself. And except in small towns where the university is often the only producer of musical activity — which always attracts a curious public — most "academic" concerts no longer attract a large audience.

… with active listening
In North America — and perhaps more generally, we should acknowledge that the public no longer sees the concert as a social event in the same way that it has been practiced since the mid-nineteenth century. Today’s listeners, and certainly those interested in electroacoustic music, have stood up from their (un)comfortable chairs in order to move around in space, or even to continue living their lives — talking, discussing, answering phones — activities that are possible in places where omnipresent music does not belong to a musical but social ritual, where the sound amplitude covers the noise. How can we present a music whose low intensity and silent characteristics are covered by ambient noise? From all this, it appears that the ritual of the concert has changed and we must offer smart alternatives to do justice to our practice.

Bibliography
http://pastiche.info/documents/philipspavilion58/index.html#
Sazdov, R., Paine G. and Stevens, K., Perceptual Investigation into Envelopment, Spatial Clarity and Engulfment in 3D Reproduced Multi-channel Loudspeaker Configurations. Electroacoustic Music Studies 2007. Leicester: EMS.
Since a few years one can notice that Sound Art in different kinds makes use of mobile devices – exhibitions, concerts or installations/environments in the public space can be explored individually by the listener and her/his smartphone. With your mobile device and your headphones, you can walk from one part of an exhibition to another, and while entering a new area the sound starts automatically. Just as well one can start a sound generating app which e.g. makes use of the front camera of your smartphone, and which finally generates a sound atmosphere depending on your real visual surrounding (like some apps of the ZKM AppArtAward). As well one can take the smartphone and start to walk to find some sounds or musical pieces at a specific GPS position in the urban environment (like the “Music From The Cloud”-project of AdK Berlin).

In my talk I will present a choice of works, and point out some consequences for the perception, the analysis and the aesthetic value of a ‘mobile Klangkunst’ from a musicological perspective. Based on a “Taxonomy of Mobile Sound Art” (Behrendt 2010) which supposes four key categories – ‘placed sounds’, ‘sound platforms’, ‘sonified mobility’ and ‘musical instruments’ – I will discuss and expand this theoretical approach. But first I will discuss some questions, as well as perceptual and pragmatic phenomena in the context of mobile Sound Art. What does it mean, e.g. to think about space in that context? It is not a “white cube” with a specific volume and clean walls, it is the real world, e.g. it can be an individual urban space or somewhere in the nature. How does this specific space affect the perception? What is about the sources? Often soundartists make use of a particular kind of loudspeakers to include the characteristics of these sources, but in the mobile case the listeners have to use their own headphones. What does it mean, if you utilise different open or closed headphones, or headphones of different quality? On the other hand we have to ask for the possibilities of these conditions. How can the interweaving of real and artificial sounds become a compositional or aesthetical aspect? In which way one can compose a piece that may interacts with the natural or urban sound environment? As well we have to think about the perceptual modes that create an entanglement of sound and visual layer in the situation of listening.

Finally as scholar I suggest that we should investigate this phenomena in a systematic way, and I will point out some differences between Sound Art, Sound Walk, Sound Art in public space, and somthing may be called ‘mobile Klangkunst’. Furthermore, we need a terminology that open up a scholarly discussion about an aesthetic critism concerning these phenomena.

References:
Evaluating Acousmatic Compositional Strategies within Public Sound Art

Peter Batchelor
De Montfort University, Leicester

Composing acousmatic music typically involves the development of extremely rich, complex and immersive sonic environments which, by virtue of their use of 'found' materials, regularly refer to the real world. These various presented sonic environments are in turn woven together—transitions between unrelated sounds accommodated by, for example, common spectromorphological characteristics—to create often surreal/ephemeral evolutionary narratives governed by higher-level conceptual and aesthetic concerns determined by the composer. Analytical theory continues to develop around such practice (as established in Emmerson 1986; Landy 1994; Smalley 1986, 1997 and others), seeking to establish, for example, common or universal principles governing compositional decision-making in the combination/juxtaposition and evolution of believable sonic environments, along with the relationships between these and more spectromorphological (musical) discourse.

Recent installation projects that I have undertaken involving massively multichannel speaker setups have prompted me to consider the implications of the use of such compositional strategies—to which I shall refer as ‘ephemeral narratives’—enhanced by rich spatial deployment—in presentation contexts outside the concert hall. Presented within (ideally public) spaces in which the realistically-portrayed phenomena inhabiting these narratives might naturally occur, the fabrication of believable aural landscapes using such systems might, through various means, encourage reflection on—via a re-experiencing of—everyday environmental sound phenomena.

Nevertheless, they are subject to evolution through time governed by similar compositional strategies as those that might be used in work produced for the concert hall. I have proposed elsewhere that such an approach potentially provides a means of uniting acousmatic and soundscape compositional concerns with those of acoustic ecology (Batchelor 2007). But the use of fixed presentation formats and narrative frameworks that are fundamental to traditional acousmatic compositional practice are generally deemed to be inappropriate (and are certainly unfashionable) within the more dynamic and changeable context of everyday/public environments, since they limit immediacy and the responsiveness of the musical material to changing environmental conditions.
conditions within these spaces, along with interactivity with their inhabitants (the public).
Thus this paper explores the notion of ephemeral narrative as a compositional strategy within the framework of installation and public art. It explores a theoretical and methodological background to such practice and explores technical and aesthetic issues related to its application. It also questions the extent to which such strategies remain viable and effective within installation contexts while investigating how they prompt the development of existing analytical theory relating to electroacoustic compositional practice.

Selective bibliography:


Where and how to find gender in electroacoustic music, its practices and performances? In my research on electro-vocal music, the voice is an entry point to discuss gender in electroacoustic music. (Electroacoustic music may seem abstract or “neutral”, but voices are clearly gendered.) One of my conclusions is that musical and vocal gender stereotypes are encountered more often in rather traditional concert settings, while breaches in gendered conventions mainly occur in electroacoustic music when ontological and institutional changes are at stake, such as the departure of the concert stage, of the musical score and of the concept of the musical work, the changing roles of the creators, and interdisciplinarity (Bosma 2013, 2006, 2003).

Here, I will further elaborate on the relation of gender to fundamental aspects of electroacoustic music, related to discourse, technology, performance and signification. This paper offers a preview of some aspects discussed in my forthcoming article on gender for the Routledge Companion to Sounding Art (ed. by Marcel Cobussen, Vincent Meelberg and Barry Truax, 2015).

In electroacoustic music there is a strong modernist strand, with a discourse that (over)emphasizes formalism, objectivism and technology. This seemingly abstract or “neutral” discourse, however, is related to masculinity (Bosma 2013). Tara Rodgers (2010) argues that the audio-technical discourse consists of metaphors that relate sound to masculinity and colonialism. Thus, gender turns out to be a constitutive factor in the heart of electroacoustic music.

Performance is both fundamental to music and to gender. Music is considered a performing art; however, this is not self-evident for electroacoustic music and sound art – indeed, this genre, as well as this conference, invites us to reconsider the notion of musical performance. Gender is performative, according to Judith Butler: gender is continuously re-established or re-performed, but can also change by its performativeness. The performing arts and the performativity of gender imply different notions of performance. While the performativity of daily life and culture at large, including gender, goes by mostly unnoticed or unreflected, the performing arts provide occasions to focus and reflect on performance. Can new conceptions of performing music, with or by sound technology, go with changes of gender performance?

I discuss these issues by focusing on electroacoustic practices that critically reflect...
on or play with concert performance and related electroacoustic practices. The first example elaborates on the different ways in which Huba de Graaff (Lautsprecher Arnolt, 2004) and Cathy van Eck present loudspeakers on stage as musical-theatrical instruments. I show how their work is positioned differently with respect to the main modernist technological discourse of electroacoustic music and how their use of loudspeakers relates to gender issues. De Graaff stages loudspeakers as theatrical personae and shows excessive masculinity going rampant. Van Eck casts loudspeakers as musical instruments that change the notion of performance itself, including its gendered aspects.

My second example relates Cathy van Eck’s Hearing Sirens (2007) and Extended Ears (2013) to soundwalks. Andra McCartney (2014) shows that many of the major figures in the field of soundwalking are women, such as Hildegard Westerkamp and McCartney herself. The Dutch artist Cilia Erens and the Soundtrackcity Amsterdam project offer other conceptions of the soundwalk. Cathy van Eck turns the soundwalk—as it were—inside out and adds another layer to this multifarious genre. In Hearing Sirens, for a spatial-acoustic discovery of the environment, she wears large yellow loudspeaker horns on her back that emit clicks and other sounds. Extended Ears offers different listening experiences of the environment by transforming the sense of hearing by horns, by a portable microphone-loudspeaker instrument, or by a live electronic processing iPhone app. As McCartney remarks, implicit in soundwalking is that a woman’s presence on the streets is marked by her gendered visibility; walking with large horns, Van Eck adds an extra dimension to her visibility.

I find references to gender issues in the work of Huba de Graaff and Cathy van Eck that relate to fundamental aspects of electroacoustic music, at different levels:

- explicit and implicit references to gender (in sound, image, text, performance);
- reconfigurations of gendered musical practices related to authorship, composition, performance, the musical work, enabling, audience, musical genre, listening, technology.

A focus on gender may reveal unsettling of fundamental ideas on and in electroacoustic music.

**Selective bibliography:**


Louis and Bebe Barron's soundtrack for the MGM science fiction film "Forbidden Planet" (1956, directed by Fred M. Wilcox) became famous for being the first soundtrack of a feature length film to consist exclusively of electroacoustic music. Influenced by the concept of feedback in Cybernetics (Wiener 1948/61), the sounds were produced by means of electronic circuits whose output were recorded and subjected to basic tape manipulations. The film score establishes a system of leitmotifs that are connected to characters, places and situations. While previous research, mostly based on oral history, has given much thought to sound synthesis and technology of production, and, more recently, to musical form as well as intermedial aspects of film music (Barron 1997; Leydon 2004; Wierzbicki 2005), this paper presents for the first time written material from the composers' archives.

The private, unprocessed collection contains diverse material, ranging from correspondence (including drafts), minutes and shipping records to notes on leitmotifs, annotated cue sheets and mixing scores. Drawing from a philological analysis of music-related notes and the cue sheets, one is able to re-construct the Barrons' approach to composite material from a pre-fabricated pool of motifs and atmospheres. The notes seem to give evidence to the fact that this material had been created specifically for the purpose of being combined, altered and superimposed. The mixing scores, finally, define the relation of the different layers of sound at work in the sound track and provide a better understanding of the production process.

At this point, I can only give some first insight into this research which is still undergoing. More detailed work will depend on a complete catalog of notes and annotations related to the leitmotif technique and that consider their chronological order so that one can understand how the work on the sound track shaped, through several revisions, the very material it is based on.

Selective bibliography:
There are not many institutions which are as established in the music market as the traditional concert in the field of so-called ‘serious’ music. Thus, anyone going to buy a concert ticket usually knows – more or less – what they will get. The purchase will include a kind of unofficial guarantee: about two hours of announced sound art, which can be enjoyed as part of a group of people of more or less the same cultural background. Even if many forms of presentation do not feature in this concept – partially or even more generally – this model is the basis of the western music system.

Buying a concert ticket thus usually means making a communicational arrangement, in order to draw the line between the possible and the impossible. It is expected that people knowing about the ritual and thus will clap at the right moment, not eat popcorn and listen. Meanwhile, the listeners – even if the question of artistic quality is not the first priority of this ‘contract’ can be sure that they will find themselves in the expected communicational position. Usually they can be sure that they will not be blamed for any direct and personal address or participation outside of the group. Thus, they expect a special communicational frame at all. For this expectation and the ways people may file a suit for it, some examples from my own work experience in the field as a concert reviewer will be given.

From there the communicational arrangement is analysed, and whatever intention the listener may have towards making this arrangement can be shown. It appears to be a search for safety. Every presentation project – even if it questions one or more parts of what is guaranteed – deals with this contract. The aesthetic positions of artists who participate have already been analysed from several perspectives. In this paper I will question the role of the listener within this arrangement.

In order to pay tribute to the place where this year’s conference is being held, I have selected two very different examples found within German province to demonstrate in a more detailed way how electroacoustic – or more generally experimental – music can profit from this communication constellation and the attached expectations. But maybe even traditional classical music is not excluded per se. Both are part of a festival which has been established for one and half decades in a village near the former East-West German border: the Thuringian Stelzen. By introducing the impressive and strange history of a cult event (which nowadays attracts people not only from the region) it is shown how the communicational contract mentioned above can itself become the topic of presentation, and how this can guide the listener beyond the limits of the concert hall.

1. The traditional ‘Landmaschinensinfonie‘ (Symphony of agricultural machines) is a cooperative art-work which was initiated by the sound artist Erwin Stache – employing a special kind of sampling but which explicitly plays with the
expectations of concert listeners and which integrates unusual artists.

2. Whether Johann Sebastian Bach can be seen as part of an electroacoustic artwork is one of the questions posed by the analysis of this example. The ‘Bach-Wiese‘ (German speakers may find a play on words within this title) is a prototype of an example of presentation over an extended duration. The complete works of Johann Sebastian Bach played from loudspeakers within lovely countryside attracted a huge number of listeners – even campers who had come just to hear this.

Selective bibliography:


Diverse practical and theoretical approaches to sound art and electroacoustic music composition developed in the 20th and 21st centuries can be seen as different attempts at defining a "materialism of sound," i.e. as striving to reveal or get through to "sound's being." The idea of overcoming representation, hence, unites a great number of otherwise dissimilar artistic approaches. The rejection of symbolization asserted by the Schaefferian objet sonore; the increased focus on experience, perception, and embodiment in recent sound art; the experiments in sonification and audification of otherwise inaudible signals; the treatment of audio recordings as "non-representational sound matter" (Francisco López); the Varèsián "liberation of sound"; and the material emergence of timbre and form (Agostino Di Scipio) may serve as examples of artistic practices directed towards grasping the materiality of sound. Yet the question of how to think “sound in itself” is simultaneously what fundamentally distinguishes these approaches. The specific ways of answering the question of how to think sound as material both in artistic practice as well as in theory can be said to constitute and differentiate a great part of the artistic and theoretical positions in contemporary sound art and electroacoustic music.

In recent years, there has been a growing interest in philosophy, science studies, psychoanalysis, arts, and political theory in new formulations of materialism from a number of otherwise irreconcilable theoretical positions (et.al. Slavoj Žižek, Manuel DeLanda, Quentin Meillassoux, Karen Barad, Alain Badiou). Likewise in the field of theoretical sound studies, a number of competing formulations of a “sonic materialism” have been brought forward in recent years. Sound artist and theoretician Salomé Voeglin works at a formulation of a sonorous materialism, which focuses on the ephemerality, contingency, and event-like character of listening and Brandon LaBelle understands the materiality of sound as an intersection of physical, psychical, and affective spatialities. Of central importance for this paper is the position of the
philosopher Christoph Cox, who has recently proposed a "sonic materialism" as a theoretical model for thinking the arts beyond representation and signification. Instead of reading (sound) art works as "complexes of signs and representations," Cox argues for a treatment of art works as complexes of material forces. Drawing on the work of the philosopher Gilles Deleuze, Cox thus tries to abandon the "idealist language of signification" and develop a materialist, realist perspective on art works in terms of material forces and dynamic flux. While agreeing with the basic, "anti-representational" orientation of Cox's argument, I will attempt to challenge it and outline an alternative "onto-aesthetic" perspective: a "dialectical" materialism of sound. In doing so I will try to firstly break away from the Deleuzian materialism rooted in a conception of a "univocity of being", a "vitalistic" Whole, which abandons the irreconcilability of the Symbolic and the Real.

With reference to the philosophers Alain Badiou, Slavoj Žižek, and Hegel, I will rather proceed from a split and a conception of the Real as tied to a void, an impossibility or failure in the Symbolic itself. I will thereby argue for the necessity of symbolization in music or sound art, while distinguishing between a representational symbolization, which is also the realm of meaning and semantic signification, and an operational formalization, which is here understood as moving beyond representation and meaning, but via the Symbolic itself. The materialist account of sound proposed will thus neither assume a pre-symbolic "sound in itself" nor a sound matter equated with material forces, nor a mechanistic, objective "sound matter," but rather an always already compositionally mediated material. The Real can only be grasped through symbolization, or as the psychoanalyst Jacques Lacan stated: "The real only manages to be inscribed through an impasse of formalization."

Selective bibliography:


I will present my examination on influence of technology and context on the meaning of sounds. In particular the question: why did in the 1960s the first occurrences of synthetic sounds referencing natural real-world sounds (such as bird-calls) appeared outside of the frame of the electroacoustic music concert? I will focus on two historic examples: the Mixturtrautonium of Oscar Sala as used in the soundtrack of the Hitchcock movie The Birds, and David Tudors’ electrical sound circuits in Rainforest 1. The specific questions I aim to answer are as follows: (1) did synthesizers usher in new ways of understanding imitations of “real world” sounds? (2) In what manner did the mode of presentation itself, namely, the film-soundtrack and the sound installation, support the interpretation of sounds as imitation in the two examples cited? We describe the dependency of the meaning of an imitational reference on the materiality of the instrument and extra-musical conditions of the works where they are used in. Peirce provided a formal system to describe semiosis, which he also defines as sign-activity. With his categories of modes of reference, which he defines in his speculative grammar on the elements of semiosis, he introduced concepts how signification can be differentiated. In a first step he introduced a classification, which distinguishes between icon, index and symbol. I will apply this categorization on the semiosis of sounds in artistic expressions. I am following Peirce in the idea, that semiosis is a triadic, time-bound, context-sensitive, interpreter-dependent, materially extended dynamic process. My argument is based on the assumption, that signs are multi-stable, which means it is inherent to a sign, that it can always be read in different ways and that it is the context of a sign, which provides the necessary stability to the multiplicity of possible interpretations. I will first look what synthesizers introduce new to the interpretations of sounds as imitations of real-world sounds. How they problematize the relation between sound and source. And how we can describe, that this relationship also affects interpretation of sounds as imitations. I will then look how context introduces a multi-modality, that has the potential to stabilize possible interpretations. I conclude, that synthesizers, compared to acoustic instruments, introduced a more complex relationship between sound and its reality, and that
explicit inclusion of context through multi-medial contextualization introduce a stabilization of the meaning through multi-modality. Following this I argue, that imitation changed its position in artistic expression, and that the imitation of real-world sounds with synthesizers exemplify well the interrelations between iconic, indexical and symbolic interpretation of signs, their context-dependency and situatedness.
This paper contends that risk is an important element in our appreciation and understanding of art works and examines the idea and perception of risk within acousmatic music. The chief value of artistic risk is arguably its role in connecting the experience of art with lived experience. Risk, when recognised, has the capacity to become a wider metaphor for confrontation with the uncertain, the threatening, or that which is desirable, but whose attainment carries danger in the form of significant potential for failure and/or harm. But in an artistic context—at least from an audience’s normative perspective—the artwork imparts risk as something experienced vicariously. In contemporary artistic contexts, risk is perhaps most readily appreciated through procedures associated with performance: physical or psychological risks taken in the embodied realisation or presentation of a work. This feeds the enjoyment of performance as spectacle as well as appreciation of the moment-to-moment negotiation of changes in the physical, ensemble or wider aural environment in which the performer operates. In electroacoustic music, this procedural dimension is certainly the sense in which risk is most commonly understood. The frailty and capacity for unreliability in human/machine interaction can lead to situations where computer responsiveness may cease, surges of uncontrolled feedback or even the presence of dangerous voltages, along with more traditional issues of risk in performance—something may ‘break’, there is a departure from the ‘score’ or from what was rehearsed, or a tenuousness is created through extremes of difficulty imposed on the musician.

More generally in musical situations risk is most frequently encountered in what Blocker (2008) describes as rhetorical risk where, aesthetically distanced, it is represented through syntactical contrivance, drawing on a listener’s engagement with music as both a temporal and semantic experience—the implications of events and possible future predictions and expectations. While Cage (1981) rejected the significance of musical discourse in those terms by drawing a parallel with dance (suggesting that it matters if two dancers collide because of the risk of physical injury—to which sounds are not susceptible), Lukas Foss (1972)
whimsically challenged many of the control-relinquishing innovations associated with Cage: ‘Silence is safe, even virtuous. Show me dangerous music’. The rhetorical projection of risk is nevertheless an important aspect of musical discourse that links both romantic emotive force (as in the celebrated ‘resolution’ of dissonance in the first movement of the ‘Eroica’) and modernist harmonic tension and distortion.

At first glance, acousmatic music might appear to be a musical domain that epitomises non-risk, certainly of the procedural kind, with music created in the coolness of the studio and committed to the permanence of a fixed medium. Yet the close connection with the natural soundscape that acousmatic music has grown up with carries implicit risks in content and the challenge to invest something of an original listening experience in a completed work, as well as carrying procedural risk in capturing sound in difficult social or environmental contexts. But, more importantly, the range of materials opened by sound recording invites new kinds of risks in content. Highly personalised or autobiographical material and political statements epitomise domains of risk that exist through the use of referential content, whilst the extremities of sound’s typological forms—over-original and unpredictable objects in Schaefferian terms—beckon as materials that implicitly carry compositional risk because of the difficulties they present for musical integration and comprehension. Nonetheless, in the spirit of Foss’s challenge to a normative view of innovation mentioned above, easy solutions to rhetorical risk in acousmatic music can be identified: extremes of unchanging sonority or textural density, and over-differentiation of sound sources, for instance. Critical evaluation of several works from the acousmatic repertoire is offered in providing a balanced view of how the constructive features of risk might be recognised, managed and productively exploited within an acousmatic form.

Selective bibliography:


Foss, L. (1972) Sleeve notes to Paradigm, On The Contemporary Composer in the USA, Turnabout TV-S 34514, LP recording.
Notating the Sonic Environment

Dr. Lindsay VICKERY
Edith Cowan University

Lindsay Vickery is an Australian composer, performer and academic. His music includes works for acoustic and electronic instruments in interactive-electronic, improvised or fully notated settings, ranging from solo pieces to opera and has been commissioned by numerous groups for concert, dance and theatre. He is also a highly regarded performer on reed instruments and electronics, touring as a soloist and with ensembles in many parts of the world. His current compositional preoccupations include the relationship between modes of presentation of the musical score and musical structure, between electronic/acoustic, composed/interactive and interpretative/improvisational approaches. Most recently, his research interests have focused on the emergence of the “screenscore”, nonlinear music and the realisation of Cage’s music. He holds an MMus degree in composition from the University of Western Australia and a PhD from the Queensland University of Technology. Vickery is currently the coordinator of Composition and Music Technology at Edith Cowan University in Perth.

Emulation of the sounds of the natural environment may be one of the earliest manifestations of music. Alvin Lucier’s (Hartford) Memory Space (1970) and Carbon Copies (1989) both explore this impulse, instructing performers to imitate the sounds of any indoor or outdoor environment (albeit pre-recorded), “as exactly as possible, without embellishment” (Lucier, A. 1989. Carbon Copies. Material Press: Frankfurt am Main). This final clause may have been necessary because the complexity of natural sonic environments often prohibits exact imitation and encourages embellishment. This paper describes a scoreplayer implemented in MaxMSP, that analyses and visualises significant features of a sonic environment as a graphic score, that is scrolled from right to left across the computer screen. Playback of the source recording is delayed so that it is heard as the corresponding visual event arrives at the “playhead”: a black line of the left of the screen. The frequency of principal features of the recorded environment are represented every 10ms by the placement of rectangles in vertical space, amplitude by the size of the rectangle, and the brightness, noisiness and bark scale value of each event as the luminance, hue and saturation of each rectangle. The final three parameters provide an indication of timbral changes in the source recording. An analysis panel provides controls for the performer to view and scale raw data from the field recording. This allows for the performer to “zoom” the visualization in or out on a particular ranges of frequency, amplitude, brightness, noisiness and bark scale data. The recording is also analysed using Masayuki Akamatsu’s aka.listen extension to detect recorded speech or speech-like artifacts (Electonic Voice Phenomenon) that may be present. These are represented in the score as standard text that is visualized using the frequency, amplitude, brightness, noisiness and bark scale values that are applied to non-speech sounds. While not strictly “real-time” (recorded sounds are delayed by 12 seconds), this environmental sound scoreplayer allows performer(s) to engage with natural sonic environments in a site-specific manner, using field recordings and sonorous objects.
from the vicinity of a performance. It provides a mechanism for the performance of, or improvisation around, significant sonic features from the natural environment.

The work was commissioned by percussionist Vanessa Tomlinson for her Australian solo percussion program *Eight Hits*. The proposed performance practice for the work was developed by the authors during Tomlinson’s residency at the *Orpheus Instituut for Advanced Studies & Research In Music*. It requires that Tomlinson make a field recording and collect objects to play in the vicinity of each new performance venue. Familiarity with the recording and strategies for improvising with it may be developed subsequent to its performance.

Selective bibliography:


Digital Music, Digital Distribution
Tom Adams
University of Huddersfield
Monty Adkins
University of Huddersfield

Tom Adams currently lives and studies in Huddersfield. One half of ambient duo Hollow Mountain, shredder for avant-jazz band Space Fight, and solo artist in his own right, Tom has long had a history of being a collaborator across a variety of mediums – working with poet Patrick Widdess as ethereal sonic sidekick, being part of the orchestra commemorating Scott Polar’s expedition across Greenland, and finally his latest project; soundtracking Hollywood indie flick ‘The Knife That Killed Me’, is released in early 2014. He also performs and releases music as Toma and The Mountaineering Club Orchestra. He is currently studying for an MPhil in audio-visual composition with Dr. Julio D’Escrivan at the University of Huddersfield.

Monty Adkins is a composer, performer and professor of experimental electronic music. His work is characterised by slow shifting organic textures often derived from processed instrumental sounds. Inhabiting a post-acousmatic sensibility, his work draws together elements from ambient, acousmatic and microsound music. Adkins has worked collaboratively on a number of audio-visual projects, including Four Shibusa with the painter Pip Dickens and most recently with composer/digital artist Julio d’Escriván. Adkins has been commissioned by the BBC, Radio 3, IRCAM and INA-GRM amongst others. His most recent albums are published by Audiobulb and Cronica.

Although multichannel concert performances of new works continues to be the predominant means for the presentation of new electroacoustic works on systems such as the HISS (Huddersfield Immersive Sound System), BEAST (Birmingham Electroacoustic Sound Theatre) and MANTIS (Manchester Theatre in Sound) by far the majority of new music is listened to in a personal space often via headphones and is either increasingly streamed digitally via a subscription service or purchased in a digital format.

In 2011 Bjork released the multi-platform album Biophilia. Although released on CD, the main marketing and artistic focus was on the Biophilia APP – a means of listening, exploring and remixing the music on the album in a unique interactive and personal manner. Since then the most ambitious follow up to this has been Lady Gaga’s ARTPOP APP released in 2013. The APPstore listing for this states that ‘Lady Gaga brings you a musical and visual engineering system that combines music, art, fashion, and technology with a new interactive worldwide community - 'the auras'. Altering the human experience, we bring ARTculture into POP in a reverse Warholian expedition.’

Alongside these developments, which pose both interesting aesthetic questions regarding art vs. pop, the ergonomics of interactivity and experience design and the additional involvement of a multitude of software and design companies to bring the ‘album’ to market, there have been other commercial artists that have embraced less costly technology. The most prominent of these has been the iBook.

Artists as diverse as Shinedown, Coldplay, KISS, Jason Collett, Karl Hyde and Brad Paisley have all released iBooks in 2012-2013 to accompany the release of new albums. These range from Collett’s modest 21-page ‘Uncover the Album’ to accompany his Reckon release, to Coldplay’s expansive 183-page audio-visual ‘Mylo Xyloto Live’. All of these provide exclusive audio and video footage, interviews, articles and a
plethora of photographic documentation of the making of the album. Their ambition is evident in Shinedown’s iTunes marketing tagline,

‘Remember the days of poring over your favorite band’s expansive album artwork and liner notes while listening to the music, trying to get a deeper sense of what went into the creation of the record? Multi-platinum rock band Shinedown wants to bring that experience back – but in a bigger, better, and fully immersive way, only for the iPad.’

Thus far, iBook and APP technologies have been predominantly adopted for new music releases by commercial artists as additional content marketing tools. This paper examines the scope of the releases above and presents two examples by the authors of use of the iBook as the primary means for disseminating new artistic work. Adam’s new audio-visual project stemming from his work in the duo ‘Hollow Mountain’ and Adkins’ *Rift Patterns* (Audiobulb, 2014) involving photographer Stephen Harvey, writer Deborah Templeton and video artist Jay Payne will be discussed in detail.

Stuart Dredge writing about Lady Gaga’s ARTPOP release in the Guardian on 11th November 2013 stated that, ‘Apps certainly aren’t replacing albums any time soon (if ever), but as an interactive companion, this is an innovative and interesting step forward.’ What the authors want to propose in this paper is that the iBook offers a distinctive medium for new artistic exploration that moves beyond the album as a purely musical release. It also questions what is means to release something native to the digital domain rather than merely providing digital audio files in an analogue to the physical CD.
Aaron Einbond’s work explores the intersection of composition, computer music, music perception, field recording, and sound installation. He is currently a 2013 Guggenheim Fellow and Visiting Lecturer on Music at Harvard University. He was born in New York in 1978 and has studied at Harvard, the University of Cambridge, the University of California Berkeley, and IRCAM in Paris, with teachers including Mario Davidovsky, Julian Anderson, Edmund Campion, and Philippe Leroux. From 2009–2011 he was Mellon Postdoctoral Fellow in Music at Columbia University and from 2012-13 he was Research Fellow at the Centre for Research in New Music at the University of Huddersfield. He co-edited Noise In And As Music published by the University of Huddersfield press and co-organized an interdisciplinary symposium on the topic in 2013. Upcoming projects include and a Giga-Hertz Prize to produce a new work at the SWR Experimentalstudio and a Musical Research Residency at IRCAM.

Touching upon the history and aesthetics of 20th-century recorded media and digital information, and using 21st-century music information retrieval (MIR) as an analytical resource, I argue for curation as artistic process in examples drawn from recent electroacoustic music.

Over the last century, electronic culture has given increasing emphasis to curation as a creative act. Some of the most-used terms in recent media vocabulary suggest this shift, such as “DJ,” “remix,” “mash-up,” and “prosumer.” The visual arts and writing have embraced digital curation, including prominent figures like Christian Marclay, Ai Weiwei, Jonathan Lethem, and Kenneth Goldsmith. In Uncreative Writing Goldsmith critiques recent poetry for its resistance to these new sites of invention: “From the looks of it, most writing proceeds as if the Internet had never happened.”

However the same could be said of much music, even electroacoustic music. One explanation is technological: while search engines have made unprecedented quantities of digital text immediately accessible, the transition of sound from analog to digital was at first not accompanied by a similar revolution in searchability. Audio can be searched through textual metadata, an especially powerful tool when connected with the Internet, but only more recently have MIR techniques emerged for searching sound itself.

Since the late 1990s, the growing field of MIR has explored the uses of audio feature extraction to summarize information about digital sound. An audio feature, or descriptor, is any characteristic attributed to audio such as pitch, loudness, brilliance, or higher-level metadata. MIR is changing the way music is categorized, marketed, and recommended through companies like Pandora and The Echo Nest. It also has applications for creation.

A recent generation of electroacoustic artists have embraced MIR to curate large databases of audio recording, going far beyond traditional sampling techniques.
They include composers and improvisers Johannes Kreidler, Maximilian Marcoll, Matthew Schlomowitz, Alec Hall, Bryan Jacobs, William Brent, Ben Hackbarth, and Diemo Schwarz, many of whom program their own computer tools as an extension of the curatorial process for gathering and filtering material. For example in Kreidler’s work product placements 70,200 sources are sampled in a 33-second electroacoustic piece, the impact of the work goes beyond a concert realization: as Kreidler writes, “‘the work is a network.”’

In my own work Without Words for soprano, ensemble, and electronics, databases of texts, field recording, vocal, and instrumental samples are combined using MIR techniques into multilayered audio mosaics, each of the sources activating a different time and place in the work’s genesis.

These examples challenge the concert work as a unique site of creativity: instead, archive-like totalities and multiple temporalities become equally important in a distributed process involving many creative voices in dialogue. Traditional concepts of originality are replaced by “unoriginal genius,” to borrow a phrase from writer Marjorie Perloff. Even with music bathed in samples, databases, references, and borrowings, the contrasting musical results the artists derive attest to the individuality of these curatorial approaches.

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Mike Bullock is a composer, media artist, and porcelainist with over a decade of international activity. His work encompasses electroacoustic improvisation, installation, live video, contrabass, and synthesizer. Bullock performs across the US and in Europe, collaborating with a wide range of artists including Bertrand Gauguet, Andy Guhl, and Mazen Kerbaj, Pauline Oliveros, Bhob Rainey, Steve Roden, Keith Rowe, and Christian Wolff.

Bullock’s music has been released by numerous labels including Sedimental, Intransitive, Important, Winds Measure, Sedimental, Grob, 1.8sec, al Maslakh, and Homophoni. He holds a PhD from the Arts Department at Rensselaer Polytechnic Institute in Troy, NY, and has taught and lectured in the US and Europe on field recording and improvisation. With Linda Aubry Bullock he is the co-founder of the art-edition label Shadowselves.

This paper will investigate a particular variety of sound art that involves electroacoustic sound created live in situ with a visual or multimedia environment. These works, presented as exhibits at galleries rather than performances in concert halls, exist at the hazy overlap of electroacoustic music, improvised music, sound art and visual arts. In these pieces, very often the sound component of the piece is centralized, even foregrounded, within an environment of plastic art and film or video. Examples include John Cage and David Tudor’s Rainforest IV; the long-duration work of the Cork, Ireland group Strange Attractor; California artist Steve Roden’s Shells, Bells, Steps, and Silences; the stripped-speaker constructions of Boston instrument builder and cellist Vic Rawlings; and my own Speaking/Drawing series, in which stripped speakers are used to generate visual art.

In his seminal collection Sound Works, Max Neuhaus reminds us that art, and music especially, can be burdened by the perceived obligation to entertain. Neuhaus himself was attempting to shrug off that burden by changing his career path, from a high profile performer of contemporary percussion music to an installation artist whose primary material was sound. Performance installations tend to share a number of characteristics that set them apart from traditional electro-acoustic presentation and bring them closer to the worlds of multimedia installation and live self-idiomatic improvised music. These characteristics include non-virtualized acoustic environments; very long or indeterminate durations; and a third kind of encounter with the audience – not witnessing performers framed by the prosценium, yet nonetheless in the performer’s presence, even if unwittingly. These works are not participatory; nor are they strictly separated from their audience. This raises the stakes for both the audience and the artist, actively interrogating their normative relationships. How does the reception of such works differ from either “pure” performance or “pure” installation? Can it be said that traditional
electroacoustic diffusion has more in common with this sort of installation than it does with other typical forms of concert music presentation? Electroacoustic compositions may be diffused in concert by a performer sitting at a mixing desk behind the audience, rather than on stage. Similarly, in performance/installation, the performer is usually embedded or even hidden in the environment of the piece, rather than centralized on stage. On the other hand these performance/installations often use diffusion technologies at odds with the electroacoustic tradition of transparency, wide frequency response, and a virtualized listening environment. Performance/installations may use radically altered loudspeakers – as in *Rainforest IV* – or even speakers stripped bare of their enclosures. Are the speakers themselves more of an entity than what comes out of them - in other words, are they materialized beyond the music’s ability to keep up? Or, by their inherent sonic limitations, do they frame the mediated space of music in a way that typical “high fidelity” presentations attempt to mask? By investigating these questions I intend for this paper to shed light on an undercurrent of sound art that shows a debt both to live improvisation and to electroacoustic diffusion. At the same time it may raise further issues about the reception of art, and the viewer/listeners tenuous position between gallery visitor and concertgoer.
My practice as a composer has become increasingly collaborative. The majority of my projects are concerned with exploring new relationships from an ecological\(^1\) perspective, which often results in audiovisual installations. In an attempt to contextualize my practice I have become interested in the Humberto Maturana’s and Francisco Varela’s Santiago Theory of Cognition. This theory resonates with me as a means to engage with ontological consideration of interconnectedness.

Historically, the Santiago Theory of Cognition evolved from the scientific research that took place over the last decade. This research reflected a paradigmatic shift away from a mechanistic, representational model, to one of an interrelated, performative network\([1]\) and includes: emergent properties, systems thinking, cybernetics, complex systems, chaos theory, autopoietic networks, Gaia theory, and biosphere consciousness.

With the Santiago Theory of Cognition, Maturana and Varela suggest that all living systems are driven by cognition and consciousness that we “continually bring forth with others.”\([2]\) This places human activity into the larger environmental context by intersecting with forces greater than those of human design, providing a point of creative enquiry in which the total is greater than the sum of the parts.

By contextualizing my research within the Santiago Theory of Cognition, this paper presents a creative practice that engages with ontological considerations of interconnectedness. It investigates the interrelationships between complex systems as process and structure and their artistic potential for an empathic\(^2\) discourse by

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\(^1\) The term ecological refers to the philosophical school of thought which believed the world to be a network of interconnected and interdependent phenomena. The Norwegian philosopher Arne Naess coin the term “Deep Ecology” to reflect this viewpoint and stated that the essence of deep ecology is to ask deeper questions.

\(^2\) Jeremy Rifkin suggests that empathy is the “invisible hand” that allows us to stretch our sensibility to all life. He proposes that more technologically advanced cultures have evolved into that of homo empathicus.
extending our identity to include the larger biosphere.

Accordingly, multimedia sound installations offer an experience which embraces the notion that “cognition involves the entire process of life – including perception, emotion, and behaviour.”[1] As the installation platform eliminates the constraints of beginnings, middles, and ends, a space is created where contemplation can play a creative role in the process of consciousness. The implication is that the artefact experienced is an autopoietic system in that what emerges results from the interactivity of all components. I suggest that this positions multimedia sound installation within ontological theatre: “a vision of the world as a place of continuing interlinking performances.”[3]

What this model offers is a method to promote critical discourse beyond pure aesthetic choices into observations of interconnectedness with the larger biosphere, suggesting new creative relationships and the reimagining of interrelatedness [4]. This works towards an artistic philosophy that considers “how we imagine the world and how we act in it reciprocally inform one another.”[3]

Selective bibliography:


Into-Place-Sound: Sound Installation Art
Ian Stevenson
School of Humanities and Communication Arts
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Ian Stevenson is a specialist in the field of audible design with over twenty years of experience as an audio engineer, producer, artist and educator. He has worked in the theatre on West-end and touring productions in Europe and Australia, in live sound production and recording for contemporary classical and popular concert music, and in post-production. He is currently lecturer in sound technologies in the School of Humanities and Communication Arts at the University of Western Sydney.

In this paper I consider aspects of sound installation art under the conceptual sign of *installed sound*. These two terms suggest a fruitful problematic. The Oxford English dictionary provides an etymological origin for the term *installed* in the medieval Latin *installare*, meaning into-place. The term *sound* defined tautologically by Aristotle as the proper object of audition offers a semantic richness equal to that of *place* (Cresswell, 2004). As Pierre Schaeffer suggested, sound as a construct emerges along the series of the concrete and the abstract, and the subjective and the objective. Place shares this structure.

In her 2001 survey of Australian sound art, Ros Bandt divides spatial sound works in to "spatial sound design and spatial music" on the one hand and "place as acoustic space" on the other. This division is mirrored by Georg Klein (2009) who proposes the categories spatial sound works (*raumklang*) and site-sound work (*ortsklang*). These divisions suggest the conceptual series of space and place, relying on a weighting of the abstract and the concrete at various points on the series. In these analyses, spatial sound works deal with an abstract notion of space employed as a compositional variable, while site-sound works deal with the geo-political concrete realities of place. Any such polarised division must not ignore the complementary nature of the terms of the series. Any abstract spatial sound work must deal with the concrete production of sound material and the limitations and potential of venues, and devices in their concrete context. Similarly, the abstract meanings associated with the lived experience of places and their representations are what define the materiality of the site-sound work.

An alternative critique of installed sound is perhaps needed. Whereas the term electroacoustic music suggests a discourse that prioritises the *how* and *what* of the art-form, in contrast, Bandt has developed a creative practice that demands a focus on the *when* and *where* that inform the human relationships upon which the subordinate what, why and how must depend. Such a concern for the human values from which a sound art emerge echo the vision/audition of Pierre Schaeffer. Bandt's conception of place imagines sound as a relational field through which time and place are expressed. In this view, the when, where and who of place are factors on which sound's formal and material production must be contingent.

This radical reappraisal of installed sound problematises the gallery as a site for sound work and I consider an approach to this problem as the creative impetus for new works.

Selective bibliography:

Retrieved from http://www.ears.dmu.ac.uk


Hugh Davies’s Electronic Music Documentation 1961–8

Dr James Mooney
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I will provide an account of certain key aspects of Hugh Davies’s electronic music research and documentation in the 1960s. By presenting evidence from a range of Davies’s published (see ‘selective bibliography’) and unpublished writings I aim to show how Davies sought to document the development of the electronic music phenomenon up to 1967. In his writings from this period, Davies commented upon the fragmented nature of the electronic idiom, as evidenced—for example—in multiple parallel nomenclatures (elektronische Musik, musique concrète, Cage’s ‘Music for Tape-Recorder’ group, Varèse’s ‘organised sound,’ etc.). ‘This proliferation of different names for what is basically the same kind of music,’ he wrote in 1963, ‘shows that a considerable number of composers in different countries are all trying to find a workable idiom.’ [1] I aim to provide an account of some of the ways that Davies described the idiom’s maturation as an international, interdisciplinary praxis, conveying—perhaps for the first time—a sense of the various international, aesthetic, and disciplinary threads coalescing into an apparently coherent whole, a process driven by the exchange of ideas across international and disciplinary boundaries.

Even in his earliest unpublished writings on the subject (dating from 1961), Davies drew attention to the presence of ‘a large group of international composers’ at the WDR studio in Cologne, and also indicated the existence of studios in various different countries throughout the world. Davies’s tendency to classify by nation was not merely an organisational device, since he went on to emphasise the role of internationalisation as a potent source of musical innovation, both in the fledgling idiom of electronic music in particular and in avant-garde music more generally. Specifically, he pointed to the developmental avenues opened up via the hybridisation of already-developed international musical traditions—a phenomenon that he contrasted with the ‘on-the-spot’ invention of new musical forms, syntaxes, etc., which he referred to as ‘parlour games.’ He also drew attention to the exchange of ideas mediated by visits to electronic music studios by composers with different international and disciplinary backgrounds, and to the catalytic effect this had on the development and maturation of the electronic idiom in the late 1950s and early 60s. He sought to convey a sense of the interdisciplinary nature of electronic music by drawing parallels with the techniques of painting, sculpture and other musical traditions such as jazz in his earlier writings, and via the provision of several appendices in his International Electronic Music Catalog [4], each of which focussed on the use of electronic music techniques in a different interdisciplinary area.

All the while, Davies was working toward the production of a comprehensive inventory of electronic music, beginning in earnest with his ‘Discography,’ [2][3] which listed recordings available commercially on records or for hire on magnetic tape. This endeavour reached its pinnacle with the publication of the Catalog in 1968, which Davies estimated (quite accurately,
as far as anybody can tell) accounted for ‘probably about 90% of all electronic music ever composed’ [unpublished promotional materials dated 1967].

The Catalog remains, to this day, the most complete record of international electronic music activity up to the end of 1967. A broader aim of this research is to work towards an evaluation of the implications of this, historiographically speaking. To what extent, and with what consequences, do subsequent published histories of electronic music rely upon data provided in the Catalog, for instance? In what ways might Davies’s model of electronic music as an international, interdisciplinary praxis be criticised, and what might be the implications of such criticism for the field of electroacoustic music studies?

Selective bibliography:
The stance of German “New Simplicity” composers on sound art

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Viviane Waschbüsch (b. 1989) is a graduate of the Paris-Sorbonne University and the Saarland University, where she received both her Maîtrise and Master’s degrees in Music and Musicology. She studied with Wolfgang Rihm at the Musikhochschule Karlsruhe and received a Master degree in composition with violin as principal instrument. She is laureate of the 2008 “Jugend Komponiert” in Germany as well as of the 2005 Alois Kottmann International Prize for Violin in Frankfurt. Since 2011 she worked as a lecturer at the Department of Musicology at the University of Saarland where she taught history of composition, analysis of tonal music and analysis of contemporary music. Since 2013, she studies with Prof. Marc Battier to accomplish her PhD at the Paris-Sorbonne University. At Paris-Sorbonne University she has a doctoral contract and teaches analysis and ear training.

For composers of the "new simplicity" movement including Wolfgang Rihm, Hans-Jürgen von Bose and Detlev Müller-Siemens, sound art has always been a difficult subject. In the early 1970’s while searching for an alternative musical language to serialism, they planned a return to the romantic ideals of chamber music, symphonic music and opera. This approach seemed antithetical to the concept of electroacoustic creation; however, if we look at the first manifesto of the “new simplicity” movement from 1974 we discover that the original members Hans-Jürgen von Bose, Wolfgang Rihm and Detlev Müller-Siemens were in fact very interested in the development of electroacoustic creation – but found the evolution of the synthesizers and new sound tools to be too slow. While others continued to research new concepts and sound, they decided to take a more conservative approach. Thus, in the mid-1970s they refrained from using electroacoustic elements in their works and did not compose any sound art installations.

Of the three composers, Wolfgang Rihm ought to have been the most interested in electroacoustic areas, as he studied with Karlheinz Stockhausen. But, according to a recent biography by Eleonore Büning in 2012, the young composer was not much interested in the advice of Karlheinz Stockhausen. Wolfgang Rihm spoke openly about his difficult relationship with Stockhausen:

„Mich hielt er sowieso für ein verlorenes Schaf. So gerne, wie ich dabei war damals, so hatte ich doch immer das Gefühl, dass er mich nachsichtig betrachtet hat, mitleidig fast, als denke er: 'Bei dem ist ja Hopfen und Malz verloren, da kann ich reden, was ich will, der macht, was er will.”

Stockhausen reacted in a manner of “capitulation” toward young Wolfgang Rihm, even as Rihm was not mature enough to understand his teacher's concepts. But while Stockhausen's direct influence on Rihm is almost imperceptible,

1 Büning, Eleonore, “Über die Linie. Wolfgang Rihm, ein deutscher Komponist”, Zsolnay Verlag, Wien, 2012. „He thought of me as if I was a lost sheep. As much as I enjoyed being part of the composition class, I had always the impression that Stockhausen had a pitying look on me as if he was thinking: that guy is beyond hope. I can teach whatever I want, he always does what he wants.” (personal translation).
the result of their musical conflict – and Rihm striving to break away - brought forth an interesting new aesthetic. If this paper seems to focus on the work of Wolfgang Rihm – though he composed less for electroacoustic elements than Hans-Jürgen von Bose - the reason stems from the controversy he started in an interview when he called the creators of sound art “garden gnomes of music”. Neither Hans-Jürgen von Bose nor Detlev Müller-Siemens ever made any public comments on their position towards sound art. Rihm’s statement on electroacoustic music is the only one from a composer of the “new simplicity” generation. This is why it is of major importance to look closer at the development of the use of electroacoustic music and sound art performances in the works of Rihm, von Bose, and Müller-Siemens. Rihm began using tape music for the choral parts of his operas and musicals at the end of the 1980s. Hans-Jürgen von Bose scored for cello, accordion, and electroacoustic in his 2012 musical “Nacht-Zeit-Mord” (written in Munich), replacing an ensemble that had strong interaction with the actors, singers and video-projection.

This presentation will follow the development of these three composers in the large field of electroacoustic music and explain how their aesthetic points of view changed and were transformed through the years into a more open-minded view on electroacoustic and sound art performances.

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“Atomic” Music: Navigating Experimental Electronica and Sound Art through Microsound

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Sonya Hofer is a musicologist who completed a Ph.D. from Stony Brook University in New York. Her dissertation, “Experimental Electronica Beyond the Great Divide,” explores the interdisciplinary terrain of a significant metagener of Electronic Music—Experimental Electronica—and focuses on how the repertory eludes categorization by perplexing disciplinary lines. Hofer’s research examines the intersections and negotiations of, not only the varying fields of musical creation, such as those spanning the classical and the popular, but also, the varying fields of artistic creation, such as those between art and music. This Fall, she will join the music faculty at Colorado College as their Riley Scholar in Residence. In addition to being a university educator, Hofer has also worked as an art gallery curator and in various guises within Indie Rock.

In this paper, I examine microsound—an emergent term, corresponding concept, and associated genre of experimental electronica appearing in the late 1990s—which animates the idea of sound as material entity and, as I will demonstrate, ultimately complicates and expands questions concerning disciplinary boundaries.

The conceptualization of sound as matter, particularly on an imagined “atomic” level, has played a significant role in crystallizing certain experimental electronica genres. This impulse to ascribe mass to sound or to conceptualize it as a material object has had many historical antecedents, especially in the twentieth century. These range from Edgard Varèse’s seminal writings in “The Liberation of Sound,” notably in his advancement of compositional practice as the “organization of sound” that ultimately objectified a notion of sound (1962), to the very nature of Musique Concrète, as principally described in Pierre Schaeffer’s tome, Traité des Objets Musicaux (1966), to György Ligeti’s compositional practice and aesthetic of sound masses in such works as Atmosphères (1961). Music understood as a physical entity extends into the technological sphere, encompassing the advent and use of various technologies that visually represent sound and the sound spectrum. Such tools include spectrographs, Iannis Xenakis’s UPIC system (1977), software that enable granular synthesis, and other programs offering pictorial models of sound in object form, such as MAX/MSP and even Pro Tools. However, the comparison, representation, and analogy of sound as an object of material composition is a peculiar metaphor, as sound is not literally tangible nor does it have any inherent material substance in and of itself. At the meeting point of microsound, a wide spectrum of musicians and listeners across genres and subgenres has converged, along with a diverse range of technologies and approaches to them. In what follows, I begin by tracing the emergence of microsound, focusing on its inherent perception as musical “matter.” Microsound conceptually had the ability to draw in a variety of aesthetic connections with, and in some senses subsume, several experimental electronica genres and subgenres (such as glitch, microhouse, minimal), all of which impacted and became part of its very notion. Microsound has figured into the evolution of these genres as it evolves, cumulating in a broader picture of experimental electronica during the first decades of the 2000s. Enmeshed with a powerful technoscientific idea of sound on an “atomic” level that helped to conceive sound in a more tactile manner, microsound consequently also gathered in and associated genres beyond
musical ones and in the realm of the visual and plastic arts, from minimalism/Minimalism to overlappings with sound art. As will be seen, this exploration of the inception and implications of microsound will offer one instructive path that helps elucidate the convoluted relationship between experimental electronica and sound art. By examining a few key works in microsound by Richard Chartier, I demonstrate how the repertory allows creators to work across such disciplinary lines but also how, in doing so, microsound sometimes draws attention to their distinctions. And yet, while greatly perplexing these lines, microsound ultimately helps to clarify vagaries by offering some direction from within the murky ontological terrain by articulating specific points of connection, commonality, and divergence between these intertwined fields of creation.
The gesture, intended as an action producing sounds, has played an important role ever since the advent of electronic music (Wanderley and Battier 2000): Schaeffer's objet sonore is produced by recording a gesture, the improvisations of Musica Elettronica Viva are characterized by gestures of the performers on acoustic and electronic instruments, a masterpiece like Kontakte by K.Stockhausen is based on different gestures in the score of the piano and the percussion and on the magnetic tape. These pieces are characterized by a strong formal tension, which Dalmonte called "gesture of the form".

The gesture forms a continuum not only between improvisations and precisely noted compositions, but also between pieces exclusively based on music and more complex works that include video and other media. In this way contemporary art is able to repropose in a new language the interaction between man, nature and machines characteristic of the baroque theater as well as the continuum between improvisation and composition of baroque music based on the Basso Continuo.

Since the 1960s interaction with machines has allowed composers and performers to expand musical gestures over a wide range of possibilities: live electronics can reinforce the gesture of the performer or, to the surprise of the listeners, contrast it and also their expectations. Why are composers and performers still today amplifying gestures, as in baroque theater?

Rhetoric, intended as the art of shaping communication, provides us with a possible answer: they did this, and continue to do so, in order to create continuity between the intentions of the composer, the performer and the listener/spectator. If the listener/spectator understands the gestures of an artwork and their transformations, then its interpretation is no longer absolutely free, but is constrained within limits (Eco 1990).

Surprise, a baroque ideal intended as a deviation from what the listener is expecting to hear/see, is now involved in the
conception of the form of the piece: if the listener is able to recognize it, it is still possible to speak of a communication between the composer, the performer and the listener.

In this context we aim to propose a methodology that develops the concept of the Hyper-instrument (Machover 1992) in order to analyze live performance gestures through current technologies in terms of body interaction, and, at a deeper level, under the guidance of their audio-spectral description.

The Baroque ideal of man and culture as creative machines is here extended towards the conception of a "formal gesture" and its surprising resonances.

We start from the assumption that the "sound object" is a form-bearing entity (Godoy 2006) not detachable from the performer's body and from the instrument producing it. Our real-time technology collects data describing the qualities of the musical gestures, taken as a ground for generative algorithmic compositional strategies. Software, data body and musical hermeneutics are thus intended as a main bridge between the physical dimension of the timbre and its structuring potential.

In this way the Hyper-cello generates software musical symbolisms evolving in a complex, but still deterministic fashion, positing a continuum between score and instrument. The formal cohesion of the work is creatively shaped by the performer's data and by the dynamic interplay with complex mappings, statistical algorithmic modules, and self-organizing abstract strategies. This concept takes its inspiration from Eigenfeldt's research involving compositional agencies operating as

performance interactive ecosystems (Eigenfeldt 2011).

The interactive system we propose is built on Max/MSP and developed with the audio descriptors by Miller Puckette, Tristan Jehan, and the IMTR-IRCAM libraries of sound and gesture analysis, combined with the inertial motion tracking system from the Speckled Computing of the University of Edinburgh (http://www.specknet.org/).

Selective bibliography:


(Re-)Contextualizing Meaning with Physical and Sonic Objects in the work of Hanna Hartman

Dr. Heather FRASCH

Heather Frasch is an American composer of acoustic and electronic music, improviser, experimental flutist and sound installation artist. She is a recent PhD graduate of University of California, Berkeley where she studied composition with Franck Bedrossian, interactive electronics and new media with David Wessel, and improvisation with Myra Melford. She also holds a Bachelors of Music from Temple University in Philadelphia, PA and a diploma of composition for the National Conservatory of Lyon, France. Her music has been performed at festivals and concerts worldwide, such as: FRUM (Iceland), Atlas Academy (Holland), ICMC (Huddersfield), NYCEMF (New York), SICMF (Korea), Moscow Autumn Festival, San Francisco Tape Music Festival (CA), Acanthes Festival (France), and the Third Practice Music Festival (Virginia), among others. Honors include the George Ladd Prix de Paris in Composition (2008), the International Slonimsky Competition Composition Prize (2012), and the Nicol DeLorenzo Prize in Composition (2010 & 2008).

With the incorporation of electronics and (pre-)recorded sound technologies into the musical performance situation, the sonic space expanded. A vast palette of timbral and sonic possibilities emerged. Ears were amplified and extended. It also brought new instruments and objects onto the stage, most notably that of black boxes, also known as loudspeakers. Concerts of boxes instead of humans, filled our ears with complex sounds. Objects, who disembodied sounds from their sources, focused the listening while removing visual references. The hiding of sound sources started to bring about questions that needed to be answered. Artists asked themselves: what does it mean to remove objects from the stage, to leave it behind, or to bring it back. Visual neutrality could no longer be taken for granted. The presence of a live source, either instrument or performer, had more weight than it did before.

And the answers have been diverse. Instruments have been built to enhance physical gesture and motion with electronics and sensors. Sonically rich and resonant objects have been hung around spaces to replace traditional loudspeaker membranes. Some artists create kinetic sculptures whose sonic properties create their own performance situation. There are even new musical instruments that involve animals and plants in the bio-feedback domain.

Furthermore, artists play with blurring the lines of control, production, and creating variations on how these technobodies are related. And, of course, many artists are still committed to the black box, and isolating and amplifying the ears with the complete removal of the visual.

Electronic composer and sound artist, Hanna Hartman, has found a personal solution, that foregrounds the object, extracts its sonic properties, and creates artistic meaning with its presence on the stage. Her work connects and balances all of these elements. Her starting point as a composer, was ‘sound for sound’ sake, focusing on the purity of sounds and then recontextualizing and revealing hidden correspondences between sounds. But her work has branched out, incorporating instrumentalists and acoustic objects. The objects she works with are sonically rich, as well as hold strong metaphorical, yet non-explicit imagery. Their presence is poetical. Their meaning is not forced or directed. It can hold one interpretation for one person, and another for someone else. But still the objects Hartman chooses have a strong visual presence which amplify their presence alongside that of the sound.

In this paper, I will draw upon Marshall McLuhan’s and Gilbert Simondon’s notions of technology in order to analyze how, with the advent of electronic music, the presence of new technologies brings into question and creates new relationships with the old. As
Hartman’s work combines both object, technology and performer, it can shed an interesting light on how these theories are relevant in current electronic musical practices. Traditional musical instruments are re-experienced, re-seen, with co-collaborators of electronic objects. Hartman’s works do not disembodied or reembody sounds, but rather reembody the traditional acoustic instruments with the presence of her new objects. The sparseness and clarity of material allow for the richness to be felt and heard, in all the collaborators: instrument, object, performer & sound. Hartman’s work is a balance that allows the new instruments to deepen the meaning of the composition, and change the presence of traditional instruments.
Four Small LLEAPPs for Electroacoustic Music Studies:
Notes on performance strategies from a series of participatory electronic music workshops

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Owen Green (owen.green@ed.ac.uk) is a composer-improviser with a focus on the interaction of electronic and physical materials. He was awarded his PhD by City University London in 2013 for research on electronic improvising practice and currently teaches sound design and electroacoustic composition to undergraduate and postgraduate students at the University of Edinburgh as well as assisting research on a project investigating design pedagogy. His current research interests are concentrated on the socialities of electronic musicking, and the ways in which practice informs our sense of the world. Owen is a co-founder of LLEAPP, a recurring practice-led symposium for researchers in electronic music.

This paper will consider the conference theme of 'Electroacoustic Music Beyond Concert Performance' through the lens of a UK-based participatory electronic workshop for postgraduates and early career researchers that I have been involved in organising since 2009. These events go under the banner of 'LLEAPP' and have been held four times in total with participants from a range of UK and European universities: twice at the University of Edinburgh (2009, 2013), the University of Newcastle (2010) and the University of East Anglia (2011). Whilst the format has tended to shift slightly from event to event, in each case the focus has been on participants coming together and devising some performable music over the course of two or three days, as a basis for reflective practice-led research.

What shifted more significantly between episodes of LLEAPP were the approaches taken towards coping with and situating the performance outcomes. My focus will be on comparing these various approaches and their relationship to the notion of the capital-C Concert. Most conspicuous in this respect are the ways in which the two most recent LLEAPPs each engaged with the challenges of reconciling the pressures of public performance with the workshop's focus on self-organised, participatory musicking. At the 2011 event, two performances of ostensibly the same material were given on successive nights in different settings: a more formal affair in the university's concert hall and something more relaxed at a local venue. In 2013, the hitherto established practice of breakout groups working more or less independently towards a showcase performance was abandoned and replaced with all participants working together towards a collective presentation. This resulted in something quite distinct from the traditional concert in its uses of both space and time.

By analysing and comparing the details of what happened in these particular performances (and in their conception and preparation) a useful contribution can be made to considering the dynamics of live electroacoustic performance and its diverse. For example, these experiences provide a rich source because of their explicitly and deliberately contingent, negotiated nature. By bringing together diverse participants—with different backgrounds, preferences and
ambitions—to make some kind of public presentation under severe time constraints, the kinds of negotiations and eventual compromises help us learn about the make-up and attitudes of our community. By looking at how the music that emerged was contingently engaged with the social and material circumstances of particular performance sites, we can perhaps develop a greater degree of reflective insight into the peculiarities of our musical rituals and a more shaded impression of the terrain of performative possibilities. In order to help develop an analytical approach that might aid in confronting and theorising these topics, I borrow from Georgina Born's (2010) recently proposed set of musical topics of sociality, technology, temporality and mediation, and from Richard Shusterman's (2002) notion of the 'interpretative game'.

I conclude by drawing attention to one particular outcome of this theoretical development, which is to suggest that practice-led research in the field could usefully direct greater energy at the shadings between different electroacoustic performance practices, as an area of relatively untapped capacity. I argue this on two fronts. First, that we can contribute more richly to the interdisciplinary endeavour of musical research and, second, that we can improve our sense of communal, disciplinary identity as well as helping erode further the academic institutional boundary.
Mannerism and the use of aesthetic clichés in its language have isolated acousmatic music from a potential universal audience. The term acousmatic here is being seen from the perspective of acousmatic space-form (everything that can be recorded and played back). This paper proposes a new musical vernacular regarding acousmatic creativity based on culture-specific sonic and storytelling elements, related directly to the sentiment of the specific cultural group. Most acousmatic works seem to have inherited a particular style governed by the “unity of sentiment” as Rosen describes it (Rosen, 2010). On the other hand, according to Truax, cultural sonic elements might include soundmarks, keynote sounds, sound events and sound romances (Truax, 2001). Those elements combined with recorded speech can form a storytelling device, utilizing the inherited sounds and stories derived from a community. Taking as a case study a site-specific sound installation presented at a rural audience in Southern Greece, using as context vehicle Smalley’s ecological concept of acousmatic space-form (Smalley, 2007), Landy’s “something to hold on to factor” (Landy, 1994) and expanding the notion of Young, that the acousmatic medium has the unique capacity to function as a mirror held up to lived experience (Young, 2009), this paper explores possibilities to universalise the acousmatic practice and expand its audience.

Selective bibliography:


Towards a Narratology of Acousmatic Music
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James Andean is a musician and sound artist. He is active as both a performer and a composer in a range of fields, including electroacoustic composition and performance, improvisation, sound installation, and sound recording. He is a founding member of improvisation and new music quartet Rank Ensemble and interdisciplinary improvisation ensemble The Tuesday Group, and one half of audiovisual performance art duo Plucié/DesAndes. He has performed throughout Europe and North America, and his works have been performed around the world. He is currently completing a doctorate in acousmatic composition at the Centre for Music & Technology of the Sibelius Academy, in Helsinki, Finland.

Acousmatic works tend to operate on two simultaneous planes: a more abstract, musical level of gesture, phrase, colour, texture, and motion; and a narrative level, which references real-world objects, actions, contexts and environments. Where instrumental music, broadly speaking, accesses this narrative level primarily through the use of metaphor, acousmatic music, while maintaining access to the more programmatic elements found in instrumental music, also has the capacity to enact experience much more directly, through the explicit use and application of real-world sound and motion. This ranges from the use of referential sound imagery, to a broader use of gesture and action enacted via acousmatic music's phenomenologically-grounded syntax.

Most theoretical approaches to the acousmatic genre tend to focus more on the structural and formal elements of the sonic plane, with minimal reference to more overtly narrative aspects. In the attempt to rectify this imbalance, the field of narratology suggests itself as a likely candidate for expanding our theoretical toolkit.

While narratology was initially focused more or less exclusively on literary narratives, the field has since branched out to a range of new media and intermedia narratives, including film, video games, and hypertext. It could be argued, however, that this expansion has simply added a visual bias to the previous textual bias.

There is therefore much to be gained from a narratological approach to acousmatic music, in both directions. The narratological perspective calls attention to aspects of acousmatic music that have received too little theoretical attention. In exchange, acousmatic music offers an extremely relevant narratological case study, as the genre's strong narrative elements are entirely free of the textual and visual elements upon which so much existing narrative theory is based. Acousmatic music can therefore serve to differentiate core aspects of narratology that hold true across diverse media from those elements that are significantly diminished in relevance once both text and vision are left behind.

Narratology is particularly useful to the exploration of acousmatic narrative in offering models drawn from non-musical art forms, as it could be argued that most existing approaches to musical narrative are of dramatically reduced relevance to acousmatic music (with the exception, perhaps, of a common approach to formal considerations). We will thus be steering clear of more traditionally musicological perspectives on narrative, in favour of approaches to narrative across media.
Key theoretical touchstones include the field of cognitive narratology, championed by David Herman and Monika Fludernik, and Marie-Laure Ryan's work on narrative across media, as well as perspectives on acousmatic narrative from John Young, Trevor Wishart, Simon Emmerson, Denis Smalley, and Luc Ferrari. With regard to cognitive narratology, it is worth noting a tendency among theorists to move freely and indiscriminately between contrasting - indeed, often contradictory or incompatible - cognitive approaches. We will therefore follow Herman's lead in favouring the term 'sciences of mind', which more accurately reflects the tendency for narratology to reference a broad range of theory and research in constructing models of the mental construction of narrative.

The primary focus will be an examination of the extent to which several theoretical perspectives culled from current narratological theory are relevant when applied to acousmatic music. These include the apparent - though possibly illusory - absence of narrator in acousmatic music; the problem of causality; fiction vs. non-fiction in the acousmatic; mimesis vs. diegesis; the concept of 'spatial narrative'; narrative intention vs. narrative reception; and extra-musical considerations. Finally, we can attempt to imagine an analytical scaffolding that incorporates narratological elements together with structural and morphological concerns to construct a more rounded approach to acousmatic analysis.

Selective bibliography:


In line with the spectro-morphological tradition of much of the electroacoustic repertoire, Visual Music works produced by artists of electroacoustic provenance are predominantly abstract, especially in terms of the featured imagery. Nonetheless, despite the ensuing non-representational idiom that typifies many Visual Music works, composers enjoy the riveting compositional opportunities offered by materials, both audio and video, which possess clear mimetic potential, intended here as the ability to imitate nature or refer to it, more or less faithfully and literally (Emmerson 1986).

In the age of ubiquitous digital media, composers still enjoy the process of ‘capturing’ events from the real world and use them, with various strategies, as building blocks for their work. Therefore, before making their way into the darkness of their computer-based audio and video editing laboratory, they still use microphones and video-cameras to harvest sounds, images, ideas, fragments, anecdotes which will then be thrown into the prolific cauldron of a compositional ‘kitchen-studio’. There, a complex and often painstakingly long process of evaluation, manipulation and re-contextualisation can result in audio-visual mise-en-scènes that, despite the recognisable causal origin of the materials, can be wonderfully ambiguous. Drawing from my compositional endeavours in the audio-visual medium, I will posit that such radical departure from the points of origin emerges as a result of digital manipulation, as much as it is a consequence of audio-visual montage. Mimetic discourse in the Electroacoustic works of Trevor Wishart, Luc Ferrari and Francis Dhomont encourages the listener to (re)create mental images from a complex web of personal and cultural references the music taps into. I call ‘Mimetic Visual Music’ the artistic practice of audio-video design in which a very similar process of reconstruction is encouraged, with the added facet that the data for such inference is now both aural and visible.

Mimetic Visual Music poses significant idiomatic challenges and fascinating creative opportunities for the audio-visual composers, both those with a background in Electroacoustic Music and those coming from visual arts and experimental cinema. The practices of Visual Music production often intersect those of Electroacoustic Music composition, while analysis of Mimetic Visual Music must inevitably draw from sources beyond the Schefferian methodologies and can easily cross-fade (!) into film theory. An audio-visual language disenthralled from the gravitational pull of narrativity, inevitably flirts with poetry and with its shifts from the tale, to more obscure meta-narratives. Reduced listening (Schaeffer 1966) and visual suspension (Hyde 2012) are important methodologies when coding and decoding the message in much Visual Music, but for the subset of repertoire presented in this paper a ‘genetic’ (related to the genesis of the work, Zattra 2005) interdisciplinary approach, from a composer’s perspective, is more suited.
Mimetic Visual Music can be traced back as a further development of experimental cinema strands and can find its aesthetic and historical locus in the advancement of those experiences, developing its language, integrating strategies that are commonplace in Electroacoustic culture, and putting sound at the very core of its aesthetic and technical credo.

In this paper, the discussion will stem from my particular perspective of an audio-visual composer of acousmatic origin; hence, a brief excursus on the use of mimesis in the Electroacoustic Music, will lead to the exploration of a few important aspects of Visual Music composition. The paper discusses more (and less) probable links and parallels between Electroacoustic Audiovisual presentations and older aesthetic cousins forgotten, or never fully known, in the dusty, upper shelves of western cinematography. The question for the audience is whether a hybridisation between sonic and visual idioms is possible, and indeed desirable, and whether blurring the boundaries between ‘concert’ and ‘screening’ presentations can provide an opportunity to (re?)vitalise the Electroacoustic paradigms and rituals.

Selective bibliography:


This paper is predicated on the argument that real-time computer-generated music exists on a spectrum of “liveness.” First, we identify and compare terminology for live electronic, electroacoustic or computer-generated music. Several authors explored notions of liveness but remain inconsistent in their language and concepts. Secondly, we examine these authors’ writings to explore notions of liveness within real-time computer-generated music. Finally, we approach several musical examples that delineate the liveness spectrum.

Nomenclature in the domains of live and real-time music remains ambiguous. Authors use terms such as real-time, non-real-time, performative, compositional, speculative, algorithmic, generative, formalized, fixed medium and tape music to describe a complex intersection of ideas on liveness. For example, Agostini and Ghisi (2013) use “performative and speculative” to replace Puckette’s (2004) “performative and compositional” to identify real-time and non-real-time. But, this distinction almost necessarily implies live and not-live. Incidentally, we propose a new word, “notional,” to replace speculative and compositional in Agostini and Ghisi, and Puckette, respectively.

Collins (2003) discusses generative music and laptop performance. He makes a subtle contrast between real-time, generative music that does and does not include a live performer. In his definition, a performer could be playing an instrument or a laptop. However, Collins is willing to accept a mere button push as an act of performance. On the other hand, Garnett (2001) defines a narrow band of performance that requires at least one performer who is playing something other than the computer. Rowe (1999) falls between Garnett and Collins by situating real-time algorithmic composition as a potential part of live performance. Burns (2002) provides an interesting illustration of parallels between real-time and liveness in his real-time computer versions of both Lucier, a fixed-medium work, and Stockhausen, a live analogue electronics work.

Using more congruent language arising from the discussion of these authors’ terminology, we utilise works by Collins, Hagan, Lewis, Lucier, Rowe and Xenakis to circumscribe liveness in real-time computer music. For example, Lucier’s “I am Sitting in a Room” is canonically presented as a fixed-medium work. But, Burns’ real-time computer realisation responds to the live acoustic situation of each individual performance,
demonstrating the liveness of Lucier’s idea regardless of its implementation. Xenakis (1992) proposed indeterminate music that could only be represented by several versions resulting from the compositional processes. However, his music is, perhaps even more so than Lucier’s, instantiated by fixed-medium realisations. Hagan’s indeterminate music is realised as Xenakis intended. As a result of real-time indeterminate processes, each iteration of Hagan’s work is unique to each performance. However, this music does not require any human interaction, blurring its actual liveness. Lewis’ and Rowe’s interactive computer music, as well as Collins’ laptop music, is often improvisational as well as real-time, which requires no justification to be labelled live. Through these examples, we find that, rather than there being a categorical distinction of liveness in real-time computer-generated music, there is a spectrum where different pieces illuminate subtle variations in liveness.

Selective bibliography


An Action-Oriented Sonic Experience:
Taking multimodal and interactive electroacoustic music and sound art into account
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In recent practices of electroacoustic music, sonic experience has increasingly been approached through multimodality—mediated by kinaesthetic experience—rather than monomodal perception on the one hand and through interactivity among composition, performance and reception as well as between human and non-human actants (à la Bruno Latour) participating in interactive practices of sound generation and modification on the other.

Against this background, my paper tackles the questions of (1) how an aesthetic function of sound is enhanced when incorporating a kinaesthetic dimension into sonic art practices and (2) how the aesthetic experience of music and sound emerges in the course of interactive practices of sound generation and modification, which are realised in diverse forms of performance beyond concert performance.

First, several artistic strategies dealing with kinaesthetically-based sonic experiences in current projects of electroacoustic music and sound art, which includes sound sculptures and sound installations, are assessed, directing the focus of discussion towards

- the relationship between objective parameters of sound—shaped by duration, intensity, directionality, and height and depth—and structures of sonic experience, as investigated in philosophical, neurobiological and musicological contexts;
- the relationship between shaping sound and shaping bodily gestures, a longstanding topic of intensive investigation in both artistic and scientific research;
- a tacit form of sonic knowledge that is action-oriented and kinaesthetically-based, a factor only very recently taken into account in sound studies;
- the relationship between culturally-based sonic and gestural knowledge—a theme to be explored, grounded in research on three aspects mentioned above.

Secondly, several projects of interactive sound installation exhibited in a museum and integrated into our daily environment are introduced and theoretically discussed, taking into account

- the affordances and constraints offered by an interactive sound installation concerning the aesthetic experience emerging in its course;
- the cultural context in which an art project is situated, related to recent discussions on situated aesthetics;
- different degrees of interactivity between the system for sound generation and modification and its users.

Selective bibliography:


This paper examines the adaptation of site and time specific processes in the performance of live electronics. A worked example of a site and time specific concert in a bus is provided, allowing for the sharing and critiquing of the methods and techniques.

The site and time specificity has been emerged from, and is mostly related to the visual arts, incorporating dance and theatre performance. Although individual examples can be found, site and time specificity has not been fully and systematically developed into the practice of live electronics. A site and time specific performance adopts and uses the unique characteristics of a chosen location and the time structure of the activities that take place in that location. Specificity is related to particular and identifiable conditions of a site, as opposed to its abstract characteristics. Site and time specificity allows us to expand in reasons and applications regarding performance concerts, to extensively explore the scope of performance for public, to embrace diverse practices and new methodologies for performance, to intervene in the daily public realm and to produce performances to be performed at unique, non-typical and specially adapted locations. Site and time specificity provides new contextual content during the concert and allows us not only to produce unique performances but also to develop unique musical styles.

Site and time specificity observes the impact to the sonic environment of the chosen location caused by

a) The specific conditions in the location (how many people (if any) occupy the site and under which conditions, which are the sound bodies that compose its soundscapes, which are their triggering causes etc.).

b) The time structure in the location (whenever a time-based activity is related with the site) and its impact to the overall sonic evolution.

The discovery of new concert spaces, the conscious and/or unconscious participation of the visitors, the new ideas for sound organization emerging from the locations are all added musical values that spring out of the site and time specific processes.
The bus setting: a *site and time responsive* instrument.

The Live Electronics Ensemble of the Music Department of the Ionian University has adopted and developed a site and time specific approach for some of its performances. A worked example of a concert in a bus is analyzed along with all the stages of its preparation, which consists of:

- The sonic analyses of multiple recordings of the bus.
- The building of the time structure of the performance on the basis of the time structure of the route of the bus.
- Analysis of the social behavior of the passengers.
- A risk assessment.

The *ideal state* during a site and time specific performance is based on the assumption that both the specific conditions of the chosen location and its time structure will remain stable and, more or less, similar to those that have been studied and analyzed during the preparation stages. However, this is not always the case. Irregularities or deviations may appear during the concert testing the reflexes of the performer/s. Such irregularities may be a *Site Occupancy Distortion* or a *Time Disturbance*. For example, a larger than usual occupancy by travelers on the bus may alter its acoustics and block out the placement or motion of the performers. Moreover, an external cause, such as traffic congestion, a car accident or a blocked road that prevents the regularity of time may also lead to unexpected results. An aesthetic criticism for site and time specific performances would undoubtedly be extended to include architectural and environmental aspects, as well as patterns of social behavior and cultural reflections.

Selective bibliography:


In many performances of today with so-called laptop music a lack of perceptible connection between what you see and what you hear is common. Regardless the perceived quality in music produced, from the listeners point view the player could rather be reading mail than playing. This paper discusses the perceived relation between bodily gestures and sound produced on digital musical instruments. Furthermore it proposes a classification that distinguishes between different classes of instruments and playing types. Its theoretical frame takes as its point of departure concepts from the field of ecological psychology and perception; notably Gibson (1986), and more recent adaptions that deals with perception of sound; Clarke (2005) in general and Norwegian Refsum Jensenius (2007) in particular. A major tenet at Refsum Jensenius is his distinction between Action-sound couplings and Action-sound relations. On the one hand Action-sound couplings refer to contexts wherein we clearly perceive the relations between a human action and sound produced, and our common acoustic musical instruments belong to this group. On the other Action-sound relations connote much weaker relations, and electronic musical instruments are the obvious example: e.g. on a digital piano we cannot be absolutely sure of the audible outcome: the instrument may be silent if someone has unplugged the power cord, or the instrument may sound like a different musical instrument, such as a vibraphone. A further distinction is made between electronic devices and virtual devices. To produce a sound on an electronic device, such as a doorbell, usually we are interacting with some physical part of the device in question, like a button. In a virtual device the sound is not under direct control; rather the device responds according to a designed virtual action sound link. Moreover, action-sound couplings comprise of an action-sound palette of conceivable audible outcomes from a certain object, depending on such properties as material, the force of the impact, and the shape of the objects involved.

In this paper I propose a taxonomy\(^1\) for electronic instruments that distinguishes between 1) direct gestural control, playing mode/instruments, 2) indirect control, controlling mode/instruments, and 3) effects. Playing mode refers to acoustic instruments

\(^1\) Presented in Nilsson (2011).
like piano and violin, which features action-sound coupling. This implies that a bodily gesture carried out by a player on such an instrument is directly and proportionally audible; its action-sound link is strong. Controlling mode is primarily a phenomenon in conjunction with electronic instruments and devices with no direct causality between a bodily gesture performed on the interface and audible output; it’s action-sound-link is weak. Examples of historic controlled instruments are Raymond Scott’s ² *Electronium* from the 50s, and the *M³* software from the 80s.

An additional distinction occurs between active control and active monitoring. The former is close to playing, however carried out on a controlled instrument, whereas the latter deals with automatic generative processes where the instrument is left untouched, but adjusted if necessary.

I claim that the perceived connection between bodily action and sound produces affects the listening experience, regardless what it sounds like. My conclusion is that electronic musicians must take this into consideration when designing; choosing, and playing computer based musical instruments and interfaces for live performances.

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² Raymond Scott is presented in the CD-box Manhattan Research Inc. (Blom 2000).
³ Chadabe developed and commercialized the softwares Jam and M together with David Zicarelli, John Offenhartz and Antony Widoff in the late eighties.
Access Beyond The Concert Performance: Practical Consequences To On-Demand Online Electroacoustic Music Streaming

Jean-François Denis
empreintes DIGITALes / electrocd.com / electrotheque.com

Jean-François Denis first discovered electroacoustics during a summer course given by Kevin Austin in 1981 at Concordia University in Montréal (Québec). Hooked, he pursued music studies at Mills College in Oakland (USA) under David Rosenboom (MFA, 1984). He has worked in live electroacoustics (solo and in ensembles) and works for dance and multimedia until the mid-90s. He is the artistic director of the empreintes DIGITALes (1990) record label. In 1994, for his exceptional commitment to Canadian composers, he was awarded the Friends of Canadian Music Award organized by the CMC and the CLC. In 1995 he was presented the Jean A Chalmers Award for Musical Composition — Presenters’ Award for his contribution to the diffusion of new Canadian (electroacoustic music) work. In 2011 he was awarded the Prix Opus 2009-10: Artistic Director of the Year for his 20-year involvement in sound recording publishing / production.


A historical overview of Montréal-based electroacoustic music label empreintes DIGITALes from its foundation in 1990 until today: the challenges of access it was addressing, the content it is focusing on, the forms it has selected, the music publishing scheme it borrowed, the outreach means it has used.

Over the same time period, schematizing the changes in the cultural and social landscapes caused by the technological changes in the means of communication.

In view of these, questioning the relevance of a "label" and its roles in curating, presenting (including packaging), and outreaching by further identifying the needs and means of 21st-century individual listeners and educators (this involving several conference attendants in an open discussion).

Finally positioning the on-demand online streaming service electrothèque -- http://electrotheque.com/ -- vis-à-vis the information-rich online shop electrocd.com and comparing its model to other like services.
Over the past decade, the notion of the ‘ecosystem’ has been gaining traction amongst composers and theorists as a powerful metaphor for the analysis of technologically-mediated music that privileges performance. This new musical ontology has helped situate heavily technologised musics within a wider field of ‘musicking’, and away from their common sanctuary in scientific and technological discourses. To quote Jonathan Impett: “music is understood as a dynamical complex of interacting situated embodied behaviours... All interact in the same space by a process of mutual modelling, redescription, and emergent restructuring (my italics)” In an influential paper from 2007, Simon Waters expanded upon Impett’s proposition, considering this situated and embodied understanding of performance in terms of the performer / instrument / environment relationship, and reminding us that these commonly separate classes in fact sustain, interact with, and flow into one another; hence, it is an ecosystem.

The paper will examine the ecosystem metaphor in regard to human-technological systems, tracing its development back to post-war cybernetic theory and the study of regulatory systems. The aim is to recover some of the implicit assumptions the model incorporates, and, ultimately, to question its utility for understanding technological musics. This will be supported by reference to the work of the pioneering Bay Area electronic music ensemble, The Hub. Widely regarded as the first ‘network performance’ group, The Hub were early experimenters with concepts that have since become central to the ecosystem metaphor in music: emergence; complexity; dynamic, non-hierarchical interaction amongst elements; networks. Indeed, writing in 1991 about the groups activities, Mark Trayle quoted the cyberneticist Gregory Bateson, writing: ‘ecology, in the widest sense, turns out to be the study of the interaction and survival of ideas and programs (i.e. differences, complexes of differences, etc.) in circuits’ (Bateson 1975, 483). But there is an incompatibility here. How do we reconcile this idea of a broad, homogenous, and self-regulating system dependent upon feedback mechanisms with the much more volatile and unpredictable types of systems that technical instruments constellate – what Bertrand Gille called ‘technical systems’? I’d argue that it is the The Hub themselves that bring this question to light, through their innovative, highly technological practices of the last 30
years. Consistently forced to overhaul their software, hardware, and communications media - either via obsolescence or the development of new and better tools - their working environment was anything but an ecosystem. The development of MIDI, the Internet, and OSC revolutionised their practice, superseding previous systems together with the works that were composed for them. Against the objection that their music must adhere to a different organisational logic than the surrounding technological environment that sustains it – a technical-aesthetic division that conceals a weak instance of instrumentalism - I’ll try to show that, again, it is The Hub themselves that call this into question. This, after all, is a group who refused to define whether “the Hub” refers to a configuration or a group of individuals, the accumulated hardware and software, or the act of generating shared information (Gresham-Lancaster 1998).

The larger aim of this paper is to raise again the role and agency of technology in electroacoustic music, a long-term point of anxiety and hesitation amongst composers and theorists in the field.

Selective bibliography:


Preserving electroacoustic music has always been considered a side activity, often related to media or software preservation. However the challenge in music is the fact of reperforming a work in a near or far future and not only keeping the components for a potential future access. This perspective changes very strongly the preservation task; up to now few works have been really preserved with representation in the future perspective, in many cases a deep archeological work has to be undertaken to reperform a work and many works have been definitively lost due to a lack of methodology or tools to undertake their conservation. What is the situation today? Has it really changed from the first days of musique concrète or is it still an unclear action that is sometimes undertaken. Methodologies and tools are starting to exist; maybe our future will not be as dark as it has happened with many works of the past and we will be able to rely on effective tools to carry on this indispensable activity.
Listening behaviors and formal representation of an extract of acousmatic music in non-expert listeners

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Last publications:
« For a Didactical Approach to Electroacoustic Musics : The example of Metallics by Yan Maresz », Organised Sound, Volume 18, Special Issue 02, August 2013, pp. 161-169.

Nicolas Marty has a Master Degree summa cum laude of Musicology in Paris-Sorbonne (2012) and Computer-Assisted Composition degree summa cum laude in Bordeaux conservatory (2010). He is Lecturer in Computer Music at the Université Bordeaux III. He won different distinction and prize:  Distinction « Terrain-Formation » granted by the Observatoire Musical Français (Paris-Sorbonne) for the publication of « Vers une narratologie naturelle de la musique » (2012), and « Professional Jury Prize » at the Musiques en Courts competition for the piece for piano prepared in real-time on the short movie « Corridor » (2012). Actually, he is in Ph.D. in musicology at the Université Paris-Sorbonne and in Bachelor’s degree of psychology at the Université Paris 8.

Last publications:

This research follows our presentations at Stockholm’s EMS12 conference.

Pascal Terrien studied the understanding of existing relationships between the auditory experiences of listeners familiar with musical listening, but who are not specialists of electroacoustic works, and their perception of an electroacoustic work. He tried to understand how non-expert listeners used perceptive strategies drawn from other listening situations (Terrien 2006, 2012).

Nicolas Marty studied the “narrativization” of anecdotic electroacoustic music, by connecting together the listening behaviors proposed by Delalande, Anderson, Baboni, Kaltenecker, Schaeffer, as well as the three forms of cognitive representations studied by Meunier (Marty 2012).

It is difficult to study listening behaviors regarding electroacoustic works which present a musical discourse or temporality detached from traditional references. Listeners do tend to hold on to such characteristics in their listening and interpretation of a work.

For our current work, we chose two research methodologies applied to the same musical extract – the first two minutes of Elizabeth Anderson’s Chat Noir (1998), an acousmatic piece presenting a musical discourse without
anecdotic connotations and whose syntax is abstracted from the materials.
On the one hand we collected testimonies written during and right after the listening by people who were not experts in electroacoustic music. On the other hand, we did seven explicitation interviews with listeners who were either experts or non-experts in electroacoustic music. We studied the testimony following a single hearing, in order to determine what happens during the discovery of the extract, as well as what remains after this discovery, rather than what is constructed because of repeated hearings.

We will present for this conference the results regarding written testimonies. Two questions were asked to the listeners, who first had to write while listening single words about what they were hearing; then listeners were asked to write, after the end of the extract, what struck them the most.

We have three main hypotheses:

1. We should find in the listeners’ testimonies the various listening behaviors defined by Imberty (1979) with the notion of schemes (kinetic, emotional and spatial) as well as by Delalande (2013 – reproduced by Alcazar 2011 and extended by Anderson 2011) with the study of reception behaviors (empathic, figurative and taxinomic).

2. We should find different kinds of relations to the sound material, the form, duration and chronology of the extract (which might be linked to listening behaviors and should appear through the ordering of the words written while listening and the nature of “what has struck the listener the most” (moment, sound gestalt, one characteristic of a sound, the character or expression of the extract…).

3. Connecting together the numerous testimonies should offer us interesting data about the musical extract itself: if an element appears often enough in the listeners’ discourses, it might be a relevant characteristic of the work. Might we then relate it to what the composer wanted to convey? This is the hypothesis Pascal Terrien defended in this doctoral thesis, about the links and resemblances between musical data as it is created by the composer and as it is perceived by listeners. The hearing of a musical work is fundamentally anthropological.

Selective bibliography:


Toward Sound Installation, Spatial metaphors in the musical avant-garde of the mid 20th Century

Nye Parry
Trinity Laban Conservatoire of music and dance

Nye Parry has made sound installations for major museums including the National Maritime Museum, the Science Museum and the British Museum in addition to concert works and more than 20 contemporary dance scores.

While a research fellow at CRiSAP, University of the Arts, he developed the installations The Exploded Sound, and Significant Birds for the Science Gallery Dublin, which is currently on tour in the USA. He specialises in navigable soundscapes and has recently contributed a chapter to the Oxford Handbook of Interactive Audio.

From 2003 – 2011 he was programme leader for the MA in Sonic Arts at Middlesex University. He has a PhD in Composition from City University and teaches at the Guildhall School of Music and Drama and Trinity Laban Conservatoire. www.nyeparry.com

In this paper I will contextualize the practice of sound installation within the musical discourse of the mid 20th century when it emerged. I will suggest that composers of the musical avant-garde of the 50s and 60s began to conceive of music in spatial terms, abandoning narrative approaches in favour of an exploratory metaphor of musical structure in which the listener is actively engaged in navigating a musical landscape. Drawing on theories of embodied cognition I will examine how the statements of composers associated with serialism, chance composition and aleatoric music reveal a shift in the conceptual metaphors used to understand musical time. I suggest that the emergence of sound installation practice is routed in part in a desire to experience the spatial structure of contemporary music as an embodied exploration of the musical spaces suggested by this conceptualization.

Lakoff and Johnson, in their major treatise on embodied cognition Philosophy in the Flesh (1999) identify two fundamental metaphors for our understanding of time. These relate directly to our bodily experience of what they call motion situations:

Every day we take part in ‘motion-situations’—that is, we move relative to others and others move relative to us. We automatically correlate that motion . . . with those events that provide us with our sense of time. (Lakoff & Johnson 1999, p.151)

Of particular interest are two fundamental metaphors for time, which Deidre Gentner (Gentner 2003, 203) identifies as the ego-moving metaphor and the time-moving metaphor: The former, in which time is considered stationary and the observer moves through it, is characterized by such statements as “I am going to do that” or “We are fast approaching the holidays.” The latter, in which time moves past a stationary observer, is reflected in the expressions such as “the years to come” or “night follows day” (204).

In their seminal paper Something in the Way She Moves (2003), Johnson and Larson suggest that both these conceptions also structure our understanding of music.

Examining the writings of composers active in the 1950s and 60s it is striking how they increasingly describe their music in spatial terms. The development of Cage’s distinction between Structure and Form (Cage 1978; Pritchett 1993; Jenkins 2002) is particularly prescient, as structure, originally conceived in terms of duration becomes an a-temporal, essentially spatial organization, giving rise to the temporal continuity of musical form.

Boulez too frequently draws on spatial metaphors, casting the listener in the role of...
a traveller through a musical labyrinth or town-scape:

I have often compared a work with the street map of a town: you don’t change the map, you perceive the town as it is, but there are different ways of going through it, different ways of visiting it. (Boulez & Deliege 1976, p.82)

For Boulez as for Cage the consequence of this new conception of musical structure is the introduction of a certain level of performer choice, while the ultimate responsibility for the musical structure (conceived spatially) remains with the composer:

Thus the open-form conception of musical composition grows naturally out of the adoption of a moving-listener metaphor, which accompanies the loss of the teleological models of the tonal system.

This is the climate in which sound installation emerges, with works such as Max Neuhaus’s Drive-in Music (1967), in which the listener literally drives through the musical space. Thus sound installation practice can be seen to grow out of the musical concerns of post-tonal composers, allowing listeners to directly interact with the musical material, exploring the underlying spatial structure through an embodied experience of space and without the mediation of a performer.

Selective bibliography:


Taking Time and Taking Place: Deconstructing the Studio aesthetics
Suk-Jun Kim
University of Aberdeen

Focusing on imaginal listening and place memory through sound, Suk-Jun Kim’s compositions have received a number of international awards. His practice-based research has produced a series of sound installations, including Humming Project, which collects hums of favourite tunes from people in Berlin, Silver City, and Aberdeen. Kim is currently working on a new interdisciplinary project titled The Fate of Place. Kim is Lecturer in Electroacoustic Music and Sound Art, and Programme Director of MMus in Sonic Arts at the University of Aberdeen. Contact: s.kim@abdn.ac.uk

One characteristic of a typical electroacoustic concert, which sets listeners’ experience uniquely apart from that of a traditional classical—instrumental—concert, is that listeners feel as if they were invited to the composer’s studio and were to witness his or her very act of making. The dramatic now-ness of happenings and the sense of assumed immediacy from the composer to the listener are sometime so compelling that listeners may even imagine as if they were participating in composing the piece they hear. This phenomenon is interesting as it shows that, in electroacoustic concerts, the composer’s studio becomes enlarged—that is, the concert venue turns into the composer’s own studio. While it appears to be natural (certainly exciting for some) and benign, the consequences of the transmutation of the concert hall into the large version of the composer’s studio are significant in the way listeners experience concert performances of electroacoustic music.

This paper takes a view that by turning the concert venue into his or her own studio in these electroacoustic concerts, the composer effectively brings to the audience the so-called Studio aesthetics, which have been established from the beginnings of the historic studios in the 1950s onward. Designated as a set of compositional aesthetics or a particular set of attitudes toward composing (and, consequently, listening), which are borne out of the composer’s peculiar relationship with sound—and consequently with the lived world—that has been established in, and enhanced by, a studio, the Studio aesthetics have core elements, hinging on technical and artistic tendencies that are not only revolutionary and state-of-the-art, but also traditional and conservative. However, the emergence and development of new technologies in the 80s and early 90s, which can be symbolised by personal computers like the Apple and the rise of numerous personal studios thanks to technical standardisations among major electronic instrument makers like MIDI and the development of new, portable, affordable, and personal audio equipment, has effectively questioned and challenged the Studio aesthetics. Today in the environment of electroacoustic composition, we witness the co-existence of the Studio aesthetics from the tradition of electroacoustic music and those which each individual composer brings to the studio.

The paper argues that the homogeneity of the relation between the composition and audience is mainly due to these Studio aesthetics, which, therefore, need to be examined. Accordingly, the paper discusses key properties of the Studio aesthetics, such as neutral, focal and hierarchical, detached, separated, and afloat from the lived world, reproducible, subtractive, fixed composer-listener relationship, and space-specific, and goes on to examine the consequences of the assumed Studio aesthetics. Furthermore, of all the consequences of the Studio aesthetics in relation to listeners’ experience of electroacoustic music at concert settings, this paper focuses on the issue of time experienced in listening as it is believed that listeners’ experience in typical electroacoustic concerts is largely conditioned by having been fixed, more than anything else, in time. The paper proposes taking time and taking place as
two methodologies for deconstructing the Studio aesthetics, and consequently, listeners’ experience of electroacoustic music, and argues that by taking time, the composer’s ultimate goal would be to turn the venue for electroacoustic concerts from a space, which assumes to be ‘flat’ or ‘homogeneous’, into a place that offers the possibility of ‘singular’ listening experiences in time. To explore what taking time and taking place mean as methodologies, the paper discusses the Bachelard’s instant, the vertical time, which is a critical alternative to Bergson’s duration and the horizontal time as a consequence in relation to Casey’s glancing and gazing as a way of experiencing the world as a totality. Finally, the paper posits the workings of taking time and taking place by discussing The Fate of Place, the author’s cross-disciplinary project on place, to demonstrate how the ideas of the horizontal—vertical time taking and glancing-gazing might be performed or experienced in this sound art-performance piece, and also how they may have to do with the deconstruction of the Studio aesthetics.

Selective bibliography:


Switch by Benjamin Thigpen and Darren Copeland: a hybrid case of electro-acoustic live performance work

Luisa Santacesaria
University of Pavia, Master Student, Musicology

In contemporary practice, the performance of electroacoustic music features a broad array of different situations, challenging the idea of “concert”, a core moment of music consumption in Western society. Although the institution of the concert is contested, not all the new compositions are dismissing it altogether, but instead create brand-new hybrid works and contexts that deserve a deeper insight.

This dichotomy between traditional performance practices and venues, and new conceptions going beyond traditional spaces of electroacoustic music is particularly clear in the catalogue of Benjamin Thigpen. In collaboration with Darren Copeland, in 2011 Thigpen realised Switch, a multi-channel piece that combines the characteristics of electroacoustic composition, site-specific work and, partly, sound installation. Switch requires a dual spatialization system: a fixed spatialization (8 loudspeakers settled around the audience), and a mobile one (one or two Audio Spotlights – hand-held directional speakers) for the live spatialization. The performer interacts with the space and the audience by holding and directing the speaker's soundbeam towards walls and other flat surfaces during the performance.

The physical space of the performance becomes a new central parameter for the choices concerning the spatialization of the sounds. Moreover, Thigpen and Copeland shape the piece taking into account the acoustic characteristics of the concert space. The performance of Switch is also built around the listener: the spatialization is conceived on the base of a “democratic” managing of the sound, with the Audio Spotlight pointed directly towards (or on the back, or on the side of) any member of the public, in turn, regardless of their position in the room.

Switch features an interest dichotomy between both fixed and variable elements; nevertheless it has a pre-defined general plan that can be freely followed by the performers. The piece has not a linear form, but more a 3-dimensional form: every listener, depending on the place where seated, in each moment listens to something different to the others, but each experiences the same piece, the same event.

To better frame Switch, it could be interesting to compare it with two other works of the same composers: Still by Benjamin Thigpen and Streams of Whispers by Darren Copeland. Still is a multichannel piece composed in 2009. The sound material
comes from recordings of actions and movements within different environmental contexts – suggesting an adapted version of Normandeau’s “cinema for the ears” – and his spatialization is defined during the recording of the sounds, integrated with the distribution on 5.1 channels created in studio for the live performance. Some of these sound materials are also in Switch, not as pre-recorded but as sounds produced and performed live. Copeland’s Streams of Whispers is a piece that went through two different stages: it was originally composed as sound installation for a stairwell of a palace in Toronto, and then converted in a 12’ concert piece. In this process of adaptation, Copeland maintains the characteristics of the original sound installation.

On one hand the spatialization, intended as strict relationship between movement and sound as cause-and-effect process, and the intrinsic narrative in the use of distinctive sound materials (Still), on the other the cohabitation of different categories in the same work (Streams of Whispers), influenced the compositional idea underlying Switch: a composition conceived as a live performance work, which features both an acousmatic electroacoustic piece, with its own identity, but also an open and context-specific one, including the concepts of improvisation and sound installation.

Selective bibliography:

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Electroacoustic Music
Beyond
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II

10 – 14 June 2014 | Berlin | Germany
Universität der Künste Berlin,
Masterstudiengang Sound Studies
in cooperation with Technische Universität Berlin,
Fachgebiet Audiokommunikation and Freie Universität Berlin
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<td>16:30</td>
<td>Terri Hron</td>
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<td>Between the stage and the gallery: objects and spaces in three works by Canadian sound artists</td>
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<td>17:00</td>
<td>Ellen Flügge</td>
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<td>Hearing Space</td>
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<td>17:30</td>
<td>Giacomo Albert</td>
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<td>The origins of sound installation: case study Turin</td>
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<td>17:00</td>
<td>Sound Installation III</td>
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<td>Frédéric Dufeu Alain Bonardi</td>
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<td>Donatoni: a critical re-appraisal of Quartetto III</td>
<td>Analysing the Creative Process through a Modelling of Tools and Methods for Composition in Hans Tutschku's <em>Entwurzelt</em></td>
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<td>Alba F. Battista</td>
<td>Pierre Couprie Mikhail Malt</td>
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<td>New dimensions of musical enjoyment. The Analysis problem: Luc Ferrari through the Aesthetic-Cognitive Method</td>
<td>Representation: From Acoustics to Musical Analysis</td>
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<td>10:00</td>
<td>Michael Clarke Frédéric Dufeu Peter Manning</td>
<td>Bruno Bossis Laurent Pottier</td>
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<td>Barry Truax Riverrun (1986/2004), a case study from the TaCEM project, exploring new approaches to techniques of analysis and re-synthesis in the study of concert electroacoustic works</td>
<td>A Method For the Analysis of the Relation Between Symbolic Notation and Electroacoustic Textures In Hans Tutschku's <em>Entwurzelt</em></td>
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### JIB GNS – Session 19 – chair: Mikhail Malt

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<td>Analysis of Incidences/résonances by B. Parmegiani with an acousmatic score</td>
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<td>11:30</td>
<td>Symphonie pour un Homme Seul - de-acousmatized (SPHUS-d)</td>
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<tr>
<td>12:00</td>
<td>The unity of opposites: Jonathan Harvey’s <em>Advaya</em> for cello and electronics</td>
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<td>Pousseur’s ‘Huit Etudes Paraboliques’: Musical and Social Contexts</td>
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<tr>
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<td>Electroacoustic concert and happening performances of the ‘60s and early ‘70s in Finland</td>
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<td>15:00</td>
<td>Electroacoustic Music of Extended Duration: A Question of Format</td>
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<td>COMPUTER NETWORK MUSIC Approximation to a far-scattered history</td>
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<td>16:30</td>
<td>Disposable Music</td>
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<td>Doug Van Nort Approaches to Distributed Agency and Shared Musical Meaning in Electroacoustic Improvisation</td>
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<tr>
<td>20:30</td>
<td>keynote lecture by Miller Puckette</td>
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<tr>
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<td>09:00</td>
<td>Landon Morrison</td>
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<td></td>
<td>A Comparative Study of Graphic Representation Tools Based on an Aural Analysis of Philippe Leroux’s <em>M.É.</em></td>
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<tr>
<td>09:30</td>
<td>René Mogensen</td>
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<td>Comparing comprehensibility of analytical representations of electroacoustic music: pictographic versus symbolic</td>
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<tr>
<td>10:00</td>
<td>Emily Richmond Pollock</td>
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<td>The Electronic Manifesto: Scores for Tape and Synthesized Music in John Cage’s <em>Notations</em></td>
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<td>11:00</td>
<td>Florence Lethurgez</td>
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<td>Read music at the concert: program notes of electroacoustic music composers</td>
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<tr>
<td>11:30</td>
<td>Bertrand Merlier</td>
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<td>The Sampler. An historical, musicological and phenomenological study</td>
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<tr>
<td>12:00</td>
<td>Simon Atkinson Kerry Francksen</td>
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<td>Ultra-sensing: moving beyond ‘work’ and ‘venue’ in intermedia art</td>
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“Listen to music. Not in a single chance to listen. But with different probabilities of transformations in real time”. With these words, in 1984 Luigi Nono described his opera Prometeo, a «tragedy of listening», an evolving structure where sound is the absolute protagonist. This concept of «mobile sound» made then with live electronics technologies, seems us today to be updated in multimedia forms of expression.

The object of this project is the analysis of some characteristic aspects of Luigi Nono’s compositions using live electronics techniques, where we can identify the basis for a new concept of musical performance that goes beyond the traditional idea of "concert". Multimedia works such as audio visual installations are increasingly present in our days. The concept of "dramaturgy of sound" expressed in Nono’s works of the ‘80s, seems to presage them.

The concept of «dramaturgy of sound» also includes a consideration of space parameters in musical composition. Architecture is in turn involved in it. In fact Nono considered the space in the realization of his final works, in order to build now a virtual space made with live electronics, now a real place of the performance such as the ship structure in Prometeo.

The overcoming of the idea of "concert" within the musical practice is parallel to that of a "built space" in architecture.

Then we can combine the «dramaturgy of sound» with the «third landscape», a concept expressed by the French architect Gilles Clément, and with the «aesthetics of the atmosphere» developed by the Spanish architects Diaz Moreno and Garcia Grinda during the same years.

In this paper, music analysis is involved at first. We will analyse some aspects of Nono’s “dramaturgy of sound» as a basis for the development of a new concept of music performance. We will focus on some examples of sound spatialization and instrumental writing in Nono’s works.

Another point of view concerns the sound perception in the performance space, conceived as an interaction between performer and listener. This is a constitutive element in Nono’s music that implies the concept of a work in progress, never
accomplished, experienced by the performer, the composer and the listeners as *caminantes*.

To highlight all these connections we will analyse different fragments of Nono’s works taken from *La lontananza nostalgica utopica futura*, for violin and tape and from *Prometeo*. Our analysis especially concerns sound spatialization and the interaction between performer and listener.

Finally, we will evaluate the similarities between the idea of “mobile sound” as expressed by Luigi Nono and the idea of the “third landscape” as expressed by the architect Gilles Clément in his main work *Manifesto of the third landscape*, published in 2004, and we’ll compare them. Clément’s «planetary garden» seems to us to be analogous to Nono’s «mobile sound»: as the gardener observes, the musician listens. The musician is a listener of sounds before being a composer of musical forms. The gardener is an observer of the landscape before being an organiser of the space.

Within architecture we consider the concept of the aesthetics of the atmosphere, another point of view we can share with music. As well as music, architecture is therefore oriented, no longer to define predefined shapes but toward a process that interacts with these various “naturals”.

The concepts of dramaturgy of sound, mobile sound, digital garden, all developed in the ‘80s, have in common the idea of interaction and ongoing research. These are all the premises to the ideas of the actual multimedia works.

Selective bibliography:

L. Nono, *La lontananza nostalgica utopica futura*, per violino e 8 nastri, partitura, Milano, Ricordi, 1989

A.A.V.V. *La nostalgia del futuro. Scritti scelti di Luigi Nono*, a cura di A.I. De Benedictis e V. Rizzardi, il Saggiatore, Milano 2007


A.A.V.V, *Breathable*, a cura di C. Diaz Moeno and E. Garcia Grinda, Madrid, 2009
Timbre as Vertical Process: Attempting a Perceptually Informed Functionality of Timbre

Anthony Tan
McGill University. Department of Music Research, Composition, CIRMMT (Centre for Interdisciplinary Research in Music Media and Technology), Hochschule für Musik Carl Maria von Weber Dresden

Introduction
Within electroacoustic music studies, numerous methods to identify, describe and represent timbre structures have been explored. There lacks, however, a clear understanding of timbre’s functional role within music. A functionality of timbre may refer to the compositional control of timbre in order to generate experiences of tension, the perception of which, serves as an important link between the recognition of form-bearing dimensions and subjective emotional response. This paper suggests a perceptually informed compositional model of timbre function. I aim to apply the psychoacoustic concepts of spectral fusion and auditory scene analysis to address functionality in electroacoustic music composition.

Structure versus Function
The classical timbre identification tool, Pierre Schaeffer’s Typology of Sound Objects (Schaeffer, 1966), identifies objet sonores, based on their perceptual attributes, creating a timbral solfeggio. In addition, as the discourse around timbre utilizes no domain-specific adjectives, it “must be described in metaphor or by analogy to other senses,” (Lerdahl, 1987). Thus, cross-domain approaches for the identification of timbre structures are numerous (Zbikowski, 2002; Smalley, 1997; Godøy, 2006). Further, audio descriptors such as the Spectral Centroid, or Spectral Flux present perceptually based spectral classification tools.

These numerous identification methods reveal, however, little as to the functional relationships among timbre structures. Timbre can influence the perception of tension and relaxation, “and thus contribute to the expression inherent in musical form,” (McAdams, 1999). To operate as a functional structure, timbre structures should be organized at various hierarchical levels. Fred Lerdahl explored this in, “Timbral Hierarchies” (1987), whereby “timbre prolongation structures” formed timbre structures with attributes similar to scale structures. Stéphane Roy (2003) attempted a functional analysis for electroacoustic music. Through an analysis at the Neutral Level, the listener’s nominalization of segmented forms proposes a contextual and teleological approach to timbre function. Finally, embodied listening theories state that cognitive structures arise from sensorimotor patterns, whereby the body acts as a mediator between sonic impulses and cognitive patterns. Godøy (2006) utilized this idea with his concept of Gestural Sound...
Objects. Finally, the Unites Semiotiques Temporelles (1996), presents various functional nominalizations that connect gestural movement to timbre morphology.

Proposition
The functional approach of timbre that I suggest adapts the psychoacoustic concepts of Spectral Fusion (McAdams, 1984), and Auditory Scene Analysis (Bregman, 1990) to timbre composition. It has been suggested that the perception of tension in music relies upon the cognitive computation of auditory roughness (Bigand, Parncutt, and Lerdahl, 1996). Spectral fusion causes acoustic information to be perceived as a single sounding object. Auditory scene analysis processes group acoustic information into streams after which auditory roughness is computed. Timbre qualities such as harmonicity, onset-synchronicity and modulation congruency affect the fusion of spectral components. Paraskeva and McAdams (1997) provided evidence that the segregation of timbral streams causes a lower perceived tension to occur as opposed to a single spectrally fused timbre. I will discuss the applications and implications of this hypothesis to a functional compositional model of timbre within electroacoustic music.

Application and Implications
Primarily, as this theory deals with the perceptual fusion or segregation of timbres, the vertical dimension of electroacoustic composition forms an increasingly important role. Here, attack synchronicity, timbre harmonicity, and modulation, affect spectral fusion and therefore perceived tension. As such, timbre becomes a process within the spectro-temporal dimension. Further, spectral fusion or segregation adds another quality to the objet-sonore, whereby the fusion or segregation of a single sound object or multiple sound objects, affects the perceived tension. Finally, from an aesthetic point of view, this theory would suggest a model not necessarily specific to electroacoustic music, but rather presents a higher-order principle as it operates on the auditory system itself.

Selective bibliography:


Touching the Audience

Luca Forcucci
Music, Technology and Innovation Research Centre
De Montfort University, Leicester (UK)
lucforcucci.wordpress.com

Luca Forcucci’s research observes the perceptive and dynamic properties/relations of sound and space, as components for music and art as experience. Forcucci is a PhD candidate in Music, Technology and Innovation at De Montfort University, UK, where he conducts research with Prof. Leigh Landy and Dr. John Richards. His work is presented on a regular basis around the world (such as Museum of Modern Art Paris, 30th Biennale of Sao Paulo, Rockbund Museum Shanghai, The Lab Gallery San Francisco, Akademie der Künste Berlin, Swiss Institute Rome or Swiss National Library) and is published by the Belgian label Subrosa. Forcucci’s has been nominated in the arts at World Technology Summit New York, and supported by grants like the Swiss Federal Office of Culture for research in the Brazilian Amazon Rainforest and at the Brain Mind Institute in Switzerland.

The paper investigates the idea of dynamic relations of sound and space perceived and experienced through the whole body as a sonic receptor and beyond the ears. Listening beyond the ears relies on Roland Barthes proposing the physiological faculty of hearing and the psychological act of listening. Case studies are investigated in relation to the perception of vibrational properties of sound in order to emphasise Barthes proposal. Therefore, the idea of *embodiment* of sound through *proprioception* is explored. Experience is key, since ‘the idea that the world is literally a component of conscious experience may sound bizarre, but it has been proposed as a serious possibility.’

(Prinz in Robin and Aydede 2009: 423)

Moreover, the study introduces the idea of art and electroacoustic music being an experience for dynamic perception behaviours. Spatial representations and mental imageries are discussed to determine how sound perception can be augmented in order to develop dynamic multimodal experiences in electroacoustic contexts. How mental imageries can be observed? The methodology relies on observation through practice and qualitative data collection in answer to audience perception. In addition, relevant artists, who created new forms of embodiment and experience, are observed. The neo-concretist artist Lygia Clark is paramount in regards to ideas about perception, embodiment and experience through her participative art. The composer Marianne Amacher defined a body of work directly relating to architecture (structure borne sound), which allows the audience to embody the sound through space. Furthermore, she used physiological properties, where the body is the sonic emitter and receptor. Whereas, Max Neuhaus’ sound installations (term he defined), created situations between sound and space, in which the participants embody the works while walking or driving through them.

The paper starts with definition and contextualisation of terminologies of embodiment and proprioception through experience. Then, case studies are introduced in relation to those terms, and future opportunities for electroacoustic contexts are discussed.

Selective bibliography:
Introduction-Subject
The ability to distinguish the referential meanings of instrumental inharmonic sounds as a perceptual mechanism is critical in the process of conceiving sound events and processes that form unique electroacoustic sound identities. This paper is a research study, concerning an effort to clarify the way that the composer’s conception becomes perception for the listener through the performer’s interaction with noise in the creation of electroacoustic sound identities using postmodern concepts like fragmentation and abstraction.

Discipline-Theoretical Background
Borrowing the term and techniques of fragmentation and dislocation from the postmodern philosophical approach, I try to redefine the relation between performer, computer and audience by breaking and de-centering already settled subjectivities. I use the concept of abstraction functionally, to delineate compositional processes, maintaining coherence by the subtraction of material through filtering not only spectrums but also fragments of sound objects. Thus sound material appears to be not omitted but purposefully absent. A creative process is analytically suggested, by connecting the ideas of fragmentation and abstraction in a productive way, as they both refer to the minimization of material, each one from a different point of view.

On the one hand, historically, fragmentation relies on techniques of infraction of the traditional linear approach in music, art and literature that while exploring the inner states of consciousness through disintegration after the Modernity of 50’s, at the same time works fine as an aesthetic mirror of aggression to the mass flux of information that we are experiencing now days. The concept of authentic-self is no longer present, living in a multi-dimensional world within constantly changing cultural contexts. On the other hand, abstraction as a term is in the centre of discussion in electroacoustic music - being a mean of delocalize sound from its general source, - and results to the psychoacoustic deorientation of the listener from the process of recognition of a sound (acousmatic approach). According to Trevor Wishart “The philosophy of composing which gradually emerged particularly from Schaeffer’s writings, centred on the notion of the acousmatic and the abstraction of the sound-object from any dependent relationship to its origins”.¹

There is a whole new world of creativity that can arise through the emancipation from the conservative biased instrumental approach. When it comes to electroacoustic music, there are many advantages from taking the performers out of this old formalistic context and make them dissolve their ‘instrumentalistic’ sound identity. This idea goes far beyond ‘abstract expressionism’ where the sounds of the source are just not recognizable. I try to imply that there is nothing wrong with the recognition of the sound origins, - in this case the percussion instruments- but not with the conventional ones.

Methodology

As a starting point, a reorientation in listening priorities by abstracting material through the exclusive use of noisy spectrums played by the performer, redefines the instrument’s identity. As John Young quotes: ‘The concept of identity is significant in music since it is through delineation of sound identities that we can grasp the relationship between thematic elements and the processes used by the composer to develop and shape them’. The spectral transformation of timbres is targeting to the amalgamation of the resulting sound identities, merging the outcome of the computer processing with the performer actions and vice versa, in a creative way. The above technique also minimizes the processing material, keeping the performer away from the conventionally ‘secure’ playing techniques and virtuosic clichés, in order to make him/her react and interact with the computer, in a direct and less predictably expressive way. The performer is no longer a virtuosic player but a sound vector. Fragmentation and discontinuity can be applied through rotating - often truncated though - functions by the constant use of recurring inharmonic timbral gestures exposed in a fragmented and continuously dislocated way.

Excluding the conventional sounds of instruments and depriving from the performer, the composer and the listener the benefit of identifying and splitting the action of playing the instrument from the action of sound processing, the greatest fusion of the roles of the performer and composer is achieved by the means of real-time sound transformation. What I suggest, is that the target may alternatively be, not to ‘confuse’ the listener concerning the origin of the sound source but to make him drastically broaden his/her origins of acoustic perception by abstracting conventional sounds and transforming only inharmonic sounds through extended playing techniques, using them as the exclusive material taken from the instrumental sound palette.

Results

Just like in post-modern thought where a person’s sense of identity is a vague, ‘decentered’ collection of unconscious beliefs mixed with memories and knowledge dissolving the person’s mental substance through uncertainty, a real-time interactive music system can be used to rebuild the computer-performer relation in a way that the perceiver is forced to totally forget the traditional instrumental source reconstructing a whole new contextual approach concerning the act of instrumental playing. The result is the construction of an abstract syntax of sounds by spectrally decomposing the inner possibilities of instruments to produce noisy and inharmonic spectrums and building a bridge of perception between abstracted gestures and the instrumental composition context. Despite the effort to disconnect the instrument from its conventional identity, it is always charming to discover that for the performer and the careful listener, there is often a sound implication left that can trace him back to the initial recognizable sound symbols. The degree of the presence of this vague connection is what defines and links the abstracted material with the instrumental sounds.

Selected Bibliography


Wishart, T. 1994 Audible Design, Orpheus the Pantomime: Ltd.
Sonic art for intersensory listening experience

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Satoshi Morita’s artistic focus lies on the use of sound for bodily listening, which evokes highly intimate experience for body and mind. His basic approach towards sound, space and object originates from his sculpture study and interest in the relationship between material, space and body. Since 2008, he has been developing sonic objects in which sound compositions can be relived through audio-haptic perception. His objects are mostly wearable and have direct contact with one’s body. One of his works Klangkapsel/Sound Capsule received an Honorary Mention at the Ars Electronica in 2008 and presented worldwide, among others in eyebeam (NYC, USA), Science Gallery (Dublin, Ireland), The Mind Museum (Manila, Philippines), Touch Me Festival (Zagreb, Croatia). One of his compositions .:: - / - / - :: was released in the catalogue Three years in Nodar by Binaural - Associação Cultural de Nodar.

In recent years, the relationship between sound and the human body became a more important topic for musicians and artists. In total, there has been much artistic research dealing with intersensory perception between sound and image, but relatively little dealing with audio-haptic relationships in art and music. This paper attempts to provide a theoretical framework of audio-haptic experiences by examining work utilizing space, the somatosensory system, and electroacoustic music.

In the history of sound art the establishment of sound installation was an important epoch, which deals with the auditory space perception involving audience’s active physical participation. Audience experiences the auditory constructed space in specific location having chance to react actively by walking in/around it. The audience’s corporeal activity becomes an essential part of the whole experience of sound installation, however, the awareness of bodily perception appears rather as result of the required physical involvement for the spatial aural experience. The main issue remains to listen to the external space.

The clear focus on the bodily perception stimulated by sound was developed by works with intention to involve our somatosensory system. The differentiation between sound installation and the types of works, which involves audio-haptic perception, can be pointed regarding the definition of the space. While sound installation deals with the external space, the latter concentrates on the inner space of the body. The “inner” space of the body can be defined as the sensorial space, which you can perceive through haptic. It involves medium (skin tissues, flesh and bones) and signal transmission in the nervous system. Vibrotactile stimuli cause mechanical deformations of the skin tissues and it is perceived by mechanoreceptors, which are located in different layers of skin tissues. Furthermore vibrotactile stimuli can be mediated through bone conduction directly to inner ear without exciting tympanic membrane and one can “hear” the vibro-tactile sonic signal.

Technically vibro-tactile stimuli can be generated by subwoofer and so called vibro-acoustic transducer. The tactile sonic wave generated by these two types of devices differs in its means of transmission: Subwoofer uses air borne sound transmission in low frequencies and transducer mediates sonic vibration directly to the body surface.

Electroacoustic composition plays a central role for the development of this type of artistic approach. Beside the fact that electroacoustic musicians (or collaboration with EA musician) have been developing it, methods of composing and playing EA music can be perfectly integrated to the creative process. Sonic wave covers in
nature not only audible range but also haptically perceptible frequency range. Sound generation method by electro acoustic music can contribute active and flexible control of the haptic signal, in particular vibrotactile stimuli in frequency and intensity.

Work examples “Sonic Bed” by Kaffee Mathews (2005), “STiMULiNE” by Lynn Pook/Julien Clauss (2003), and “Sound Capsule” by this paper’s author (2008) have different types of technical application in order to mediate the sonic wave, however, they all use electroacoustic music as their source material and core intention is to mediate the sound to the body. The foundation of the sensory model, which appears characteristically at the works, is the relationship between auditory and haptic modalities. This interaction between auditory perception and haptic suggests a new ground of musical space — the integration between imaginary (musical) space and physical (corporeal) space. Musical imagination, which is established through the long history of aural culture, coexists here with the corporeal awareness. Further application of this type of works, for instance for live performance of electroacoustic music, integration of the emotional response of the audience by means of psychophysiology and biofeedback, or compositional collaboration with electroacoustic musicians can extend the diversity of the audio-haptic sonic experience.

Selective bibliography:
2010 “Bodily Listening” / eContact! 13.3 Canadian Electroacoustic Community
Aesthetic Meaning of Mixed-Media and Intercultural Composition: *Water Music* (1960) by Tôru Takemitsu and Hisao Kanze

Makoto Mikawa
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Makoto Mikawa is currently a doctoral candidate of the International Postgraduate Program “Performance and Media Studies” at the Johannes Gutenberg Universität Mainz, Germany. He received his doctorate in Music from the University of Western Ontario, Canada, and his M.A. in Music Theory from the State University of New York at Buffalo. He worked at the University of Windsor, Canada, as a sessional instructor of Music Theory. His current research focuses on Noh-theatricalization of electroacoustic music in interdisciplinary and transcultural terms.

During the last century various composers attempted to integrate the “others” in the musical composition using different techniques. The “others” in this context were other genres of art as well as cultures foreign to the common practice of Western musical composition. With interdisciplinary and intercultural approaches to composition, electroacoustic music has played an important role in the development of new compositional forms and styles, as well as innovation in performance practice. As a consequence, a piece consisting of electronically produced music, a visual image, and a non-Western theatrical element, for instance, is no longer unusual, perplexing, or intrusive for the audience of our time. This may suggest that boundaries between different cultures as well as different disciplines of art have become blurred, particularly due to the advances in the information and communication technology, and their availability for personal use. However, it is a mere generalization, as these boundaries do exist, and the recognition and consideration of these now and then are a source of inspiration for composers and their collaborators.

A half-century ago in Japan, during the period in which the terms “mixed-media” and “interculturalism” were rarely used, the Japanese composer Tôru Takemitsu (1930-1996) and the outstanding Noh performer and theorist Hisao Kanze (1925-1978) undertook a collaborative project that aimed to create an original musical theater style by combining electroacoustic music and Noh choreography. This mixed-media and intercultural piece was *Water Music* (1960), the first electroacoustic composition for a Noh performance or, in other words, the first Noh-theatricalization of electroacoustic music. Instead of using sounds recorded in a Noh performance, for *Water Music* Takemitsu utilized almost only recorded sounds of water droplets. Some sounds in the piece retain the identity of water drops, due to a lesser degree of modification, i.e. “raw” use of the recorded sounds. In contrast, other sounds with a greater degree of modification have distinct sonic characteristics similar to those of *Tsuzumi*, a traditional Japanese percussion instrument used in the Noh performance. The sound structure as a whole is immune to the idea of sound density; on the contrary, it creates an impression of a non-metrical, quasi-pointillist form. The irregular occurrences of silence with irregular durations along with the oscillation of *Klangfarben* between the concrete and the abstract sounds generate unique musical tensions. For this idiosyncratic soundscape Kanze composed original Noh choreography. Excluding the literariness and emotional elements that were typical for traditional Noh play, his performance at the 1960 premiere demonstrated a high degree of clearness and purity, which resulted from his thorough interpretation of the music.

The concurrent presentations of the placidity of the tape music and the various movements of the
Noh choreography created a distinctive visual-sound space and the tension within. A further implication is that the musical-theatrical tension was derived also from the collision between different artistic disciplines as well as different cultural components. This particular collision, instead of the smooth integration, was the product of the aesthetic principle of Takemitsu and Kanze. This, however, also raises the question of what essentially the two artists’ aesthetic was and why the new approach to theatricalization of electroacoustic music was necessary. Bearing this question in mind, this paper contextualizes the aesthetic spring head of Water Music in interdisciplinary and intercultural terms, rather than compositional-theoretical. The study seeks to explore how electroacoustic music, as a specific realm of postwar new music, affected the composer’s and the Noh performer’s conception of cultural identity in the context of the massive mixture of traditional and imported cultures in Japan.

Selective bibliography:


In 1960, Takemitsu composed a unique piece of music for 2 flutes, 1 alto flute, tape, and Noh Dance. The piece “Water Music” has been considered to be one of the earliest and the most important tape pieces by Japanese composers. The sound materials of the tape part are entirely created from recorded sounds of water drops. It was premiered at the Sogetsu Kaikan Hall in Tokyo on April 28th of the same year of creation. It was later presented in Paris on October 28th, 1971 during “Semaines Musicales Internationales de Paris” at Musée Guimet. The piece was once again performed in Japan in public at the Tokyo Opera City Concert Hall on June 9th in 2004 as a part of the program for the last concert of the All Takemitsu Chamber Music Concert Series named “Resonant Sea.”

Since the score is not published, occasionally the tape-alone version is regarded as “Water Music.” However, each version provides us with totally different experience. It means that the tape part with electronically manipulated water sounds could be heard as one separated piece of electronic music by itself, but once it is embedded in the sound of instruments, uniquely with Noh Dance in this case in original production, the tape part could be heard completely different way in different context. Here raises a question: can listeners approach different meanings when the same music is presented in different form of performance?

The ensemble version begins with solo alto flute part played more than 1 minute. This solo is smoothly connected to the tape part around 1’17”. The beginning of the tape part consists of distinctively pitched attacks of the sounds of water drops that may give a listener a grasp of the pitched phrases that could be regarded a motive of the piece. Interestingly, as we proceed listening, we notice the resemblance of the sound of water drops to the traditional Japanese percussion instruments. Especially when it is played with flutes, whole ensemble including the tape music sounds just like the music of Noh Theatre. Although the piece was conceived at the commission by legendary Noh dancer Hisao Kanze, Takemitsu says that he did not have intention to compose this tape part imitating musical manner after any traditional instrument. On the contrary, he tried to compose with his artistic idea being as far as possible from the musical tradition of Noh Theater. Unintentionally, however, Takemitsu’s treatment of the music for the tape part has come close to the elements of Japanese traditional music with its characteristics of tones and rhythms. Takemitsu might have been conceptually influenced by the artistic surroundings of Noh Theater settings.

In this research, the author has tried to musically analyze its ensemble version by listening with traditional analytical approach. The recording from the 2004 performance is used for this research. The thesis is mainly
based on the listening analysis by solfège by the author determining unclear pitches and rhythms. The traditional analytical knowledges and methodologies are fully employed to identify groupings of pitched materials and repeated phrases or rhythmic patterns. This approach hopefully could lead to finding of the relationships and meanings of the musical events between the electronic sounds and instrumental sounds.

Selective Bibliography:


Takemitsu, Toru. Oto, Chinmoku to hakariaeru hodoni (Confronting Silence), Shincho-sha, Tokyo 1971.

1. Introduction
The JAPANESE live electronic or JAPANESE style of algorithmic composition struggled for new forms of expression and presentation and created the alternative styles. The terms <live electronic> and <algorithmic composition> originated euro-american electroacoustic music but the Japanese artists like Group Ongaku or Method Machine modified the concepts and created their unique styles.

Starting with the general definition of sound arts by Helga de la Motte-Haber, which would be applied to the survey of Japanese sound arts from Group Ongaku to Zombie Music, I will focus two points; the terminology of <live-electronic> which was connected to the space concept in Group Ongaku, and <media> as an aesthetic phase of music in the discipline of Method Machine.

2. General definition of sound arts at the end of twentieth century
Helga de la Motte-Haber admitted in 1999 that the piece like Steve Reich’s Pendulum Music (1968) had exceeded the limitation of music as art genre and that the artists of fine arts invaded into music as sound creation. And Klangkunst was referred as <toning objects> and <sounding spaces> by him. Depending on the framework of de la Motte-Haber, I discuss the terminology of the genres and the media as method. First, I discuss about the works as well as the aesthetic statements of Akiso Suzuki, Takehisa Kosugi, Yasunao Tone, Yukio Fujimoto who had started their artistic career in 1960’s. As the direct roots of them, I discuss Group Ongaku.

The second point concerns <media> as transmitting system for the artists to have social communication. This framework suited to the key points of Method Machine manifesto, which was announced through internet on the New Year’s day of 2000. The pieces by Masahiro Miwa are deduced from the algorithmic composition, which were very unique in the point that the algorithm simulates the algorithm itself.

3. <Live electronic> and <space> in Group Ongaku
<Group Ongaku> repeated improvisational performances in small rooms of Tokyo University of Arts or of Tokyo University before their first public concert in Sogetsu Kaikan (1961). Their improvisation has been succeeded to Taji Mahar Travelers, founded in 1968. According to Minao Shibata, the members played (or used) violin, harmonica, base, vibraphone, santool and other ethnic instruments, Japanese traditional instruments and...
some gajets. The interplay between the performers’ narrative process and the spirit of the audience was occurring in a common <space>.

The musicologist Koji Sano wrote in the article <Wave Music> in Transonic No6, 1975, that the Japanese live-electronics in 1970’s were composed and performed with electronics and their identity was in their spatial concept, which is not constructed on the time line. The concert held in Sogetsu Kaikan in Tokyo in 1961 by Group Ongaku with the title <Improvisation and objets sonores> will show their essence.

4. **<Media> for music in Method Machine**

Masahiro Miwa, a founder of Method Machine and prize winner of golden nica in Ars Electronica, made the audience do some physical training based on his minute indications. The purpose of physical training is to realize the virtual story with the real human body. This method had already been presented in <Ordering a Pizza de Brothers> by Formant Brothers originated in 2003. Ordering a pizza as a fictional story evaluates the artificial voice created by their original formant synthesis. Even though the fictional purpose is not achieved, the performance is evaluated in the other dimension than the fictional goal. Zombie music by Taro Yasuno realizes a new type of communication through sound performance not with human body but with his automata and video.

**Selective bibliography:**


The History of Japanese Contemporary Music after WW II vol1./2, Tokyo, Heibon Sha, 2006/2007,

tranSonic No.5, Tokyo, Zen-on Gakufu pub., 1975.

Ongaku Geijutsu Vol. 19-12, Tokyo, Ongaku no Tomo Sha, 1961.
Starting from the assumption that meaning in electroacoustic music is an outcome of the listener’s mental processes, it is the goal of this presentation to examine the mental processes whereby feeling and emotion contribute to meaning when listening to electroacoustic music. In order to account for the nuanced and multileveled sense of meaning that emerges in electroacoustic music, we will introduce the concept of the feeling blend, an extension of blend theory as presented by Fauconnier and Turner (2002). This consideration of feeling and emotion begins by reviewing antecedent theories of emotional blending (Pluthik 1980; Deacon 2006) and the blending of phenomenal qualities as aspects of everyday experience. Also considered are theories of emotion and assessment and their corollaries in musical anticipation. And as with all human endeavors, the listener’s mental activity takes place in numerous simultaneous layers that are largely unobservable. Making these layers explicit is important to addressing the multi-layer nature of how feelings become blended. A model of five mental layers (introduced at EMS2012) provides a simple framework for unpacking mental activity (Brandt 2006). These layers are identified as: Gist, Sensations, Locus, Contexts and Domains.

Investigating the feeling blend in the context of electroacoustic music listening forces a reconsideration of core issues in blend theory, such as what constitutes a mental space and what triggers a blend. These issues are examined in the light of practical examples from the electroacoustic literature that illustrate the importance of mental layers in differentiating mental spaces and blend triggers. For example, a blend may be triggered at the level of Gist when an auditory event invokes multiple object-event schemas. An example is the blending of church bells and a boy soprano in Jonathan Harvey’s Mortuos Plango, Vivos Voco, where by the magic of digital signal processing, the auditory attributes of the two sources are mixed in various combinations. What forces the blend is the singularity of the resulting auditory event. A contrasting example can be found in Francis Dhomont’s Novars. In this excerpt, two distinct auditory streams provide no basis for blending at the
level of Gist, but the stasis of the passage provides no possible resolution other than to seek a feeling blend at the level of Contexts. These examples also reinforce Deacon insights into the centrality of tension in such blends. An important feature of Koestler’s bisociation theory lauded by Deacon (2006) is how it provides a framework for the temporal evolution of aesthetic experience leading to resolution. Deacon believes that conflicting emotions can be held simultaneously and blended to create emergent emotions that can lead to catharsis. In electroacoustic music, there are dynamic frameworks operating at multiple levels, many of which contain an element of release or resolution such as image schemas and event schemas. Essential to all these is their reliance on embodied knowledge of tension and release. Practical musical examples illustrate how the sense of resolution or catharsis of feeling blends can be triggered at specific mental levels. This provides an important lesson in how the materials of the artistic work shape the evolving structure of the feeling blend. In conclusion, the feeling blend is proposed as an essential concept to understanding artistic experience and an intrinsic aspect of being human.

Selective Bibliography:


Physical objects as sounding bodies are found on the concert stage as instruments and in the art gallery as exhibition pieces, and all along the conceptual, performative and perceptual spectrum between the two. This paper presentation explores three Canadian artists whose work intercepts with electroacoustic music and who place themselves, the audience and the sounding object(s) at various positions between the stage and the gallery on the performance/reception continuum. Jean-François Laporte’s invention and performance of the TuYo instruments represents the sounding object as instrument, manipulated by an expert performer onstage. This seemingly straightforward use of the sounding physical object is quickly subverted by the fantastical nature of the invention, which combines electronic, robotic and physical means to generate its sound, and whose performance is not always contingent on the presence of a performer. Nicolas Bernier has a laboratory-style setup for his work frequencies (a), in which the performer interacts with an array of tuning forks activated by computer-controlled solenoids. The accuracy possible in the performer/composer’s real-time interaction with the object array contrasts with the exactitude of sequences and mechanisms programmed in advance, encouraging questions on the performer’s function, his relationship with the object and the nature of performance in this context. Finally, Janet Cardiff and George Bures Miller’s The Cabinet of Curiousness invites the audience to take the role of DJ, interacting with the object as it might an eccentric jukebox inside the reverential space of the art gallery. This ostensibly commonplace object nevertheless invites a questioning on the nature of musical instruments, the artists’ – and our – relationship with things, as well as what performativity might mean outside of the concert hall ritual.

The diversity of positions represented by these works sheds different shades of light on a number of relationships, three of which we will discuss: object/sound, object/performativity, and object/work. To illustrate: is the object/sound relationship on an acoustic level, as in the case of most traditional musical instruments, whose desired sonic capacity largely determines physical design? Is it of a more conceptual
or aesthetic nature? Or perhaps, in between? In terms of performativity, can we speak of expertise, and if so, how is this determined? Can the object be performed by others, by anyone? How does the audience perceive this performance capacity? Can others compose for the object as for an instrument? This leads nicely into the object’s relationship to the work itself: does it reside in the performance of the object, in the object’s deployment within the context of another work, or is the object itself the work?

Possible answers are based on discussions and readings around the three artists/works. These more personal statements and positions are set against Baudrillard’s “Tout objet a ainsi deux fonctions : l’une qui est d’être pratiqué, l’autre qui est d’être possédé...” /Every object thus has two functions: one is to be put to use/practiced, the other to be possessed,” where earlier he tells us: “La possession n’est jamais celle d’un ustensile, car celui-ci me renvoie au monde, c’est toujours celle de l’objet abstrait de sa function et devenu relatif au sujet [sic].” /Possession is not always that of a utensil, which refers back to the world, but always that of an object abstracted from its function and thus brought into relationship with the subject.” (Baudrillard 1968: 104). Function, relationship, subject and object in the space between stage and gallery are thus keywords for this presentation highlighting three Canadian artists actively working in sound.

Selective bibliography:


Electroacoustic music and its audiences profit from a break with concert tradition. Composers are granted creative expression beyond conventional parameters of place, time and cultural habit. Audiences are provided astounding new musical experiences. However complications arise for musicologists in regard to how the works can be aesthetically and critically approached, particularly in regard to the role of the audience and use of space and place as musical parameters.

In the case of site-specific and real-time works, what remains when the moment is over and site inaccessible? When neither score nor recording can be considered adequate instantiations of a work, what documentary materials serve best as an object of a future musicological research?

Through a case study of the piece urban space-urban sound, this paper seeks a critical-musicological approach to works characterized by specificity of listening space, manipulation of live sound, and dramaturgic positioning of audience. Urban space-urban sound was realized by artists O+A (Bruce Odland, Sam Auinger) and Hannes Strobl and curated by Carsten Seiffarth, for the opening of the Acht Brücken Festival in 2013. The piece occupied a two-station stretch of underground train tunnel in central Cologne. Using prepared recordings, real-time audio feeds through resonating tubes as well as live electroacoustic performance, the piece aesthetically recontextualized a connective transitory space normally defined by its nodal function in an urban infrastructure. Groups of visitors were walked through the architecture in a multimodal subterranean dramaturgy.

As a tuning to urban architecture, the piece interwove the acoustics, identity and atmosphere of the site, transforming the space into musical material. Such pieces intimate the potential of musical works (once released from the concert hall's confines) to be exploratory tools, playing with city structure and habits of (in)attention to the urban environment; to rephrase physical and social spaces.

Investigating this work underlines difficulties presented by situated and generative music, in particular representability and reproducibility. The concert framework allows an accepted repetition of the same work by pairing notation with a standardized setting, but the nature of many contemporary works make transplanted performances at best highly
problematic, and notational documentation insufficient.
In method this case study turns to the available 'remains' of urban space-urban sound, including visual and audio documentary materials, technical and structural specifications, interviews with composer and first hand receptive account. The utility of these materials are themselves under evaluation, as each provides incomplete representation, biasing later understanding of the piece (or any resurrection attempt) in different ways. Factors to account for include the change of historical place, cultural space and sound environment over time, shifting use of technologies and rapidly obsolete media, as well as the role of particular individuals (e.g. live performing artist, participating listener) in completing the work as a whole.
In the attempt to articulate space and listener placement as musical parameters it leans on theoretical discussions, primarily addressing sound art, by musicologists (including Helga de la Motte-Haber) and artist-theorists (such as Georg Klein, Brandon LaBelle). Further conceptual approaches (e.g. by Leigh Landy, Salomé Voegelin) support a consideration of listening perspective as important for critical understanding of works 'beyond concert performance'.

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The origins of sound installation: case study Turin

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Tracing the origins of a loosely defined genre as “sound installation” is a problematic task: an oxymoronic expression, which brings together an already loosely defined multimedia art form, and a media specification. Sound installation is a genre, which has uncertain boundaries. Nonetheless, musicologists keep on trying to trace the genre’s roots. Indeed, even if sound installation could not be called a well-defined genre, it represents a significant historiographical aesthetic issue. A word, around which many important aesthetic questions met and still meet.

I will focus my attention on a geographically defined case study: the city and the surroundings of Turin, from about 1956 to 1975. Turin’s case study is interesting, because in 1957 there had already been an important experience: Walter Olmo’s theory for an “ambient music”, and his art exhibition sonifications.

I will focus my attention on three works, paradigmatic examples of the three most important artists which dealt with sound installation, or sound in installation, in Turin during this time lapse. Firstly, I will introduce Pinot Gallizio’s La Caverna dell’Antimateria (1957-1959), an installation artwork, for which Gege Cocito built the Thereminofono, that is, a huge theremin hidden behind the painted walls, whose pitch and amplitude were affected by the movement of the spectators. Secondly, I will analyse Enore Zaffiri’s Q/64, an electroacoustic music piece composed in 1966-1967, played in a continuous loop during the exhibition Operazioni plastiche spaziolucecoloare: its structure mirrored both the quadratic shapes depicted in Sandro De Alexandris’ paintings which hung on the walls and from the ceiling, and the structure of the architectonic set-up created by Leonardo Mosso by means of semitransparent paper sheets, as well as the basic shape of the “concret” specialised poem, created for the occasion by Arrigo Lora Torino. In the end, I will briefly introduce some Piero Fogliati’s sound sculptures, that is, Liquimofono, Latomie and Anemofono, all designed in 1968 for the unrealized project of an Auditorium a rumore, a hall of noises.

I will introduce a compared analysis of the three works. All of them find new ways towards the redefinition of the relationship among sound, space and spectator, and all of them stem from art-environment aesthetic impulses. Anyway, I will underline their differences/oppositions within numerous domains: in the way they conceive the relationship between media, between sound and space, between work and
environment/context, between work and spectator, and so on.
Turin has certainly not been the main developing centre of the genre. Therefore, I will adopt the historiographical methodology known as the “criterion of the peripheral areas”, highlighting the reception of outer aesthetic impulse, examining the aesthetic influences and the compound net among arts and electroacoustic sound in Turin, where the genre gradually arose.
Thereafter, I will present a systematic view of the italian history of sound installation art, illustrating the main peculiarities and personalities of the leading centres, as Milano, Firenze, Palermo, Roma and Padova, and their reciprocal relationships.

Selective bibliography:
He holds a degree in Sound Technology with full marks at “Giuseppe Verdi” Conservatoire in Milan and a degree as a Sound Engineer.

Meanwhile, he is deepening his composition studies through the experimental composition course at G. Verdi Conservatoire in Milan.

He has taught since 2010 for IES ABROAD/Università Cattolica.

Interested in programming languages applied to audio and video, he has recently participated in:

- “Music & Screen Media Conference 2014”, Liverpool;
- “Music and/as Process Conference 2014”, Canterbury;
- “Slingshot Festival 2014”, Athens, Georgia, USA;
- “ICMPC2014”, South Korea;
- “FAS 2013”, Costa Rica;
- “Premio Nazionale Arti”, Avellino, 2013;
- “EMU International Acousmatic Music Festival”, Rome, 2013;
- “Di Stanze”, Catania, 2012;
- “Segnali”, Perugia, 2012;
- “IFIMPAC”, Leeds, 2011;
- “CSound Music Conference 2011”, Hannover.

This paper provides an analysis of Quartetto III, composed by the Italian musician Franco Donatoni. It is Donatoni’s third Quartet: unlike the other quartets, it was produced, under the guide of Marino Zuccheri, at the “Studio di Fonologia” in Milan, by using only electronic instruments.

We’ve studied the historical, musical, and technological context in which this work was conceived by using different historical sources such as texts for broadcasting, documents, letters from the archives of the “Studio di Fonologia” as well as notes and documents preserved at Paul Sacher Stiftung.

These documents offer an interesting perspective into historical analyses, considering that the Studio di Fonologia musicale of Radiotelevisione Italiana, like similar studios in Europe and America, was the result of a meeting of music and new opportunities of analysis and treatment of sound.

This paper also highlights some specific ideas of Quartetto III, the composer’s originality and importance not only in his work, but also in the production of the “Studio di Fonologia” and in the history of electroacoustic music.

In the 1950s, while Boulez, Stockhausen and Berio were investigating electronic music and total serialism, Donatoni was writing under some strong influence by Bartok and Petrassi.

In 1953 Donatoni met Bruno Maderna, that introduced him to Webern’s music and the European avant-garde. Donatoni and Maderna will be two of the composers that will work at the Studio di Fonologia in Milan during the ‘60s.

We have analyzed Quartetto III under different points of view, by using stereophonic and quadraphonic versions of this work - recording “E018” and “Q002” respectively.

In particular, we have pointed out the relationship between ministructure and macroform, underlining the progressive aggregation process, from “elements” to “Groups” and “Columns”. This objective has been achieved by means of:
a) a partial Genetic Analysis by using PWGL;

b) a Listening Analysis, by following different musicological approaches: Chion and Delalande; Smalley and the spectro-morphology; Roy Functional Analysis; Temporal Semiotic Unit (M.I.M.); Sloboda, McAdams; Perceptive and cognitive Studies. This approach can give us some information about the macrostructure: Quartetto III, that lasts about 5 minutes, is structured in panels which are sections with different metronomes, but with an internal coherence of articulation and musical development.

Much attention has been paid to the structural and poetical use of quadraphonic space: Quartetto III seems to pave the way for the later electroacoustic works because of the use of spatial figures and “structured” electronic gestures.

Even if Donatoni declared "My distance from Stockhausen, despite my admiration, is that he is always perfecting his ego and his music, while I want to destroy both of them". we believe there are many similarities between Donatoni's work and Stockhausen's early electronic pieces: their works are both characterized by assent to structuralism, the recurrence of certain numbers in formal subdivision, in the use of dynamics and in other musical parameters.

In this paper we also point out the similarities between Donatoni's work and other works produced at Studio di Fonologia in Milan during the Sixties: Recitativo by Camillo Togni, Divertimento by Niccolò Castiglioni, Serenata III by Bruno Maderna. These similarities underline an aesthetical common orientation.

The historical recalling of the 60s, when Quartetto III was conceived at the Studio di Fonologia, has shown the very high level of the Italian research carried out at the Studio.

Selective bibliography:


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Electroacoustic music has led to profound reflections on sound nature, timbre and music systems. The new dimensions of musical enjoyment have meant that it is necessary the creation of new fields, very close to the musical aesthetics, enhanced by reflection on certain aspects of the composition of the last few decades.

According to Enrico Fubini, musical culture and new models of sound perception induced by massive social phenomena, such as enlargement of listening, music spread of education, the diffusion of increasingly sophisticated means for sound reproduction that could be available to everyone, everything could not have been without influence in the development of new lines and new ways of thinking.

If the avant-garde experience was decisive in recent decades for musical thought, other areas of musicological studies have therefore played an important role. The widening of the horizon of historical studies to other civilizations and epochs far removed from ours, refinement of the instruments of investigation and research, the improvement of new methods of historical study from the late nineteenth century onwards, created strong stress to the growth of theories on the analysis of music.

Musical analysis is a very vague concept that refers to any methodology to analyse a piece of music. Obviously, any analytic theory is faced with the problem of privileging the size of the work that is considered more important than others. However, every choice involves exclusions for which each analytical approach inevitably highlights an aspect at the expense of others and the risk of never being able to grasp what you would like to take a utopian, ie the totality of the work.

Analysis should not be a mere speculative instrument or a tool for the theoretical conceptualization of music. When we apply it to the topology of becoming and of the transformation of musical forms, it can be a profound contribution to the creative process.

Nevertheless, the analyst must take care to place the examined work in an evolutionary history of the composer. This perspective is the one of his poetic. Analysis, as well as...
music itself, makes sense when celebrates a permanent dialogue between ear and mind, between perception and sense of sound. It is necessary to say that developing a relationship of interdependence between creative and analytical dimension of music is very ambitious. As Luciano Berio said, “all speech about music is incomplete, by its nature.” Every great work always implies a plurality of texts, even without this is not identifiable on the surface: sources, quotes, ancestry, who have been assimilated by the author, even unintentionally. This multiplicity requires the analysis of multiple new perspectives. The aesthetics-cognitive approach by Francesco Giomi and Marco Ligabue is a very powerful method, which allows to analyse music on the basis of perception. It starts from a series of studies on the perception of contemporary music and formalizes a set of procedures for the description and analysis of the sound text at different levels. It is “aesthetic” because it stands on the side of listening and “cognitive” because, through the analysis, it seeks to identify the mechanisms of perception and interpretation of composition gestures. 

*Tautologos 1* (1961) by Luc Ferrari is a composition for magnetic tape. It revolves around classic electric organ sonorities, animated with the fizz of less readily attributable sonic particles. It has a particularly clear compositional strategy by which a certain phrase, in which almost all sound events of the work are, is repeated several times, forming a music period that emphasizes more the only real thematic change in the work.

This lecture would like to analyse *Tautologos 1* and point out some of its characteristics starting from the aesthetics-cognitive approach.

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Barry Truax *Riverrun* (1986/2004), a case study from the TaCEM project, exploring new approaches to techniques of analysis and re-synthesis in the study of concert electroacoustic works

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At last year’s EMS in Lisbon we introduced the TaCEM project (Technology and Creativity in Electroacoustic Music), a 30-month project funded by the UK’s Arts and Humanities Research Council, and demonstrated the generic TIAALS software being produced as part of this project. This year we present an update on the project, focusing particularly on the first of our Case Studies, Barry Truax’s *Riverrun.*

Eight works have been selected for the project, taking into account criteria such as historical context, the nature of the synthesis techniques employed, and the aesthetics that have underpinned their realisation. Key considerations have included the accessibility of the technical resources and composing materials used in their production, and opportunities to pursue particular lines of enquiry with the composer concerned. In selecting the eight works for detailed study, a further consideration has been the extent to which the composers explored techniques that were already available at the time in ways that are unique and distinctive, or alternatively developed entirely new methods of synthesis in pursuit of their creative goals. The pioneering work of Barry Truax in terms of developing techniques of granular synthesis assign his achievements almost exclusively to the latter classification, and the composition of *Riverrun* (1986/2004) is a landmark achievement in this regard.

Truax’s composing environment evolved from the early study of interactive real-time synthesis techniques at the Institute of Sonology, Utrecht 1971-73, exploring the possibilities of using Poisson-ordered distributions in the generation of microsound, to the emergence of entirely granular techniques at Simon Fraser University, British Columbia a decade later, culminating in the development of his program GSX designed specifically for waveform-based synthesis and first used to compose *Riverrun*, and its later extension, GSAMX, that extended these granular techniques to include the manipulation of previously sampled sound material.
At the time of composition conventional minicomputers still lacked the capacity to generate multiple voices of granulated sound material in real time, but for Truax the acquisition in 1982 of a high speed bit slice array processor, the DMX 1000, provided the enhanced processing power necessary for achieving such a goal. The unique characteristics of its special hardware and associated programming environment, managed in turn via a host PDP 11/23 computer, both empowered his creative objectives and also materially shaped and influenced the ways in which they could be practically achieved. The significance of such causal relationships in the evolution of the electroacoustic music repertory has yet to be widely understood, and this study of Riverrun corroborates the importance of such a line of investigation. In this case it has been possible to carry out a detailed study of the original system, still maintained in working order by Truax, leading to a reconstruction of key elements of Riverrun using a Max-based simulation of GSX, the authenticity of the results being assessed both subjectively by means of a direct aural comparison and also measured objectively using software.

This presentation will include a demonstration of examples of the software we have developed to enable readers to engage with Riverrun interactively, both by analysing the original recordings interactively and by using our emulation of the GSX system to be able to recreate passages of the work and manipulate the techniques employed in order to learn more about them. We will also give examples of other materials we have collected in relation to this Case Study, including videos of the composer himself working with the GSX system and discussing the composition of Riverrun.

Further information on the TaCEM project, and to download current and new software resources related to the project as they become available go to: http://www.hud.ac.uk/research/researchcentres/tacem/
Analysing the Creative Process through a Modelling of Tools and Methods for Composition in Hans Tutschku’s *Entwurzelt*

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The analysis of the creative processes involved in electroacoustic music may to a large extent rely on the thorough study of the technological tools used for the realisation of a musical work, both on the composition and on the performance sides. Understanding the behaviour and potential range of aesthetic results of such tools enables the musicologist to approach the studied work much beyond its final form, as presented on tape or as performed on a particular occasion: gaining knowledge on a wider technological context leads to considering the actual artistic decisions in the perspective of the potential outcomes that the composer and performer could face but not necessarily adopt. Hence, analysing an electroacoustic work on the basis of the study of its creative context, technological tools and compositional methods may constitute a useful approach to a better understanding of its related creative processes. However, the implementation of such an approach, mainly based on the hardware or software elements used during the creation of a given work, is not straightforward. First, it implies that the considered technologies are still in use and have not become irreversibly obsolete. In this matter, new performances of a work are good opportunities for such investigations, as they often provide a technical update and require a deep understanding of the composer’s intentions. The musicologist also needs to have access to the resources, which may not be available without a direct contact with the composer. Assuming these conditions are reached, the musicological and organological studies can encounter another issue, particularly in the digital domain: the sources are not always presented under forms that are directly readable by the analyst, for instance with a specific programming language. Despite all these possible difficulties, many cases of technological tools lean themselves to an in-depth investigation, leading to relevant conclusions on some of the creative processes appearing in the field of electroacoustic music.
In the context of a common session of several analytical approaches to a same electroacoustic piece, Hans Tutschku’s *Entwurzelt* for six singers and electronics (2012), this talk focuses on the investigation and modelling of tools and methods of the compositional stage of the realisation of the work. During a performance of *Entwurzelt*, the electronic materials are simply triggered as events by one of the singers, without further interactivity – thus, the essential part of the research on the electroacoustic realisation aims at exploring the processes used during the compositional stage itself. As the electronics are used as an extension of the live vocal expression by the means of harmonic amplification and complex texturing, the tools for generation and processing of both symbolic representations and audio signals are explored. Since the software tools that constitute the primary sources for our research were not directly designed to be used beyond their creative purposes, this talk presents software modelling implemented by the two authors to demonstrate the technological context in which Tutschku could compose *Entwurzelt*, emphasizing his creative methods and the decisions he could make upon a wider range of possible materials and processing techniques.
This presentation will be done in two parts.

1) Sound Analysis and Representations

Musicologists use various types of sound representations to analyze electroacoustic music:

- The waveform and the sonogram are a good basis to explore and navigate in one or more audio files. They also allow to estimate time and spectral frame for sounds. Several software like Audiosculpt, SPEAR or TIAALS allow filtering operations to isolate a sound or a group of sounds to study their properties.

- Differential sonogram or layers of sonograms are good tools to observe global parameters of sound or music. They also highlight break of spectrum, dynamics profiles, or space motions by comparison of sound channels.

- The similarity matrix reveals structural patterns, recurrence in several sound parameters, or musical characteristics. This representation completes sonogram to explore global form or complex micro-structures.

- Audio descriptor extraction helps the listening to identify global morphologies, transitions, and articulations. One of the main problems using low-level audio descriptors being the redundancy of information among them. Many of them being correlated and bringing the same information. The first step to work with audio descriptors is to reduce the dimensionality of the analytical data space and find what features are useful to describe the audio phenomena we are focusing on. With this main goal, we would like also to present a tool intended to musicologists, that will help in the analytical workflow and in the proper audio descriptors choice.

2) Moving to Analytical Representations

These different types of acoustic representations are the basic tools to explore
and extract information to complete aural analysis. In the other side, researchers create musical representations during analytical process. From structural representations to paradigmatic charts or typological maps, the goal of musical representations is to explore masked relations between sounds (paradigmatic level), micro-structures (syntagmatic level) or external significations (referential level). Researchers also need representations to present their works. To do that, they create graphic representations associated with sound or video to have more intuitive examples.

Relation between both types of representations — acoustics and musical — often consists to associate them through panes or layers’ software. Transferring information between them or extracting information from acoustic representation to create analytical graphics are complex operations. They need to read acoustic representations, filter no significant parts, create a pre-representations, and associate them to other information to create analytical representations. To realize these operations, there are two main categories of software. The Acousmographe was developed to draw graphic representations guided by simple acoustic analysis. The second generation, represented by EAnalysis (De Montfort University) and TIAALS (Huddersfield University) improve features of Acousmographe with analytical tools to explore the sound, work with other types of data, or focus on musical analysis.

This presentation will explore methods to improve these techniques and propose some new research directions for the next generation of software. Musical examples are extracted from *Entwurzelt* by Hans Tutschku for six voices and electronics.

Selective bibliography:


Any partition is a symbolic representation of the first level, wherein a graphic object corresponds to an interpretive procedure performed on instruments or with voices. In mixed music, indications of a different order allow to relate the score and the electronic sounds. The use of an electronic device, by itself the result of the composer’s creative thoughts, produces a complex situation that includes a traditional symbolic writing, information on non-standard devices, and a very specific electroacoustic writing (spectral transformation, synthesis, modulations, filters, patches…). Our work, which has to be considered as a first step, focuses on the relationship between partition and sound textures.

This talk will describe a new analytical approach in this context. The difficulty lies in the fact that one have to take into account both a symbolic writing on a first level, and a sort of “double encoding”. Indeed, it is impossible to stick to a study of the partition regardless of the electronic setup, and vice versa. The “double encoding” resides in this complex situation: a symbolic writing, which is directly interpreted and a more intricated way of working with sounds. In our research, the objective is to take account of the musical notes, of the interpretation (as a possible sound translation of the score), and of the electroacoustic sound textures (i.e. the result of the sound generation). Yet, the whole method must be consistent and must provide simple representations of complex phenomena. We chose to work, as expected, on the analysis of the score and on the one of the electroacoustic parts, but also on the interpretation of the partition, so as to get an intermediate source between score and electroacoustics.

The musicological analysis is based on:
- the mapping between different representations;
- the results of the score analysis and the spectral analysis of the sounds;
- the automatic search for similarities between these different approaches.

The score analysis uses the well-known principles of analysis in different fields:
melody, rhythm, harmonic structures and formal architecture. The underlining of formal articulations and symbolic paradigms is based on all available sources, i.e. both the score itself and the elements given by the composer (sketches…). The results are presented as graphs and tables, which can then be used to demonstrate all kind of relationship between score, interpretation and electronic textures.

The spectral analysis focused on one hand on the performers interpretation, and on the other hand on the electronic sound textures. It develops several complementary methods:
- the evaluation of the perceived virtual pitches, realised with Ernst Terhardt’s algorithms;
- the measurement of the RMS energy per frequency band 1/3 octave (30 frequency bands from 30Hz to 15kHz);
- the calculation of the time-related derivative of the previous analysis (RMS per frequency band).

The values returned by these three types of signal analysis allow an automatic segmentation of electronic and vocal parts, dealing respectively with the pitches (and harmony), with the spectral richness and with the rhythmic and dynamic evolution of sound events.

These results are presented both as graphs, in order to visualize and identify the relationships between these different sound events, and tabulated statistics highlighting correlations and differences between the score, the electronic parts and the sound result. The combination of the analysis of the score and of the spectral analysis associated with the automatic calculation of high-level similarities, eventually lead to an approach of the musical style. The talk focuses on the entire piece of mixed music by Hans Tutschku: *Entwurzelt*, with an emphasis on some particular passages.
Jean Louis Di Santo was born in 1957. He studied classical guitar and electroacoustic composition in the conservatory of Bordeaux. He is the recipient of several awards including the 2005 Bourges and Phonurgia Nova competitions. He regularly participates with the SCRIME activity, in Bordeaux, and has played in several festivals (Syntheses, Futura, Elktrophonie, Musicacoustica...). He is especially interested in the relations between sound and meaning, he studied linguistics and semiotics, and collaborates with the MIM. He has discovered the sound minimal unit (EMS06, Beijing) and has created a system to notate the sounds based on reduced listening called “acousmoscribe” that allows 5 billions of combinations.

Free download:

He has participated in many conferences in France and abroad. He teaches electroacoustic music in schools and for the University of Bordeaux.
http://jean-louis.disanto.pagesperso-orange.fr/

The works I presented in previous EMS (EMS06, EMS09, EMS11), about the augmentation of the precision of sounds typology and their notation, based on Pierre Schaeffer's reduced listening, were a necessary stage but not a purpose in themselves. The goal is to write or analyse acousmatic works using a score made with this notation, like one can do with an instrumental score. To realise the first score using the symbols describing sound parameters, that I call acousmatic score, I choose *Incidences/résonances* by B. Parmegiani because this work has already been transcripted by Parmegiani himself and has already been analysed by P. Mion, J. J. Nattiez and J. C. Thomas with the help of Parmegiani. Does my sign system enables to see and understand some elements that this transcription and this poïetic analysis analysis do not? Is seeing all of the sound's parameters in two dimensions on a score more efficient than to locate some of them with a sonagram? On the other hand this very rigourous work which purpose seems very clear is particulary adapted to our goal: does fixing the sound in two dimensions in a visual simultaneity and keeping it out from the linear and irreversible flow of time enables what a purely hearing analysis does not? In other words, does an acousmatic score that aims to describe sound parameters allow a better comprehension of a work?

My sign aims to favorise a formal approach of electroacoustic works. I mean to describe the sound morphlogies that the composer used and the structure of the over all form. Through this, I hope it allows a semiotic approach and can show TSU and spectromorphology figures.

Here the analysis no more depends on the sound itself, but depends on the possibilities that the transcription offers, transcription that itself depends on the precision of the parameters that are chosen to be written. Thus, my sign is based on the linguistic
model of the minimal unit made of a set of
distinctive features. The distinctive features
described here are those described in the
TARSOM. This model is very efficient
because it is based on a few number of
elements that allows both a great number of
combinations and a great flexibility of use.
To make the analysis of this work, I used
several methods: the one used in traditional
analysis of instrumental score, taking into
account that each sound has its own track,
the one used in hearing analysis, and the one
that emerge of the sign I used, that depends
on its possibilities and on its limits, that I
should develop. Due to the fact that this was
never done before, a certain number of
questions must be answered: how to list all
the sounds that are used in composition?
How to organise them on the score? Is it
necessary to copy the instrument disposition
in an instrumental score, classifying them by
familly and then from the lower to the higher
from bottom up? Or is it more efficient to
put them in order of appearance?
From there it is possible to elaborate a “key
signature” that can show what I called
“soudality” and “soudulation”, looking
towards instrumental music and adapting it
to “sound based music”. Besides, acousmatic
score allows to see the different parts of the
overall form and their proportion,
morphological figures that I called “phase”,
“entité” or “groupe”.

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An opera for the blind: acousmatic version

The Symphonie pour un Homme Seul (1949-50) is considered the mark of the musique concrète\textsuperscript{iii}. It represents the Zeitgeist of the postwar period, a wish for new paths for the musical language.\textsuperscript{iv} Schaeffer has described the work as an “opera for the blind”.\textsuperscript{v} The absence of the visual contract with the sound source is the seed of acousmatism. He has defined the acousmatic music as that made from the technologies of sound diffusion, “an opera for blind, an action without argument, a poem made by notes and noises, shards of texts, spoken or musical”\textsuperscript{vi}. The musique concrète does not arrive from a score to be performed. It was created in the same media that supports its reproduction.

An opera for seers: the de-acousmatic version (SPUHS-d)

What is singular on the version is its acousmatic condition extraction, shifting the piece from its original site to the place of the score and the performance by musicians. This process implies break of the acousmatic contract, exhibiting how the sound was made through the “live” performance\textsuperscript{vii}. So, the SPUS originally conceived as an “opera for blind” became an “opera for the seers”, being de-acousmatized (SPUHS-d)\textsuperscript{viii}, somehow like a pantomime of the original version created in studio. However, the live reconstruction become particular, bringing marks of the media it was originally produced. The dry cut, the loop, the pitch transposition, even the noise characteristics of the support became part of the performance, as an inverse way of mediation.
Perspectives and dialogues of the musique concrète

Considering this revisitation, the Symphonie literally gets body, gestures and movements to the eyes of the listener. On that way, it also implies an incorporation of a machine-body of the phonography, that was presented in the work, being imitated by the performers.

It doesn't mean that the body wasn't in the original version: presented by minimal vocal nuances, amplified and isolated by the acousmatic devices, and showed only by listening. However, it is precisely this approach that was broken in the de-acousmatized version, which stress a machine-type body.

As the de-acousmatic Symphonie is possible trace practices that are dialoguing with precepts of musique concrète. Composers that review the instrumental practices like Helmut Lachenmann who formulates his own music as "Musique concrète instrumentale"; others who use the resources as phonographic writing process such as Peter Ablinger and his Phonorealism; groups playing against a fixed medium, thought as a museum piece of folk music, like the ensemble Zeitkrafter that reinterpreted Lou Reed's album Metal Machine Music; or even composers-performers that explore some characteristics of media playback technologies in an acoustic way like Chico Mello's John Cage at the Beach.

Selectiv bibliography:


The unity of opposites: Jonathan Harvey’s Advaya for cello and electronics

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Born and raised in Argentina, Cecilia is currently a PhD student in Music Theory at McGill University, where she works under the supervision of Dr. Stephen McAdams and Dr. Robert Hasegawa. Her main research interests center on analytical and cognitive approaches to issues of form, texture, and time in post-tonal music, and their repercussions on music aesthetics, performance, and education. She has presented her work at the Society for Music Perception and Cognition, West Coast Conference of Music Theory and Analysis, Texas Society for Music Theory, CIRMMT Music Perception Workshops, Florida State Graduate Forum, and McGill University Graduate Symposium. Also a flutist, Cecilia completed a Doctorate in Flute Performance at the University of Iowa in 2009 and has performed in several orchestras and chamber groups and premiered works by young American and Argentinian composers.

Subject and Theories.
In his book In Quest of Spirit (1999), Harvey describes the impact of his philosophical beliefs, in particular the Buddhist idea of the unity of opposites, on his musical thought. This paper explores links between Harvey’s philosophical ideas and his compositional techniques for combining traditional and electronic instruments in Advaya for cello and electronics (1994). The idea of the unity of opposites is explicit in the title of the work: advaya is a first-century Buddhist word that means “not two.”

Methodology.
Using analytical tools familiar to music theorists as well as concepts from music psychology, this paper examines the various musical manifestations of the idea of the unity of opposites in Advaya through the analysis of musical materials (including timbral elements, pitch-class collections, and motivic materials) and form.

Results
Musical Materials. At the most superficial level, the use of electronic synthesis and extended techniques in the cello creates an opposition between conventional and unconventional timbres, traditional and electronic sounds. This opposition is mediated by the close relationships between the two parts: the electronic part is entirely derived from the cello part (Harvey, 2001). At a deeper level, a perceptible conflict emerges from the juxtaposition of two different types of pitch-class collections. The pitch material is based on compressed spectra that progressively distort the natural harmonic spectrum of the first string of the cello, A=220Hz. The passages that employ pitch-class collections derived from the harmonic spectrum are the most consonant moments in the piece and contrast with the more dissonant passages that use pitch-class collections based on distorted spectra. Depending on their intervallic content and frequency distribution, the pitch-class collections of the distorted spectra can be ranked from least to most consonant/stable. Each pitch-class collection is associated with different motivic materials, which (in keeping with Harvey’s theories) can be conceived as either spectral or melodic depending on whether they convey a vertical or horizontal listening mode (a static or dynamic sense of musical time). The derivation of all the pitch-class collections and motivic materials of the work from the
spectrum of a single musical note evokes the concept of the unity of opposites.

**Form.** *Advaya* can be divided in 8 sections, each of which expresses a different degree of spectrality/melodicity, inviting vertical or horizontal modes of listening. The most spectral/vertical moments, which coincide with the regions of highest pitch stability, take place at the beginning and the end of the piece. Taking into consideration *Advaya*’s overall sense of dynamism, the music ends where it begins, moving away from its original state only to return to it, as if it had always remained immobile.

**Concluding Remarks.** As a result of the nature and characteristics of the musical materials and their organization within the formal structure, the borderline between the spectral and melodic qualities of music, between its vertical and horizontal dimensions, is blurred, suggesting a musical shape that is both yet neither, simultaneously in motion and static. The idea of the unity of opposites is manifested in the very conceptual foundation of the piece: the temporal unfolding of the entire work derives from a single vertical conception, the atemporal spectrum of a single musical note.

**Acknowledgements**

I would like to thank the supervisor of this paper, Dr. Robert Hasegawa.

**Selective bibliography:**


We will observe the complex path of constructing and appropriating artistic identity, from disharmony to harmony, in the very personal approach of Taiwanese composer Wang Miao-Wen. Wang Miao-Wen was born after a long period of violent political, social, and cultural changes in Taiwanese history, from Japanese and Chinese imperialism to the attempts at redefining its own cultural identity. The first female electroacoustic composer from Taiwan to study and work in France, she was invited to Radio France’s Festival Présence, in 1994 and 1996, and received the Prix Résidence at the XXIst International Electroacoustic Music in Bourges. Between 1994 and 1995, she was the first Taiwanese composer to complete the curriculum at Ircam.

Wang Miao-Wen is an example of an artist who trained in and benefited from the interculturality of East and West. On a path shared between the two cultures, one observes the use of Taoist philosophy in both her personal theoretical and compositional process, through the sound organization - transcription, transmission, and transformation of the cosmological cultural heritage.

What material and personal methods are used relative to the differences that characterize the two distant cultures? Is she misappropriating Taoist elements or zigzagging on a transcultural path of creation? Where is her starting point and what is her destination? Where is the limit for this merger of cultures?

For nearly twenty years, Wang Miao-Wen has based her “book of changes” on the general structure of the I Ching. It is rare to see a personal theory become mature and find its balance between Western intellectuality and the spirituality of the Far East. In her electroacoustic works (acousmatic and mixed), her transculturality is a rigorous compositional preparation in the structural and technical context of a purely Western approach whose inspiration unfolds with the help of the philosophical Far East. A fusion of native language with an impressive Western analytical and Eastern cultural consciousness is constructed throughout her composing.

The image of two cultures, the relationship of human beings, and the phenomenon of universe are metaphorically represented by 8 fundamental elements of nature which refer to harmony between man and universe, as well as a bridge between East and West.
Zhang Ruibo (Mungo) has been doing his doctoral research (CHEARS) with Prof. Leigh Landy since April 2012 under the International PhD (iPhD) program at De Montfort Univ. (DMU), Leicester UK. The mode of study will be changed to full-time PhD from April 2014 to April 2017 under the State Scholarship Fund by China Scholarship Council (CSC). He teaches electroacoustic music composition and theory at China Shenyang Conservatory of Music. He had his master’s degree with Prof. Zhang Xiaofu and Kenneth Fields in China Central Conservatory of Music (CCOM). He was one of the translators for completing Chinese version of The Computer Music Tutorial (Curtis Roads) and The Study of Orchestration (Samuel Adler).

His research, CHEARS (China ElectroAcoustic Resources Survey), was selected into EMS07 conference, and he presented the research at De Montfort University, Leicester UK. After this, he continues his research: CHEARS.info, and presented it at the EMS08, EMS10 and EMS11 conference in Paris, Shanghai and New York respectively.

**Context:** The China ElectroAcoustic Resource Survey (abbreviated CHEARS) is intended to serve as the enhanced version of the ElectroAcoustic Resource Site (EARS run by the Music, Technology and Innovation Research Centre, MTI, at De Montfort University, Leicester, UK. www.ears.dmu.ac.uk). Its fundamental goal is to assist in the development of the field of Electroacoustic Music Studies in China. Besides contributing a Glossary, Index and Bibliography in Mandarin within the international EARS project, CHEARS also presents the collection of a broad variety of types of information, within the academic and non-academic areas of the site, for example, through its multi-user Comment, Reader, Message and Criticism systems, CHEARS offers Terminology, Bibliography, Lecture and Concert sections, based on Web 2.0 technology to allow each user to add, modify and protect his/her knowledge on the site (http://CHEARS.info). After a 5-year development period from 2008 to 2013, it subsequently has become a bilingual internet-based collaborative research resource including the multi-user communication area which presents text resources, events and music criticism sections unique to China as well as within the EARS project, itself.

**CHEARS 2:** In October 2013 the Compose with Sounds software (cws.dmu.ac.uk) and the pedagogical ElectroAcoustic Resource Site known as EARS 2 (www.ears2.dmu.ac.uk) were introduced to China officially by Prof. Leigh Landy, the director of the MTI as well as the founder of
the original EARS project, Compose with Sounds and EARS2 projects. EARS 2 takes a different path from the original EARS initiative which is a multilingual internationally peer-reviewed professional (multilingual) glossary with an accompanying subject index for electroacoustic (EA) music as well as a bibliographic resource. EARS 2 is intended for young people, in particular the age group 11-14, and its goal is to assist them in learning about and subsequently gaining interest in composing sound-based music.

Furthermore, Compose with Sounds creative software (supported by an EU Culture grant) is linked seamlessly to EARS2 which is a dynamic eLearning site offering learning information including a wide variety of hypermedia examples. The planned Chinese version of EARS 2 intends to offer a perfect opportunity to provide schools, especially pre-higher educational institutions in China, with a free tool that encourages creativity and fits national circumstances academically. Therefore, the combination and integration plan of EARS2 on CHEARS has been found to be of great urgency and may end up being completed prior to the full CHEARS adaptation of the EARS site that was officially introduced to China in 2006.

This paper will start with an CHEARS/EARS update (http://chears.info/frontend/lecture/allectures.aspx?lectid=78) involving the expansion of the number of terminology and index respectively from 500 to nearly 700 items and from 6 to 9 structures, including the three main EARS 2: CREATE, LEARN and LISTEN as well as the EARS2 encyclopedia. More importantly, this paper will present for the first time the original resource and methodology for research on CHEARS that takes on the Chinese cultural adoption of the EARS2 contents, e.g.“Chinese Composer Case Studies” and “China Soundscape Resources”. Those two objects are both adopted from the content of EARS2. However, the expansion of them will be more specific usage of the concept in Chinese cultural/compositional context than the hierarchical approach to present information concerning authors, translators, proofreaders and consultants regarding terminologies and bibliographies already related to EARS and EARS2 within CHEARS.

The CHEARS research project has been awarded a scholarship under the State Scholarship Fund by China Scholarship Council (CSC). The goal is to turn CHEARS an enhanced professional project for wide impact in China. Beyond the combination and integration plan, this paper will also discuss the most serious problem that electroacoustic music or music and technology encounters amongst some of main conservatories in China, namely, how to deal with talented, but not traditionally educated young musicians who demonstrate interest in pursuing music with technology, thus reflecting the pedagogical purpose of EARS2 in China.
ZHAO Bai was born in China. She is a pianist, an organist, a harpsichordist, a composer and a Ph.D. student in musicology. She started playing the piano at the age of seven. After obtaining a Bachelor’s degree in composition and electro-acoustic music in China, she moved to France. She studied at the Conservatoire Régional de Limoges and Versailles, where she completed courses of organ, harpsichord, singing and conducting. Then she did her master’s degree in Music and Musicology at Paris 8 University. She is following a Ph.D. program with Professor Marc Battier in Paris from 2011 and Professor Joseph Butch Rovan at Brown University in 2012, in the city of Providence, Rhode Island, USA.

After World War II, some countries became the pioneers of the world in terms of culture, politics, science, technology and economy and exerted their influence on China. Among these influences, music and arts from France, Germany and North America were prominent in shaping the Chinese composers. After the end of the Chinese Cultural Revolution in 1976, young Chinese composers wanted to continue their studies overseas, studying new compositional techniques still foreign in China. Some of them came to study in France. Among them, were three Chinese students in composition at CNSMD de Paris, who had worked with Gérard Grisey (1946-1998), following an aesthetic born in 1970s, the most famous “French school” - Spectral Music. They are Xu Shuya (in France since 1988), Xu Yi (in France since 1988) and An Chengbi (in France since 1994). And now, they work most of the time as professors in China, Gérard Grisey was interested in sound. His music focused on the sound’s timbre and harmony, including microinterval, overtone and noise... However, our three Chinese composers have their own original cultures (even though they are Chinese, they are from differents areas of China). How did they adapt to this new approach/concept…?

Among the works of these three Chinese composers, I will present and analyse a few music samples by them, such as Xu Shuya’s mixed music in The Great Void II which used microintervals with Flute and Xiao; one of Xu Yi’s principal mixed music works Le Plein du Vide written in 1997, in which she used the I-Ching that corresponds to the 64 hexagrams of the 192 quarters of tone of a full orchestra; and An Chengbi’s mixed music Saek.Gong, for flute, string quartet and fixed sounds. And I shall compare their music to Gérard Griseys’.

In this paper, I will address several issues: what sort of impact did Gérard Grisey leave on his Chinese students, in terms of inspiration? what are the inspiration impacts in the music of these Chinese students after their studies with Gérard Grisey? How does the Spectralism influence their works? How do these Chinese composers mix their culture with Grisey’s? Did they develop

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2 The microinterval also exist in Chinese traditional music.
3 Chinese vertical end-blown flute.
4 Ensemble and electronics.
6 He said “Spectral Music” had two levels: physical and cultural.
Spectral Music into their own language? What will come next in Chinese acoustic music?

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Pousseur’s ‘Huit Etudes Paraboliques’: Musical and Social Contexts

John Dack
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Born: Kings Cross, London 1950. Employed as photographer’s assistant, gravedigger and peripatetic music teacher before studying music as a mature student at Middlesex Polytechnic (BA Hons, 1980). Subsequent studies: PhD with Denis Smalley, 1989; Postgraduate Diploma in Music Information Technology (distinction), City University, 1992; MSc (distinction), City University, 1994; MMus in Theory and Analysis, Goldsmiths College, 1998; MA in Aesthetics and Art Theory (merit), Middlesex University, 2004. In 1998, employed as Research Fellow at the Lansdown Centre for Electronic Arts, Middlesex University. In 2006 promoted to Senior Research Fellow. Since 2011 employed as Senior Lecturer in the school of Science and Technology and the school of Art and Design. Research presentations at Sheffield University, Leeds University, Brighton University, De Montfort University, Istanbul Technical University, Kingston University, Huddersfield University, Edinburgh University. Conference presentations in Britain, France, Holland, Germany, Spain, China, Eire, Italy and Turkey.

Throughout music history there have been many examples of works considered to be of long (perhaps even excessive) duration. For many years Beethoven’s ‘Eroica’ was estimated as the longest symphonic work. This was surpassed only by symphonies of Anton Bruckner and Gustav Mahler who expanded both instrumental resources and continued the late-Romantic tendency for increased duration. The rise of Modernism appears to have arrested these developments and the concert repertoire of post-war music once again has settled into works that usually conform to a traditional framework.

My paper will explore the specific contribution that electroacoustic music can make to challenging the accepted concert framework both in terms of a work’s duration and the location in which it is to be presented to the public. My case study will an examination of the particular practices of the Belgian composer Henri Pousseur (1929-2009) and his electroacoustic work ‘Huit Etudes Paraboliques’ (realized at the Westdeutscher Rundfunk studios in 1972). Each of these eight compositions is an autonomous work. Indeed, the longest Etude (‘Voyage aux Éléments’) is itself nearly 40 minutes in duration. However, according to Pousseur they can also be regarded as source material to be ‘plundered’, reconfigured and thus re-mixed to produce new works. Furthermore, new musical material – by Pousseur or other composers – can be added. These ‘Huit Etudes Paraboliques’ were the first works of a ‘Système des Paraboles’ (Parabola System) where each piece has the potential for extension. Thus, the connection with earlier and indeed later ‘open form’ works is clear and, as a result, the ‘Huit Etudes Paraboliques’ are transformed into individual ‘Paraboles-mix’. What is of relevance for the questions posed by the EMS2014 conference is that each new ‘Paraboles-mix’, though using material from one or more of the ‘Huit Etudes Paraboliques’, opens them up to infinite elaborations. Consequently, the musical material need not demand closure after a limited amount of time encouraging works of extended duration. The act of poiesis on the part of the musician realizing the ‘Paraboles-mix’ now dominates.

Context
Pousseur’s social commitment was a consistent thread in his intellectual development. It was particularly evident in
the first decades of his career as demonstrated by his book ‘Musique Sémantique Société’ (1972). Similarly, his ‘open’ work ‘Scambi’ (a rare example of an ‘open’ electroacoustic work) has social as well as aesthetic implications. Moreover, Pousseur even imagined real-time realizations of ‘Scambi’, possibly resulting from interaction by several musicians in ‘music workshops’. Clearly, such social gatherings would not conform to traditional concert practices. These ideas were speculative and perhaps even utopian. The technology of the 1950s prohibited the full potential of Pousseur’s vision. Nevertheless, I will argue that Pousseur’s combination of practice and theory can now be fulfilled and inevitably challenges both the nature of long durations and traditional concert practice.

Methodology
Drawing on and elaborating research already undertaken on ‘Scambi’ my methodology will be to examine specifically the ‘Huit Etudes Paraboliques’ both as ‘closed’ works and in their manifestations as re-appropriated, ‘open’ works. There are several ‘Paraboles-mix’ where Pousseur and others use the original material in ‘live’ re-mixing. These ‘Paraboles-mix’ can be subjected to a cultural interpretation along the lines of Craig Ayrey’s article ‘Pousseur’s Scambi, and the new problematics of the open work’ where interpretation of ‘openness’ can lead to the premature ‘closing’ of the work under consideration. I believe it will also be possible to show a continuity between Pousseur’s methods in the WDR studio where the equipment allowed him to embark on ‘voyages sonores’ and the final realization before an audience in non-traditional venues.

Selective bibliography:
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In this presentation, I’ll introduce different examples of how a quest for new means to perform music in concert and happening settings manifested in the early years of electroacoustic music in Finland. These examples are gathered from the works of Erkki Kurenniemi (b. 1941), the early pioneer of Finnish electroacoustic music, and composer Henrik Otto Donner (1939–2013). During the first two decades of electroacoustic music in Finland Mr. Kurenniemi played a central role in designing the instruments and collaborating with Finnish and Swedish artists. In his electronic musical instrument design, Kurenniemi used advanced applications of digital controlling methods for sequencers and memory units. Furthermore, his interface design challenged the traditional means of interacting with the instrument – in some cases not only with the player but also with audience. Kurenniemi’s designs led the Finnish scene to a unique position in the fields of electroacoustic and avant-garde music, and it was recognized in the Nordic countries.

Kurenniemi’s composition methods present an early example of applying live performance in the studio work. This reflects his impulsive way of working and it was present already in his first work On-Off (1963), completed as a real time live improvisation with the studio equipment. Later, Kurenniemi postulated his methods as composition rules – e.g. “the work has to be finished in a single day”. Another example of Kurenniemi’s early musical output was presented in a happening Limppiece (1964) organized by Donner in the Ateneum Art Museum in Helsinki. The electronic piece in the happening was an hour long tape with slow transitions that one couldn’t perceive without leaving the space for a few minutes. Furthermore, the audience was instructed to move around in the museum and listen to the soundscape. Although the actual sound work is vanished, the graphical score still exists.

In Electric Quartet (1968) Kurenniemi realized an application for a collective instrument. Electric quartet is an instrument designed to be played by four people. The layout of the instrument sets up somewhat chaotic premises for a performance. Each of the four controllers is interconnected through the main frame, resulting in a performance which output is combination of four players’ actions. Furthermore, the user interface and the sequencer of the instrument set certain constraints which drive the overall performance process.
Kurenniemi’s other instrument user interfaces are stretching the constraints of traditional methods of interacting with an instrument and search new means of performing music. The most provoking instrument is DIMI-S aka Sexophone (1972) played by several people touching each other to the bare skin. Another example presented here is DIMI-T aka Electroencephalophone (1973) which uses the player’s EEG as a control signal of the sonic output. These biofeedback instruments were used even in concert settings, although resulting performance equalled more of a demonstration than a serious concert. Meanwhile, DIMI-O (1971), an electronic organ equipped with a video camera, was used with more interesting results, when the camera was aimed at the conductor’s hands or faces in the audience and converted these gestures into music.

During the first years of the ‘60s, Kurenniemi’s close collaborator, composer Henrik Otto Donner visited practically all major studios in Europe, became acquainted with pivotal contemporary European composers and avant-garde artists and introduced himself to new, essential composition methods e.g. serialism as well as techniques of electronische Musik and musique concrète. During 1963 and 1964 Donner was a key person in bringing happenings to Finland together with Ken Dewey, Terry Riley, Jan Bark and Folke Rabe.

Donner experimented with sound diffusion in space and audience interaction in his early works such as Ideogramme I & II (1962–63) and For Emmy 2 (1963). For example the idea in Ideogramme I & II was to test how players’ synchronization and concentration could be distracted with different electronic means (12 radios in Ideogramme I and tape music in Ideogramme II). Players and loudspeakers were located in the exhibition space where also audience could wander around.

Selective bibliography:


Although popular music has a well-established connection to specific recording formats, most obviously in terms of duration, number of channels, available frequency and dynamic range, and currently, levels of data compression, electroacoustic music has generally tended to ignore these format restrictions at the level of composition and performance, and made appropriate compromises in the context of distribution. Some historical exceptions with instrumental classical music may be noted where pieces were composed for the commercial recording format of the day, but the Nonesuch label’s commissions for Morton Subotnick in the late 1960s are regarded as the first electroacoustic pieces composed specifically for the LP format, a tradition that the author continued for his 1985 release of the *Sequence of Earlier Heaven* LP, and the later release of 8 solo CD’s after 1987. The crucial distinction is whether the CD format during recent decades has been regarded as a purely distribution medium for an arbitrary grouping of works designed for individual concert performance, or as a compositional format for creating works, or sets of works of extended duration, something seldom encouraged by those programming electroacoustic music concerts. This tendency towards standardized durations raises the question as to the type of compositional thinking involved in the extremes of work duration – the miniature and the large-scale work, the latter influenced by the value placed on it in 19th century classical music, particularly with the symphony and opera.

Jonathan Sterne has recently proposed “format theory” for the analysis of the cultural phenomenon of the mp3 format to account for the dynamic relationship between industrially engineered audio formats and listener practice. The individual downloadable file, having superseded the CD as the format of choice for most younger listeners, as well as the 5.1 multi-channel format for commercial entertainment, create serious limitations for the future of electroacoustic works of extended duration and multi-channel formats of 8 or more channels, risking further marginalization of the artform. The challenges are not only the limitations of format, but following Sterne, their relation to the listening stance and cultural appropriation of the user. The paper will summarize the author’s compositional strategies for thematizing his LP and CD publications, and discuss the contemporary challenges and alternatives for today’s
electroacoustic composer, with particular attention to the practices of soundscape composition. The flexibility of the electroacoustic medium, existing as it can, independent of live performance, may offer possible answers to the dilemma of whether to adapt the music to existing formats created and controlled by industry, or whether to offer creative alternatives within and outside of those formats.

Select bibliography:


Miriam Akkermann was born in Seoul/Korea. After a BA in Product Design at Free University of Bolzano (I), she took a classical flute degree and a MA for New Music and Technologies at Conservatorio C. Monteverdi in Bolzano, and studied composition and Sonic Art. Currently, she is completing her PhD at University of the Arts Berlin (musicology) with a research project supervised by Dörte Schmidt and Martin Supper. She received research scholarships from Leo Baeck Institute in New York (2009), a DAAD grant for research at IRCAM/Paris (FR) and Berkeley (US) (2011), and the Elsa Neumann grant of Berlin for young academics research (2011-2013). Besides, her sound installations and compositions have been showed at several festivals and she performed in various improvisation-based contexts. She performs as a musician in various improvisation-based contexts.

Members of *The League of Automatic Music Composers* were the first ones to use the term “computer network music”.¹ They started in 1976 to connect their Commodore KIM-1 computers. The ensemble was formed by musicians from Oakland, California, funding members of the group were John Bischoff, Jim Horton, and Rich Gold.² In 1986 the ensemble *The HUB* was initiated by John Bischoff and Tim Perkis. It referred to it's predecessor ensemble, debuted in 1987, and became one of the most famous computer network music ensembles. Since the 1990's there have been developed an unclear number of computer network music projects.

In 2007, Carôt located two phases of high activity in the field of computer network music, the first around the year 2000, the second around 2005.³ This is reflected in papers, published works and working systems. Around 2007, the scientific review of computer network music ended. In the last two years or so, there again emerged several new projects using networked computer. The projects are well documented by their developers and the interest on networked music projects seem to grow.

The artistic and technological history was examined in media art, internet art (net art), and web art.⁴ There exists very few musicological research on computer network music.⁵ This may be caused by technical

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constraints (some programming skills are helpful), the state of source material (hardly any score, often only web documentation, little historic documentation of technological developments, etc.), and the fact that there exists hardly any theoretical foundations for analysis methodologies.

Outlining existing (structural) approaches and suggested development directions to computer network music, a fragmentary historic overview will be shown based on following questions: Which projects have been discussed by several authors, possibly even in different contexts? Is there any indication for a (comprehensible) mutual dependency between technological and artistic developments? The paper is concluded with a resume that can be used as base for discussion: Has the structure of more recent computer network music projects changed and how has the public reception developed?
Disposable Music is, as defined in my paper, an author-less artifact, generated by algorithmic composition and real-time notation. Its concept is a response to social and cultural developments in which the entanglement of man and machine is becoming increasingly intimate and our everyday life in its smallest ramifications is determined by electronic media. Due to new living conditions and the collapse of time and space caused by the Internet, a new value system is created in the Global Village, which now grants less respect for intellectual property as it was still sanctioned in the bourgeois era. Socio-economic shifts force musicians to adapt strategies that lead to new dispositifs, as well as narratives that metaphorically reflect those changes. Examples would be hybrid forms of conducted improvisation and composition, often referred to as comprovisation or conduction, or laptop orchestra performances, which are characterized by a diminishing focus on notated scores. We see a suitable reaction in the reinstatiation of music notation as a still adequate means of communication in the development of the dispositif of real-time composition and notation, in which music is generated seemingly without author by a man and machine network and executed by performers in a top-down model. This is exemplified in works of Nick Didkovsky, Jason Freemann, Nic Collins, Georg Hajdu and others. The resulting scores are just as ephemeral as the actual sounding music. This is to be interpreted as an adequate response to the increasing devaluation of the artifacts of contemporary high-brow culture. However, this should not be equated with a devaluation of the dispositif itself. On the contrary, the true achievement of the author, and thus his/her actual artifact is the establishment of a real-time composing and notation system, by which, however, he/she embarks on another—academic—discourse. Thus the concepts inherent to the system are of primary and the aesthetic experience of the audience of secondary importance. The difference to the traditional concert experience can be compensated though, by carefully choosing algorithms and musical materials as well as exciting non-musical and theatrical narratives and dramaturgies in which the performances can be embedded. This paradigm shift coincides with the observations made by media theorist Friedrich Kittler in “Draculas Vermächtnis:
Technische Schriften” on the writing of texts.

Selective bibliography: (max. 5 references)


The world of electroacoustic music presents interesting challenges in regards to its reception by an audience: effectively expressing a given set of musical codes, the importance of spatial representation of musical forms, the choice of venue (e.g. proscenium vs. black box, immersion vs. localized sound sources). Many such challenges are shared by the world of free improvisation, whose "non-idiomatic" nature requires a similar active engagement by the listener in the construction of musical meaning. There is further a "spatial" or distributed nature to this genre through the way that musical gestures, as they are spontaneously constructed, are passed between performers, their meanings reinforced. In the meeting place between these two musical worlds, electroacoustic improvisation (EAI), we find very interesting strategies that have and continue to emerge in regards to the spontaneous evolution of musical codes, in ways that are inclusive of both performer and audience. While the approach of digital instrument-focused musics and NIMEs seek to introduce intimacy through visual expressions of gesture – a focus on source and the birth of sonic forms - many interesting strands in the world of EAI have been concerned instead with the process of sonic structures forming through the sharing of musical expressions between performers. In this paper I will present examples that illustrate this phenomenon in two distinct categories: those which assume a distributed approach to the act of compositional structures, and those which share sonic gestural actions as they propagate through shared signals in the moment of performance. As examples, I will draw upon my own series of genetic orchestra pieces and work in several electroacoustic ensembles (Triple Point, Composers Inside Electronics, telematic performances with the FILTER system), as well as clear examples from the literature: The Hub, the Evan Parker Electro-Acoustic Ensemble and contemporary "laptop orchestra" practices. Through this exposition my intention is to articulate a set of practices that have arisen uniquely in the domain of EAI and which have proven effective in developing shared, emergent musical structures. In this process, I further hope to collectively speculate on the ways in which audiences are or are not invited into this shared construction of meaning as active participants.
Selective bibliography:


Acousmatic music poses a perplexing problem for the analyst – not only does it lack a notated score, it also utilizes a seemingly infinite sound palette made possible through the use of modern technology. Consequently, the analyst must employ new tools capable of tackling musical issues that resist traditional theoretical approaches. Toward this end, my presentation will assess recent developments in the field of electroacoustic music analysis by examining two software packages – Acousmographe and EAnalysis – that aim to offer multimedia toolkits, such as visual sonograms and the ability to create graphic musical representations. Acousmographe was produced by INA-GRM in Paris, whereas Eanalysis was developed by the MTI Research Centre of De Montfort University (UK). Both programs share a common lineage through their adoption of Pierre Schaeffer’s typomorphological concepts, but the ways in which those basic tenets are visually implemented differ substantially. In order to facilitate a side-by-side comparison, I have conducted an aural analysis of Philippe Leroux’s acousmatic work, M.É. (1998), using both software applications. Based on the results of this case study, I will address the analytical implications of each program by bringing the two platforms into dialogue with one another and offering an analyst’s appraisal of their various strengths and weaknesses.

To begin, I will discuss my experiences working with the Acousmographe software, which was used in conjunction with the supplementary ‘Aural Sonology’ graphics plug-in co-created by Lasse Thoresen and Andreas Hedman. The Aural Sonology plug-in enables the analyst to create graphic musical representations using coded symbology, and to make annotations highlighting various parameters of the musical structure, such as “time-fields, layers, dynamic forms, transformations, and processes.” The specific terminology used in the Acousmographe/Aural Sonology package reflects Thoresen’s newly formalized program for the “aural analysis of emergent musical forms,” and as a result, the software is heavily indebted to his analytical perspective. Next, I will shift to a consideration of the EAnalysis software, which was developed by Pierre Couprie, with the help of Simon Emmerson and Leigh Landy. Unlike Acousmographe, EAnalysis acts as an inter-textual hub of sorts, incorporating the work of several contributors, including Annette Vande Gorne, Stéphane Roy, François Bayle, Simon Emmerson, and Denis Smalley. The various approaches represented by these authors have been incorporated into EAnalysis in the form of unique annotative toolkits, thus encompassing a host of analytical possibilities that range from “Functions” (Roy) to “Spectromorphologies” (Smalley). After making some fundamental distinctions between these two programs, I will illustrate a few main points using comparative analyses of excerpts from Leroux’s M.É., and then suggest possibilities for the further development of
software features that might prove useful for future analysts.

Selective Bibliography:


Comparing comprehensibility of analytical representations of electroacoustic music: pictographic versus symbolic

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Stéphane Roy (2003) and Lasse Thoresen (2007; 2009) have proposed two different approaches to analytical notation of electroacoustic music: Roy's approach is pictographic while Thoresen's is a symbol system. Both approaches have been proposed for the purpose of producing practical listening scores that can have analytical usefulness. Each bases his approach on Nattiez's (1987) semiology of music, although Thoresen modifies the semiological tripartition and allows the listener to actively determine the listening mode employed, whereas Roy adapts Nattiez's 'neutral' listening mode.

In practice, how does Thoresen's symbol system compare to Roy's pictographic representations of electroacoustic sound, in terms of musicians' comprehension of sonic characteristics? How accessible are these approaches to musicians who are not specialists in electroacoustic music?

To begin to answer these questions, I conducted a pilot experiment to compare how the two approaches could facilitate the creation of listening scores by non-specialists. The experiment included the same works that Roy (2003) and Thoresen (2009) analysed: Points de Fuite by composer Francis Dhomont (1996) and Les objects obscurs by composer Åke Parmerud (1994). The subjects were conservatoire student musicians and composers who had little or no previous experiences of these particular approaches to representation of sound.

Some patterns emerge from examination the subjects' attempts at transcriptions of the two works using the two approaches. Some interesting attitude tendencies can be interpreted from the subjects' written and spoken comments. These comments were their responses to the introductions to these approaches for representation of sound. A few of the preliminary results examined are as follows: The pictographic approach allowed the students to indicate structure of sound over time. This seems consistent, although individual pictographic representations of sound vary greatly. Students immediately tended to expect the symbolic approach to have greater accuracy than the pictographic approach in showing sound object morphology. However, they found the pictographic approach significantly more accessible. A hybrid approach to representation may have greater accessibility which would be a valuable feature, in particular for non-specialists.
Selective bibliography:


As music changes, so too do the material forms that prescribe, accompany, transmit, and explain it—often as a self-conscious process of innovation. The mid-twentieth century was a period of explosive musical change, consequently marked by an extraordinary awareness of the possibilities, limits, and importance of music’s material forms: in particular, for music notation. A prime example of how changes in art are implicated in changing technology, the electronic music from this period precipitated a radical reinvention of the purpose and ontological status of the score. Those composers who struggled, in the early days of electroacoustic music, to find some way to capture in material form a new kind of sounding art, were equally struggling for the position and legitimacy of new sounds within a musical field of possibility. Thus, when composers notated electronic music it constituted a strong statement about how music notation could be maximally useful, advanced, and inventive. In challenging the relationship between score and performance, innovators in the notation of tape or synthesized music problematized traditional prescriptive or performance-based approaches and made it necessary to critically question why and how composers write music down.

The mid-twentieth-century obsession with the possibilities, limits, and importance of scores is reflected nowhere better than in John Cage’s 1969 compilation, Notations. This paper treats the examples of electroacoustic music in Notations as a bounded microcosm that, as a whole, presents a kaleidoscopic picture of the field of possibilities for notation up to the late 1960’s. The aesthetic claims of the volume’s composers were made ever more urgent the more that the artworks to be notated fell outside the traditional methods of music-making. These examples clearly illuminate the extent to which notational possibilities were in productive flux, and also the way that an absence of strict prescriptive function highlights the other kinds of work notation can do. In and among the 260 pieces in Notations are 30 pieces of music that use some kind of electronics, or about 12% of the whole. My paper examines the electroacoustic music in Notations for clues about the notational possibilities considered by composers at mid-century, focusing on common purposes and strategies. It is my intention that the theoretical and situational constraint imposed by this paper, that is, treating this material object as a kind of fixed microcosmic system, can lead composers, performers, and musicologists alike to see the spectrum of notational possibilities in a new light.

My paper also explores the ontology of Notations from the perspective of book history, showing how electroacoustic music particularly challenges the status of “the
“book” in the mid-twentieth century as a kind of object or work presumably independent of sounding form. Because the emphasis of the collection is so much on the material and visual artistic characteristics of the various items, the electroacoustic music examples can be seen as some of the most radical experiments in the book because they are the examples for which technology demands a new material orientation. Each composer’s submission, then, can be seen as a kind of manifesto, and Knowles and Cage can be seen as political interpreters of the works printed in *Notations*. By putting this set of materials together in such a way, all of the authors involved are making a collective statement about the boundaries (or lack thereof) of music, its notation, and its material forms. It is my contention that electroacoustic music in particular consistently challenges those boundaries.

Selective bibliography:

"Appetizer" presentation speech, program notes offer a form of symbolic framing and a concrete support of the works at the same time and places as their meeting with the concert audiences. The words of the composer are tools, deictic, shifters, seeking to establish the work securely in its context, to facilitate the perception or deepen understanding of the unique work they are responsible for presenting.

This communication function is amplified and institutionalized in the case of contemporary music and even more electroacoustic. The mediation of the composer’s comment is more than ever essential to a situation of broadcasting in which the electroacoustic work is revealed in the unheard and the unseen, because of the absence of the usual visual references such as instruments, interpreters and scoring. The composer, even more than the analyst establishes explicit links that the work has with the world using the compositional means available. Communication issues are closely linked to those of composition, being crossed by the same tensions. The program notes express their preferred traces. However, few historical studies have sought to identify filiation, even less to analyze them on their own, as a phenomenon specific to a context which becomes systematic in 1950 and is considered in a very special way in the case of electroacoustic music.

Is there a specific metalinguistic electroacoustic music flow? What words do composers choose in texts that describe according to the listening guide, mind (intentions and procedures) for the creation, broadcasting and collection of unique musical works? What processes and discursive fields are most often used to conceptualize the aesthetics of sound in the case of electroacoustic music? Finally, in what way are these records significantly oriented towards the listener?

The investigation which is the subject of the work presented here borrows from validation methods specific to social sciences and focuses on two socio-semiotic corpus, one written, consisting of a set of references of works written in 1985 and filed in the Documentation Center of Contemporary Music in Paris, the other one is oral and comes from a sample speech of composers of electroacoustic music.

Two lines of analysis, by communicative genres and themes, designed to observe the flow of the particular language mobilized by composers, when constrained by the work and its broadcasting device. The analysis of the interviews allows to construct a typology linking the writing practice of these texts and
the universe of meaning that composers associate to it according to the comprehensive approach that is ours. Thus, we hypothesize that these program notes provide a fertile and renewed prism of analysis of the aesthetic and ideological issues and problems related to the field of musical creation and especially electroacoustic music. The links between the record and the work depend on a social construction. Discursive categories cover components of the works with sufficient symbolic power to be given as a model, as evidenced by the metaphorical and operational concept of sound space.

Selective bibliography:


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The sampler has been invented almost 70 years ago; and among the potential inventors are Harry Chamberlin, in 1946 USA, closely followed by Pierre Schaeffer and Jacques Poullin who developed between 1951 and 1958 various phonogènes: machinery handling sound, based on the principle of variable speed tape recorder, which can be likened to a sampler.

Nowadays, the sampler is probably one of the most used musical instruments: from erudite electroacoustic music to popular electronic music, through music from audiovisual products (TV series or video game musical dressing). Since Mac OSX Lion, Apple has even incorporated a sampler (AUSampler) within its operating system.

Yet this instrument remains unknown, mysterious, invisible in film generics, CD covers or concert programs; organological or musicological studies appear to be very rare. Literature only offers few items or practical manuals describing "how to use your sampler machine or how to sample sounds".

The present work is a first presentation of several years of research and data collection, allowing understanding a little better the complexity of the situation.

First of all, the author proposes a very brief historical and musical overview, aimed at making clear the richness of this instrument and its uses. Then, the analysis of these data leads to the identification of 6 dimensions (sample or result nature, sample or result perception, instrumental gesture type, intentions and lutherie) and the development of the block diagram below, highlighting the complexity of the study (in comparison with other musical instruments) and the magnitude of the musical revolution.

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Ultra-sensing: moving beyond ‘work’ and ‘venue’ in intermedia art

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Kerry Francksen is a research practitioner, dance/intermedia artist and educator. She has been working as a professional practitioner since 1997, making interactive installation art, live performance and works for camera. Her current research brings together, and explores further, these rich and diverse practices in order to engage with the potentiality for creating ‘live-digital’ art works. This forms the basis of her PhD thesis and is the focus and vehicle for her practice-as-research.

Drawing upon Vivian Sobchack’s notions of “ultra-hearing” and “ultra-seeing” (a re-interpretation of Bachelard’s sensory hierarchy), this paper explores the possibility and nature of moving from the ‘work’ (in electroacoustic musical and contemporary choreographical senses respectively) to an intermedial conception of a multisensory and ‘live-digital’ ‘event’ which moves from, through and beyond the ‘concrete’, towards a rhythmical space that is, in the words of Don Ihde ‘a deliberate decentering of (the) dominant tradition(s) in order to discover what may be missing’ (1976:14). The authors’ investigation into the taxonomies between sonic worlds, image generation and movement making, in a recent and on-going collaboration, therefore engages in the imaginative potential of an ‘event’ (in Massumi’s terms) where the modulation of acousmatic sound, image and movement becomes enlivened beyond the fixed dimensions of each respective discipline. Moreover, besides exploring the potential connections between sound, image and the body, the authors have been searching for a way to create environments that stimulate poetic relationships beyond the normal compositional opportunities afforded by each of their respective areas. This has encouraged a situation were technological and technical processes leads one to respond to the qualities of things, which in turn has encouraged an epistemology of materiality – not fixed in form – but open to the nuances that flow between them. Indeed, in terms of the integral nature of ‘fixing’ movement and image qualities in determining the nature of the ‘live’ or ‘performative’, there have emerged some interesting connections with post-Schaefferian musical practice. As Hansen describes, “At the heart of this endeavor is a conviction that today’s microtemporal digital technologies do not simply impact human sensory experience from the outside, but rather materialize a potentiality that characterizes sensory experience from its very origin…”

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Simon Atkinson is a musician (primarily electroacoustic composition) and academic, who has worked since 2001 at De Montfort University, where he is Principal Lecturer in Music, Technology and Innovation. He is co-director of the EARS project and founding member of invisiblEARts.

Kerry Francksen is a research practitioner, dance/intermedia artist and educator. She has been working as a professional practitioner since 1997, making interactive installation art, live performance and works for camera. Her current research brings together, and explores further, these rich and diverse practices in order to engage with the potentiality for creating ‘live-digital’ art works. This forms the basis of her PhD thesis and is the focus and vehicle for her practice-as-research.

Drawing upon Vivian Sobchack’s notions of “ultra-hearing” and “ultra-seeing” (a re-interpretation of Bachelard’s sensory hierarchy), this paper explores the possibility and nature of moving from the ‘work’ (in electroacoustic musical and contemporary choreographical senses respectively) to an intermedial conception of a multisensory and ‘live-digital’ ‘event’ which moves from, through and beyond the ‘concrete’, towards a rhythmical space that is, in the words of Don Ihde ‘a deliberate decentering of (the) dominant tradition(s) in order to discover what may be missing’ (1976:14). The authors’ investigation into the taxonomies between sonic worlds, image generation and movement making, in a recent and on-going collaboration, therefore engages in the imaginative potential of an ‘event’ (in Massumi’s terms) where the modulation of acousmatic sound, image and movement becomes enlivened beyond the fixed dimensions of each respective discipline. Moreover, besides exploring the potential connections between sound, image and the body, the authors have been searching for a way to create environments that stimulate poetic relationships beyond the normal compositional opportunities afforded by each of their respective areas. This has encouraged a situation were technological and technical processes leads one to respond to the qualities of things, which in turn has encouraged an epistemology of materiality – not fixed in form – but open to the nuances that flow between them. Indeed, in terms of the integral nature of ‘fixing’ movement and image qualities in determining the nature of the ‘live’ or ‘performative’, there have emerged some interesting connections with post-Schaefferian musical practice. As Hansen describes, “At the heart of this endeavor is a conviction that today’s microtemporal digital technologies do not simply impact human sensory experience from the outside, but rather materialize a potentiality that characterizes sensory experience from its very origin…”
In consequence, a central concern has been how each of the constituent parts of the unfolding ‘event’ can then remain in flux, or better said remain un-fixed (the term ‘event’ and not ‘work’ is used purposefully here to avoid the idea that what is created is a fixed piece of work) in order to tap into sensory experience proper. Parallels relating to affect, interpretation and meaningfulness between electroacoustic and live-digital dance practices and audience experiences will be drawn. Notions of intimacy, central to this ongoing work, will be explored in relation to the conference theme; that is to say, between ‘live’ and digital, between eye and ear, between movement and digital image, and between performance and intermedia ‘environment’ and audience. Given the centrality of space as well as temporality in this endeavor, the authors continue to explore where such practice should happen; it seems already not in the concert hall or traditional dance venue…

Selective bibliography:


Sound is a flying temporal phenomenon. By travelling through the air pressure of a place, it always bears spatial qualities communicating the distances and positions from which it is coming. Sounds, as such, have spatial attributes by their different volumes, densities or heights. Therefore, space is inherent in any music. Even if composers of traditional music don’t use a ‘Fernorchester’, they take spatial qualities into consideration with varying degrees of intensity. However, modern technological development has facilitated the distribution of sound in space. A lot of new genres have arisen, which use a spatial treatment of sound. The special theme of the conference Beyond Concert Performances motivated me to compare electroacoustic music with sound installations for several reasons. At first glance these two genres seem to be very different, one being more related to music and the other being situated between visual art and music. However, both are time and space based phenomena, and therefore they have a great deal in common. In short, here is an enumeration which had to be elaborated in a more detailed form:

The development of sound installations gained a lot from the spatial distribution of music. Often sound installations are included in festivals of electroacoustic music. Both have to use public address systems. Composers quite often work in both fields. There have been combinations of a performance with an installation, by which the installation, as such, seemed to be a concert with a long duration. A new form arose; the concert installation.

This talk should also have a look back as the common history of electroacoustic music and installations (e.g. the Philips Pavilon, the Polytopes). Questions should be discussed. How site-specific should a sound installation be, and how are electroacoustic works fitted into a special room? Some recently developed ideas, such as immersion, being in a situation etc., reflect the presence of the audience in an artificially shaped environment. They should be mentioned as an overview of a possible enlargement of aesthetic thought.

Helga de la Motte-Haber (1939) studied psychology and musicology, and has since the seventies lectured about Sound Art. She was a pioneer in her field and contributed to shifting the focus of musicology towards contextualisation and the surroundings of sound. In the 90’s she began researching on music compared to other art forms. From 1978 - 2005 she was professor for Systematic Musicology at the TU Berlin. She is co-founder of the German Society of Musicpsychology, and author/editor of serveral books like Handbuch der Systematischen Musikwissenschaft (5 Bände), Klangkunst (= Band 12 des Handbuch der Musik im 20. Jahrhundert) oder Musik und Bildende Kunst.
One of the many differences between software instruments and physical ones is that software instruments, since they deal in information instead of physical vibrations, can operate in ways that are indirect to the point of being mysterious. Software in the past half century has rapidly increased in complexity and decreased in stability. This raises problems for both designers and users of software intended for musical creation. Specific pieces of computer-mediated music can easily become impossible to perform within a decade of their creation. More broadly, musical practices can easily become embedded in specific software configurations and hard to study from vantage points other than the creator’s chair. What one musician can learn from another one can be limited by incompatible differences between the software paradigms they favor. Although the software designer strives to make software as open and transparent as possible, this transparency is always limited by competing exigencies for efficiency, “power”, and sometimes a commercially imposed need for secrecy.

While music software can give the musician great power, its users should stay aware of the risks that can accompany its great and largely hidden complexity.

Miller Puckette obtained a B.S. in Mathematics from MIT (1980) and Ph. D. in Mathematics from Harvard (1986). He was a member of MIT’s Media Lab from its inception until 1987, and then a researcher at IRCAM (l’Institut de Recherche et de Coordination Musique/Acoustique), founded by composer and conductor Pierre Boulez. At IRCAM he wrote Max, a widely used computer music software environment, released commercially by Opcode Systems in 1990 and now available from Cycling74.com.

Puckette joined the Music department of the University of California, San Diego in 1994, where he is now professor. From 2000 to 2011 he was Associate Director of Center for Research in Computing and the Arts (CRCA) at UCSD. He is currently working on Pure Data (“Pd”), a leading open-source real-time multimedia arts programming environment, with software contributions by many others worldwide. Puckette has collaborated with many artists and musicians, including Philippe Manoury (whose Sonus ex Machina cycle was the first major work to use Max), and Rand Steiger, and Vibeke Sorensen (as part of the Global Visual Music project). Since 2004 he has performed with the Convolution Brothers.
This year’s EMS conference focuses on »Electroacoustic Music Beyond Concert Performance«, a field of research and artistic practice that seems to ask for an accompanying music program not bound to the established concert setting. We therefore decided to present two permanent sound installations by Bernhard Leitner, located in the Technical University Berlin main building (Ton-Raum, 1984 and HörSaal, 2010), and to put out a call for sound installations to be presented at University of Arts, Einsteinufer, Room 112. The latter installations are intended to run continuously for five hours on one day during the conference. No performers (musicians, dancers), no visual or sculptural elements including furniture, projection or special light setup will be employed. Up to 12 speakers and up to one subwoofer are provided and may be used. The speakers are to be placed on their designated stands or on the floor.

The EMS14 Organizing Committee chose three pieces from some forty proposals for realization. We are excited to present three pieces that cover a wide variety of approaches in terms of aesthetic and technique and hope to help in establishing an artistic addition to the conference’s scholarly discourse.

The installations are funded by the Electronic Music Studio of Technical University Berlin and produced in collaboration with the University of Arts, Sound Studies program. We would like to thank the artists, the EMS committee, our colleague David Ackerman for the production’s technical supervision, and Manfred Fox for looking after the Ton-Raum.

Volker Straebel and Andreas Pysiewicz
Technical University Berlin
Electronic Music Studio, Audio Communication Group
At the core of the installation lies the concept of the traditional circle of fifths: a theoretical “thought-space” in circular shape, which describes the tonal and functional relations of music in standard western 12 tone equal temperament. The installation translates this theoretical space into a real space via a circle of 12 loudspeakers, each projecting one pitch class only and ordered according to the circle of fifths. A special digital filtering algorithm is used to separate musical or sonic material into these 12 pitch classes across several octaves (8 - 9). While the 12 resulting tracks contain each one pitch class only, their ensemble still can recreate enough timbral information to allow the identification of individual instruments.

In the resulting sound field, melodies jump between loudspeakers, harmonies are fanned out, centers of tonal gravity aggregate in sections of the circle.

Of equal importance is the position of the listener within the circle: in the centre all loudspeakers are perceived with approximately the same loudness and the result could be described as a sonification of functional relations within the projected musical material. Being very close to one loudspeaker, one pitch class only is audible across several octaves. Navigating between those two extremes results in a shift in the perceived loudness-relations of the individual pitch classes, which “disturbs” the sonic image and alters the perception of the music.

In its recent form, the installation combines known musical material (because of their chromatic subject, the canons from Bach’s “musical offering” lend themselves particularly well for such analytical treatment) with sonic material stemming from field recordings or the live feed of an open microphone in the surroundings of the location. The process of “tonal rasterisation” of real-world continuous sounds articulates the circle of fifths in an altogether different way, shifting the focus of perception from “primary” features of the source material to its inherent, but hidden tonal relations and movements. The resulting sonic image could be compared to stripe photography.

Even if the traditional circle of fifths lies at the roots of the work, it is possible to think about a transposition to different tunings with more or less pitch classes or altogether different forms of functional relations. What really matters here is the concept of directly deriving a spatialisation from inherent properties of the musical material.

The first installment of the work was presented in 2006 at the Voorkamer artist’s initiative in Lier/Belgium.

Hans W. Koch (Cologne) is active as composer, performer and soundartist.

He considers art sculpting thoughts in different materials and personally favours conceptual approaches: more thought, less material. Exploring (de)faults of soft- and hardware results in the use of computers as musical instruments in a rather physical manner.

His works have been commissioned by and presented at numerous festivals and occasions both nationally and internationally. In 2008 his piece “the benchmark consort” won an award of distinction at the Ars Electronica festival in Linz/Austria. Since 2012 he teaches hybrid sound composition at the Institute for Music and Media in Duesseldorf.

www.hans-w-koch.net
Thomas Ankersmit (1979, Leiden, Netherlands) is a musician and installation artist based in Berlin. Since 2006 his main instrument, both live and in the studio, has been the Serge analogue modular synthesizer. Acoustic phenomena such as sound reflections, infrasonic vibration, otoacoustic emissions, and highly directional projections of sound have been an important part of his work since the early 2000’s.

His electronic music is also characterized by a deliberate misuse of the equipment, using feedback and disruptions in the signal to create dense but finely detailed swarms of sound. Recent projects include a radio piece based on the acoustics of abandoned radar domes with Valerio Tricoli, recording sessions with Kevin Drumm at GRM in Paris and with Tricoli at ZKM in Karlsruhe, a new Phill Niblock composition for Serge synthesizer, and all-analogue quadraphonic music for the historical Serge and Buchla synthesizers at EMS in Stockholm.

His music is released on the PAN, Touch and Ash International labels. Ankersmit’s sound and installation work has been presented at Hamburger Bahnhof, KW and Berghain, Berlin; Henie Onstad Art Centre, Oslo; Kunsthall, Bergen; Kunsthalle, Basel; CAPC Musée d’Art Contemporain, Bordeaux; Arnolfini, Bristol; CCA, Glasgow; MoMA PS1, New York; Paradiso and Muziekgebouw aan’t IJ, Amsterdam; REDCAT, Los Angeles; Serralves Museum, Porto and at festivals for experimental and contemporary music all over the world.

He has also been a guest lecturer at universities such as Columbia, Harvard, CalArts and the Universität der Künste in Berlin.
Sound is always spatial, but in its status as a temporal phenomenon it is also an overcoming of space. Sound carries the properties of the space in which it sounds and the resonating object from which it emanates, yet it also overcomes the spatial extensional objectivity in which it is created, by becoming an event. Sound is thus not merely movement (spatial displacement), but by moving back and forth (oscillating) it emerges as an ephemeral temporal event bearing the traces of the space that it overcomes/sublates. As the philosopher G.W.F. Hegel already remarked, sound is located precisely at the gap between spatial objectivity and temporal subjectivity. The sound installation Reflexion proceeds from the assumption that a sound event sustains itself by reflexion, i.e. by referring to itself, by echoing and resonating with(in) itself. A sound event is thus the point of emergence of interiority out of mere spatial exteriority; it is the creation of an identity through vibration, oscillation as a movement of self-referral. Sonorous reflexion (feedback) creates an inside and an outside by encountering itself as other. The site-specific sound installation Reflexion is based on a very specific sonorous spatiality, that of solid objects, i.e. it explores solid objects as sonorous spaces. Using exciters (loudspeakers for structure borne sound) and contact microphones, sonic feedback is created within the six glass windows of the room in the Einsteinufer. Sound is thus created out of nothing, by self-reflexion, however instead of using air as the medium of sound, glass, that translucent and reflective solid material, which marks inside and outside, is used as an oscillating membrane in order to create a sonorous interiority, a musical-gestural and timbrical identity. The solid body thus becomes the primary space and sound medium. The six windows, which are creating sound via feedback, are connected to each other through a computer system developed in the audio programming language SuperCollider. The system partly transforms the input signals again before feeding them back into the glass membranes using a variety of digital feedback processes, such as nonlinear equations as well as delays and filters in order to create a long term memory and control-level feedback leading to complex and interdependent behavior. Sound is thus multiply reflected, in a physical body, in a digital feedback system, and through the air mediated space of the room itself.

Luc Döbereiner (*1984) is a composer and researcher from Berlin. He studied at the Institute of Sonology in The Hague and holds a doctoral degree from the University of Music and Performing Arts Graz. His work is concerned with compositional models and explores the relation of the materiality and the ideality of sound in musical composition. His artistic thought is constituted in the oscillation between aesthetic theory, technological development, and compositional practice. Döbereiner has published articles in journals such as Computer Music Journal, Contemporary Music Review and kunsttexte.de. His compositions have been performed by ensembles such as unitedberlin, Sond’Ar-te, Modelo62 and by players such as Frank Gutschmidt, Martin Lorenz, Akane Takada, and Karolina Öhman. His works have been performed and presented among others at CTM Berlin, the ISEA, ZKM Karlsruhe, Make Art Festival Poitiers, on Deutschlandradio Kultur, Computing Music Cologne, in the Maison de la Radio Geneva, the Goethe-Institute Lisbon, and the Gare du Nord Basel.
The TON-RAUM TU BERLIN was completed in the spring of 1984 and is the award-winning project in an international art-on-architecture competition. The cubic, static metal architecture, in which walls and ceiling are equipped with 34 broadband and 18 high-frequency loudspeakers, is the supporting construction for dynamic, sound-sculptural spaces. The perforated metal surfaces are a kind of acoustic-transparent skin. On the one hand, the insulating material layered behind it greatly reduces the reverberation period. On the other hand, the sounds are projected into the space from loudspeakers that are arranged on all sides in places indeterminate for the eye. The architecture becomes the instrument for composing immaterial time-spaces. Here sound is the sculptural, form shaping material. Sound is the building material for spatial configurations such as serpentine interweaving, soft walls, rhythm space, kneaded space, tingling space, tensions, time-vaults and arches, breathing space, twitching space, billowing space, water cube, wafted space. At specific times of the day sound spaces are retrieved from the stored memory menu, infusing an ever new presence into his architecture. The TON-RAUM is installed in the staircase of the main building of the Berlin Technical University.

HörSaal. Eine WelleNfeld-InSTAllATiON (2010) [A Wave Field Installation]
Bernhard Leitner
Florian Goltz, audio programming

HörSaal (in German – a lecture hall, auditorium, a hearing hall) is a site-specific soundspace installation. The medium is the audio playback system with 832 channels installed in the lecture room H104 in the TU (Technische Universität) Berlin. The composition of dynamic and static sound spaces makes use of this technology (Wave Field Synthesis). In contrast to a concert-type usage of the space with strictly arranged rows of seats (for a lecture), HörSaal is conceived as a freely accessible sound-space composition. In the dynamic parts (sound material: aerially agitated, echoed rustling and soughing) sounds are moved between ten abstract sites. These sound-locations are programmed and mapped out not only within the visible space, but – in the acoustic and virtual dimension – outside it as well. This movement is overlaid by a movement with a different progression between the abstract locations. Both of these are yet again overlaid with a third and fourth level of varying movement structures in the space. The complex space texture suggests a drifting, aleatory wind-blown space, whereas it is an exact, controlled composition of form. In the static hearing space (sound material: speech) the listener wanders through various places in the hall, which are indicated visually by the installation of staves, 2 m high and painted red. Out of a diffuse noise pervading the total space and assembled out of twelve different speech channels we step into precisely defined sound sites, extremely individual hearing spaces, where we experience the sound-world of words spoken by the physicists Planck, Schrödinger, Einstein, Meitner, Hahn, Pauli and Heisenberg.