Alternative Histories of Electronic Music
14-16 April 2016
International conference staged as part of the AHRC funded project
Hugh Davies: Electronic Music Innovator

Science Museum Dana Research Centre, Queen’s Gate, London
The Hugh Davies Project

This first international conference on ‘Alternative Histories of Electronic Music’ (AHEM) is being staged as part of an AHRC-funded project exploring the work of the English musician and musicologist Hugh Davies (1943-2005). The project is led by Dr James Mooney (University of Leeds) in partnership with Dr Tim Boon (Science Museum).

http://hughdaviesproject.wordpress.com

In the late 1960s, Davies produced a comprehensive inventory of electronic music compositions, entitled *International Electronic Music Catalog* (1968), in which he documented the output of 560 studios in 39 countries. This challenged the hegemony of the Paris, Cologne, and New York schools, whose activities had dominated the literature of the 1950s and 60s. As such, Davies provided what was perhaps the first alternative version of electronic music's history.

While this conference is not directly ‘about’ Hugh Davies, then, it does explore some of the broader issues raised by his work.
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<td>Benedikt Brilmayer &quot;The Trautonium: Oskar Sala and the development of electronic music in Germany&quot;</td>
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<td>Alex McLean &quot;Unravelling live coding&quot;</td>
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<td>Margaret Schedel &quot;Color is the Keyboard&quot;</td>
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<td>Registration</td>
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<td><strong>Session 5: International Perspectives</strong>&lt;br&gt;Chair: Rachel Sinsheimer Vandagriff</td>
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<td>Kevin Austin “A Brief Speculative History of ea in Canada”</td>
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<td>10:10</td>
<td>Ricardo Dal Farra “Why didn’t you tell me this before? (Maybe you didn’t want to hear this side of the story)”</td>
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<td>12:20</td>
<td>Invited Speaker (chair: Simon Emmerson)&lt;br&gt;Leigh Landy “Rethinking the History of Sound-based Music”</td>
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<td>James Gardner “The Don Banks Music Box to The Putney: The genesis and evolution of the VCS3 synthesiser”</td>
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<tr>
<td>16:05</td>
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<td>16:30</td>
<td>Invited Speaker (chair: Margaret Schedel)&lt;br&gt;Georgina Born “How can and should we write alternative <em>histories</em> of electronic musics? New thoughts on time, history, and electronic musics”</td>
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<td>Closing remarks</td>
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Session 1: Discourses, narratives and canon formation

Hannah Bosma (mail@hannahbosma.nl)
The (lack of) documentation and canonization of interdisciplinary electroacoustic music

The availability and the choice of sources are an important aspect of the formation of music history. As I argued previously in relation to gender issues, analytical and historical accounts are mostly confined to music of which there is accessible documentation or audio(visual) recording available. This is a problem for music that does not fit into established formats and for which scores or standard audio(visual) recordings are not available or not sufficient as source material. This is not only a disadvantage with regard to contemporary accounts and analyses of such musical art; the long-term preservation of it is seriously problematic. This specifically affects music that has one or more of the following characteristics: interdisciplinary, exclusively performance-based, participatory, in the form of an installation, live electronic, improvised, with custom-made instruments or equipment.

The use of various analogue and/or digital electronic technologies, instruments and media, the intermingling with various other disciplines (such as art, dance, theatre, etc.), the upheaval or stretching of the work concept and the departure from tradition causes new and serious problems to its preservation, such as early obsolescence of the experimental technology and a lack of standards. Moreover, a focus on the unique present, on decay or on obsolete technology are often aesthetic features of such music, adding a reflexive layer to the problematics of preservation. The issue of what is included and excluded in the established histories and canons, is closely related to the issue of preservation. A shift in focus with regard to what is or must be preserved, in what form or media, may come with a shift in the construction of music histories and canons, and vice versa.

Do other kinds of histories need other kinds of sources? What different kinds of sources can we think of? What complicates the use of these?

A focus on the musical work neglects the practice of music. Instead, I propose to take into account actor-network theory and to deal with musical performers, sound engineers, technologies, institutions and other actors as well. In interdisciplinary music, the notion of the composer as the Author is particularly problematic, as this music is often a collaboration between makers of various disciplines, shifting conventional musical roles.

As a pilot study for a larger research project on the documentation of interdisciplinary electroacoustic music in relation to the concept of the musical work in the electronic/digital age, I will explore:
1) what kind of source materials are used in some of the main historical overviews of electronic music and how the choice and availability of sources influences these histories;
2) some of the possibilities and problems of the documentation and preservation of interdisciplinary electroacoustic music (works or practices).

I will trace these issues by way of some specific examples of Dutch interdisciplinary music: the work of Dick Raaijmakers, Huba de Graaff and the studio for electro-instrumental music STEIM.

Both Raaijmakers and STEIM are among the few Dutch exponents of electroacoustic music that are mentioned in the main histories of electronic music. But why are only specific aspects of their work discussed and significant parts ignored? What does this tell us about the selection and canonization process?

The works and practices of Dick Raaijmakers, Huba de Graaff and STEIM seem to resist documentation, ontologically and practically; but on the other hand, there is a desire for its documentation, dissemination and canonization. How is this done, by whom, what are the problems, and what may be possible solutions? What interests influence these processes?

Biography

Hannah Bosma defended her doctoral dissertation The Electronic Cry: Voice and Gender in Electroacoustic Music at the University of Amsterdam in December 2013. Her articles on gender and electroacoustic music are published in

The Routledge Companion to Sounding Art (ed. by M. Cobussen, V. Meelberg and B. Truax; Routledge, forthcoming), in Cathy Berberian: Pioneer of Contemporary Vocality (ed. by P. Karantonis, F. Placanica, A. Sivuoja, P. Verstraete; Ashgate, 2014), i.a. From 1998 to 2013, she worked as specialist electroacoustic music (NEAR) at the Dutch music institute Donemus / Music Center the Netherlands on the publication, preservation and re-performance of Dutch electroacoustic music. In 2014–2015, she worked as a researcher for a project on born digital heritage in film, photography, architecture and media art. She organizes the conference The Art of Voice Synthesis, May 11-12, 2016, at the University of Amsterdam.

Owen Green (owen.green@ed.ac.uk)
A role for contingent histories in teaching electronic music?

This theoretical paper comes from observing the experiences of my postgraduate students over a number of years as they struggle to relate their own work (commonly in live electronics) to the various 'official' histories of electronic musicking. I ask whether what might be called for is to encourage a proliferation of contingent histories to emerge as a central part of a pedagogy of practice, and whether this could also be of more general benefit to the live electronic discipline.

The suggestion rests on a number of assumptions and observations. First, that although, in principle, the old normative hierarchies have been displaced that unapologetically privileged 'serious' music over all others (Emmerson, 2001), this does not seem to be operationally true insofar as students still arrive with the assumption that this hierarchy remains and, moreover, it is surprisingly difficult to persuade them otherwise. Second, that this state of affairs is due, at least in part, to the discipline's few canonical texts being still very much concerned with the standard histories and that, assuming this will remain the case for some time, some other more agile approach is needed to deal with the problems that arise. Third, that having students that are in the process of forming their voices contorting to account for their work in terms of traditions with which they have no resonance may well be not so much character building as confidence sapping and that, consequently our schooling remains narrowly normative and insular. Finally, that this is not just a pedagogical issue but has a disciplinary manifestation also, insofar as the range of musical relationships and valences that live electronic researchers have in practice is conspicuously broader than what appears in formal discourse.

What I suggest is needed is some structured and sustained way of admitting in to our discourse with students accounts of and relations to musics that they can make sense of and that can help them make sense of their own work. This is not, I think as trivial as it sounds. We do not simply wish to abandon all electronic music history to date to be replaced with an individuated and solipsistic corpus of musical autobiographies. Rather, I’m assuming we want to foster robust criticality in the ways that students engage aurally, practically and discursively with received histories, musical encounters and with their own work, and that an omnivorous but reflective attitude to music is to be encouraged.

One possible way this could be pursued is to have a much more overt focus in teaching on linkages rather than isolated incidents. In particular, I wonder if the approaches demonstrated by Eshun (1998) – creating speculative ‘sonic fictions’ that traverse unlikely interconnections and relations – or by Norman (2004) – similarly exploring alternative pathways of works and artists – could offer useful pointers as a way to proceed. This, in turn, evokes the approach taken by Gell (1998; also Born, 2005) in treating collections of work as objects distributed in time and space. It may be that by working hard with students to probe such (possibly speculative) distributions we can enable better and easier engagement with their own and others’ work, and possibly enrich our own collective notions of what musicking is worth discussing, and how.

Biography

Owen Green is a composer-improviser who focuses on electronic music. He is active in a number of groups, including Sileni (improvised doom-crunk hip-hop), Tri/fon (live laptops) and the large improvising ensemble EdImpro. Recent projects have included ‘Perch’ with Stephen Deazley and Conflux; ‘Limits to Growth’, a mutating sound installation with Martin Parker, and a new Sileni recording released on Black Lantern music. Owen also teaches sound design and electronic music at the University of Edinburgh.
Christopher Haworth (Christopher.p.haworth@gmail.com)
The Hauntological Turn: Genealogy, History Making, and ‘the Contemporary’ in Electronic Music

“Categories strain, crack and sometimes break, under their burden - step out of the space provided”

Nurse With Wound

The 1979 debut album by Nurse With Wound is perhaps less famous for the music it contained than an accompanying text printed on its inside sleeve. Dubbed the ‘NWW List’, it is a collection of 292 outsider artists and bands (‘electric experimental music’) that inspired NWW; some known, most obscure, and a few potentially fictional. Providing fans and collectors of experimental with an unofficial road-map-cum-shopping-list of rare, visionary and exotic music across ‘art’ and ‘popular’ styles, its fame has accumulated such that, today, items sell on Ebay for upwards of a thousand pounds. Yet the significance of the list is not only as a spirit-seeker’s handbook. More than this, it has come to represent a shift in the praxis and self-understanding of underground music culture relative to history, where passive notions of ‘influence’ and ‘inheritance’ are displaced by the more active and performative concepts of ‘genealogy’ and ‘history making’. In today’s electronic music, these processes are everywhere: in the creative practices of individual artists, the curatorship of record labels, the texts of record stores and music critics - even in the individual sounds and technologies. Without the recovered historical signifiers and uncharted paths that thread throughout and mark the terrain of contemporary electronic music genres - J.D. Emmanuel's new age-meets-minimalism masterpiece Wizards in Noise; the production sound on Don Henley's Boys of Summer in Hypnagogic Pop; the Radiophonic Workshop in Hauntology - their very separateness as genres is compromised.

How do we theorise this acceleration, diversification, and individuation of genealogy in electronic music today, accounting for the multiple conflicting historical paths that are threaded by artists, labels, genres, and institutions, and that are performed through texts, sounds, artefacts, and other mediums? Music criticism on the subject has so far been nugatory, resorting to well-worn end-of-history narratives of crisis, decline, and malaise in popular culture. Drawing on the NWW list, and informed by the concept of ‘the contemporary’ as a distinct moment of historical-time consciousness, a first aim of this paper will be to argue against this intellectual trend, figuring the ‘hauntological’ turn, not as a symptom of crisis or inertia, but as part of a reflexive expansion of what constitutes the aesthetic object. Central here is the role and function of the Internet in today's electronic music genres, and the aesthetics of the archive that has emerged in relation to it.

The second aim of my paper will be to consider the implications of these actions for music studies in general. If there is a ‘musicological’ intent to these acts of curation and history-making, augured by the expanding archive of popular music housed on the Internet, then how can musicology-proper utilise them in productive ways? This section will draw on Branden W. Joseph’s 2008 study of Tony Conrad, and Georgina Born and Nicholas Cook’s recent statements on ‘histoire de l’histoire narratives of crisis, decline, and malaise in popular culture. How do we theorise this acceleration, diversification, and individuation of genealogy in electronic music today, accounting for the multiple conflicting historical paths that are threaded by artists, labels, genres, and institutions, and that are performed through texts, sounds, artefacts, and other mediums? Music criticism on the subject has so far been nugatory, resorting to well-worn end-of-history narratives of crisis, decline, and malaise in popular culture. Drawing on the NWW list, and informed by the concept of ‘the contemporary’ as a distinct moment of historical-time consciousness, a first aim of this paper will be to argue against this intellectual trend, figuring the ‘hauntological’ turn, not as a symptom of crisis or inertia, but as part of a reflexive expansion of what constitutes the aesthetic object. Central here is the role and function of the Internet in today's electronic music genres, and the aesthetics of the archive that has emerged in relation to it.

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Biography

Christopher Haworth is a Postdoctoral Research Associate on the Music and Digitisation Research Group at Oxford University. His work focuses on genre and genealogy in digital music and sound art, and the various ways that aesthetics, technologies, and perception becoming imbricated in these processes. Of particular interest is the concept of ‘avant-garde’ in relation to these dynamics. He is researching the various ways in which connections to earlier avant-gardes (‘historical’ or ‘neo’) are established in contemporary genres, alongside new claims to avant-garde status made by practitioners and critics. Christopher completed his Ph.D. in 2012 at Queen’s University Belfast

Joe Watson (J.M.Watson@sussex.ac.uk)
Interference patterns: reframing historical perspectives on interconnections between electronic music and cybernetics

This paper presents a ‘diffractive’ encounter (Karen Barad, 2003), or ‘mapping of interferences’ (Donna Haraway, 1992), between four disparate, interconnected ‘personae’:

- **Electronic Music: Systems, Techniques and Controls** by Allen Strange, 1972 1st ed., 1983 2nd ed. Long out of print pedagogical text mainly focused on modular synthesis. References to cybernetics abound. The 2nd ed. becomes a ‘bible’ to denizens of muffwiggler. The 1st ed. has a long description of one electronic performance piece by:

- Ranulph Glanville. British composer of the 60s, who in 1972 gave up music and became a cybernetician. He was a very early adopter of live performance electronics, though his not being institutionally affiliated meant his electronic setup had to be cobbled together or self-made. His approach was unconventional and resolutely DIY:
“A key notion in our work was that anyone (including us) could make music” (2001). Glanville notes “how music provided an initial developmental test bed for later work” in cybernetics, where he was tutored by:

- Gordon Pask. One of the key developers of ‘2nd order’ cybernetics. Pask is not to be found in any historical study of electronic music, but his MusiColour performance system of 1953, in which a musician conducts an improvisatory conversation with a machine that generates a responsive light show, can be seen as a highly sophisticated and prescient anticipation of much later work in electronic music centred on human-computer interaction, algorithmic/generative approaches and machine learning. MusiColour, like much of Pask’s later work, was created outside of any institutional support structure, and like Glanville’s performance systems, was DIY. Pask did much work on machine learning. Glanville called him “the father of CAL” [computer aided learning], and his work of the 60s and 70s pre-figured later collaborative knowledge sharing environments to be found today in the shape of forums such as:

- muffwiggler. The pre-eminent modular synthesis forum. Has taken Electronic Music to its heart, with many posts presenting realisations of Strange’s example patches on contemporary modular setups. Founded by Mike McGrath out of a frustration at the paucity of information online. He never promoted the forum, yet it ‘grew itself’ to become the number one source of modular synthesis information on the net. It is not without irony that McGrath tells the tale of the Cal Arts electronic music professor pleading with him to change the name of the forum so he can recommend it to his students: CA is one of the few privileged places where this information was always available, in the shape of knowledgeable synthesists, a well stocked library and some of the most important modular synth resources such as the Serge system.

A diffractive accounting troubles boundary making and linear progress narratives, as exemplified by ‘the history of electronic music’. Here, interconnections between these four players allow us to draw a circular, non-linear history that touches on: interconnections between electronic music and cybernetics, maverick designers and thinkers who operate on the margins of institutional support and structure; complex feedback networks and systems; self-generating or organizing systems; collaborative knowledge communities.

References:

Biography

Joe Watson is a musician, composer and teacher who is currently engaged in a practice-based PhD in composition, focusing on analogue and other alternatives to the ubiquitous digital tools used to make electronic music. Recent work has explored tape music, musique concrète, and complex feedback networks and self-generating systems in modular synthesis performance. Joe has also released two solo pop music albums under the name Junior Electronics and was in the band Stereolab between 2004 and 2009.

Alexei Monroe (sodbaveka@yahoo.co.uk)

Industrial Activity: Kraftwerk’s Radio-Activity as dystopian sonic template

Radio-Activity (1975) deals with the most dystopian themes the pioneering German electronic group ever addressed. It was released shortly before the emergence in Britain of what became known as industrial music. The paper will argue that the more sonically radical and conceptually dystopian elements of the album were a strong precedent for industrial music and the way in which it used electronically-generated sound and noise. The minimalistic electronic percussion, oscillator and voltage sounds, shortwave radio recordings and collages of sampled voices deployed by Kraftwerk here can be directly compared to industrial’s use of noise as a texture, within and against a pop format. The use of these sonic elements to explore dystopian and ambivalent subject matter is also relevant here. Geiger Counter manipulates the fears surrounding radiation and The Voice of Energy features an alienated, electronically processed vocal that gives voice to fears of technological domination. The use of simulated and actual radio sounds and news reports on News has parallels with the near-contemporary work of the British group Cabaret Voltaire and their use of similar materials and themes, for instance on the early track Baader Meinhof. While Kraftwerk took this sample-based technique no further, it would become a key stylistic trope of industrial music. Uranium is a chilling soundscape that coldly dramatises the lethal potential of the element, and uses electronic sound to communicate a sense of ominousness. Another important parallel to be considered is the use of sonic and conceptual ambivalence. The album
was the group's most controversial, with some seeing it as being uncritical of, or even consciously aestheticising nuclear power. This overlooked Kraftwerk's documentary ambition to present tone pictures of everyday technological life, as well as their sly irony. The presentation of extreme and disturbing subject matter in industrial has generated even more severe criticism, with many being disturbed by its sonic-conceptual ambivalence. With these questions in mind, *Radio-Activity* will be compared with examples from groups such as Cabaret Voltaire, Throbbing Gristle, Clock DVA and others, illustrating some of the related approaches that appeared in the wake of the album. Both Kraftwerk and these artists consciously used what were then the still-alienating potentials of electronic sound, manipulating and ambivalently exploring technophobia and the darker side of late 20th Century ideas of (post)-industrial progress. Due to the controversy generated by its apparent "over-identification" with nuclear power, it has been relatively overlooked and is seen as less influential than those before and after it, yet it did exert a hidden influence as what Slavoj Žižek terms as a "vanishing mediator" between the approaches informing the *elektronische musik* of the Cologne School (which Kraftwerk members were fully aware of) and industrial. From there the still under-narrated industrial's effect on subsequent forms including Electronic Body Music (EBM), New Beat, Techno and certain strains of electronica can be traced, expanding our understanding of Kraftwerk's stylistic and conceptual influence further than previously.

**Biography**

Cultural theorist and writer specialised in the aesthetics, history and politics of industrial, techno and related electronic forms. His book on Laibach and NSK has been published in Slovenia, America (MIT Press 2005), France and Germany. He was programme director of the First NSK Citizens' Congress (Berlin, 2010) and edited the Congress book *State of Emergence*. He is co-editor of a major publication on Test Dept, Total State Machine (PC Press 2015). In 2015 he participated in the first academic conferences on Kraftwerk in Birmingham and Dusseldorf. He is currently researching connections between industrial music and British science fiction.
Session 2A: Live Electronics

Valentina Bertolani (valentina.bertolani@gmail.com)
The First Festival of Live Electronic Music at the University of California Davis (1967)

It is common knowledge that live electronic music is different from electronic music. However, it is quite difficult to find a generally accepted definition of live electronic music (or interactive electronic music), as the boundaries of this label are blurry. A major factor of disagreement is how much interaction with the electronic part is needed to consider a piece interactive electronic music. Paul Sanden’s definition explicitly shows this tension: “live electronic music is understood as any concert music, composed or performed primarily since the late 1950s presented in real time and involving some type of electronic sound. […] More recent scholars, however, understand the genre as performed music involving the electronic manipulation of acoustic sound and/or the electronic real-time production of sound. […] Electronic manipulation must be actively generated for it to be live.” (88)

Gordon Mumma’s seminal chapter from almost forty years earlier, “Live-Electronic Music,” (1975) offers a completely different scenario. In Mumma, the label encompasses: instrument with fixed media, lone fixed media, amplified small sounds, performed electronic equipment, and live performance with digital computers. Some of these practices, for example the lone fixed media, would not necessarily considered live electronics nowadays.

Technology-wise, many things have changed since then and even more has changed from the early 1960s. Our idea of liveness followed these changes. In this paper I will use the First Festival of Live Electronic Music (FFLEM), organized in 1967 by Larry Austin and hosted by the University of California in conjunction with the Mills College Tape Centre, as a case study to explore the actual meaning of the term “live electronic music” in the earliest stages of its history. Among the pieces performed there were: Activities (1967) by Toshi Ichiyanagi, Whistlers (1966) by Alvin Lucier, Mesa (1966) and Third Horn (1967) by Mumma, Wolfman (1964) and Frogs (1966) by Robert Ashley. FFLEM also featured names of composers now disappeared from the musicological discourse such as the Californian Stanley Lunetta and Anthony Gnazzo.

FFLEM represents the perfect case study to explore the meaning of the category “live electronic music” in the 1960s: 1. It marks one of the very first occurrences of the term “live electronic music”; 2. Held in 1967, FFLEM falls between John Cage’s Cartridge Music (1960), Karlheinz Stockhausen’s Mikrophonie II (1965) and David Tudor’s Rainforest (1968)—all milestones in the discourse on the development of various experiences of live electronic music (e.g. Mumma, 297–8; Manning, 159–64); 3. FFLEM was embedded in other forms of discussion on experimentalism and the use of technology: the magazine Source, edited in the same years by the same people who organized the festival, underpins the aesthetical and curatorial choices of the Festival; 4. The composers present at the Festival (especially Behrman and Mumma) picked up on the DIY aesthetics previously championed by the San Francisco Tape Music Center, and marked a rupture with the studio activity on the European model.

Reference List:

Biography

Valentina is a PhD candidate at the University of Calgary, working on the improvising procedures of experimental collectives in 1960s-1970s (namely the New Music Ensemble, the Gruppo di Improvvisazione Nuova Consonanza, Musica Elettronica Viva and MuD/Sonde). She is preparing a new edition of Giacinto Scelsi’s score I funerali di Carlo Magno (Salabert) and she serves an associate editor together with Friedemann Sallis, Laura Zattra and Ian Burleigh for a forthcoming book on live electronic music (Routledge).

You Nakai (younakai@gmail.com)
The Constancy of Instruments: David Tudor’s Fontana Mix (1967)

According to the standard narrative, David Tudor made a transition from “performer” to “composer” in the 1960s. Tudor’s realization of John Cage’s Variations II in 1961, using the amplified piano of his own design, is usually regarded as the threshold of this so-called transition. The nature of Tudor’s realization, the story goes, departed so far away from the composer’s preconceptions that it could not be regarded as a mere “performance” anymore. After this
accomplishment, it was only natural for Tudor to move away from performing other people's work on the piano to composing and performing his own electronic music.

Based on an extensive research of the David Tudor Papers at the Getty Research Institute and examination of his home-made instruments stored at Wesleyan University, this paper intends to show how this simplistic narrative of Tudor's “transition” is both conceptually and factually incorrect. What has seemed to be two separate careers was in fact the result of a continuing, unified, and expanding view of the relations between composition, performance, and instrument building. Tudor did not turn himself into a composer by ceasing to be a performer; instead, his idiosyncratic approach to music led him to redefine the very meaning of what it is to be a composer from within his performing activities. And contrary to the shared belief in current scholarship, there is actually an archival trail to confirm all this—albeit one that is not easy to see.

I show how a series of diagrams showing the connection of electronic components, currently filed under “unidentified diagrams” at the Getty archives, are actually Tudor's notes on his 1967 “realization” of Cage's Fontana Mix using his own modular electronic devices. Moreover, by examining a photograph of Tudor's table-top setting published in a local newspaper, I have been able to decode most of the cryptic symbols in the diagrams, as well as match them with extant instruments in the Wesleyan archive. The outcome of this finding is far-reaching. It reveals the actual way Tudor configured his instruments, offering insight into his compositional mind-set. But perhaps more importantly, it shows how the instrumental set-up of Fontana Mix in 1967 shared surprising commonalities with, for instance, the network of instruments Tudor devised for Bandonen! performed a year before, widely regarded as his first major work as a “composer.” The constancy of instruments beneath the surface difference between Tudor's own composition and realization of other composer's works, annuls the facile division between the two. In fact, Tudor did not stop realizing works by other composers in the 1960s, though the fundamental nature of these “realizations” gradually changed. By the second half of the decade, Tudor was “composing” instrumental configurations, and the question of who the “composer” (as the author of written “texts”) was had become a secondary issue (Cage often offered himself as mere “sound source” for Tudor's sound system in performances that were framed as his “composition”). Tudor's electronic music thus depicts a different development of indeterminacy and experimentalism in music that centered around the exploration of electronic instruments, although this effort was too often occluded by the more prevalent discourses on sound, “written” by other composers (in tacit complicity with musicological discourses).

Biography

You Nakai is currently conducting an extensive research on David Tudor, with a special focus on the constant negotiations with particular instruments from which Tudor derived his peculiar approach to music. His writing has appeared in Perspectives of New Music, TACET: Experimental Music Review, among other publications. Nakai also makes music as part of No Collective (nocollective.com) and runs a publisher called Already Not Yet (alreadynotyet.org).

Ezra Teboul (main@researt.ch)
Silicon Luthiers: a component-level history of electronic music

This submission focuses on the devices that make a music electronic and their authors. From David Tudor to Martin Howse, modern electronic music and sound art practitioners have focused heavily on how approaching composition from inside electronics could produce new, unique and forward-thinking music.

This desire to acknowledge the literal makers of electronic music is inspired by Pinch’s social vision of technological systems, and Piekut's application of actor-network theory to the Cagean experimental music world: if it is important to understand all the actors and network of actors in the development of technological systems or musical movements, what can considering the devices in electronic music, their sub-systems, their components, and all their respective authors or makers bring to the table when trying to accurately describe and contextualize the music they permitted?

By presenting selected examples, the case will be made for linking design and manufacture methodologies with musical ones. Electronic music instruments serve a different purpose than most consumer electronics. These examples all serve to illustrate that the self-taught engineers of musical electronics each create a personalized and effective approach to making their instruments. This translates directly into the music made with those instruments.

If it has been natural for some musician to embrace do-it-yourself electrical engineering and tinkering practices, interdisciplinary visions of musicology and music history appear as best in attempting to contextualize and discuss their musical products. Working from some of Collins’ remarks in Handmade Electronic Music, Vinck’s Everyday Engineering, and adapting Dunne’s concept of post-optimal objects to present electronic music instruments as
catalysts of poetic expression, an interdisciplinary framework for discussing the importance of these widespread and multifaceted do-it-yourself practices in a musical context is offered for further critique and refinement.

Biography

Ezra Teboul holds a BA from Hampshire College and an MA in Digital Musics from Dartmouth College. He is a musician, maker and researcher currently based in New York City.

Matthew Saladin (matthieu.saladin@univ-paris8.fr)

Electro-acoustic feedback and the birth of sound installations

Reflecting upon Max Neuhaus and Alvin Lucier’s first electronic works on electro-acoustic feedback, I will consider how their researches on live electronic music, meant to be performed on stage, announce a whole other form of creation, which is paradoxically emancipated from the concert hall and essential to the emergence of sound art: sound installations. If both musicians first appropriated the electronic medium for its possibilities in sound transformation (Neuhaus’s interpretations of the avant-garde’s percussion repertoire; Lucier’s collaboration with the Sonic Arts Union), it appears that these experimentations, and more precisely those using feedback, quickly extended into other areas than research on tones and the live dimension of electronic performances. Indeed, electro-acoustic feedback, as a phenomenon of retroaction, goes beyond the mere relationship to the instrument: by manifesting itself in the looping of the electro-acoustic chain (microphone-amplification-speakers), it straightaway inscribes the electronic device in a spatial dimension that is linked to the propagation of sound. Highly unstable and unpredictable, feedback’s variations indeed result from the interaction of numerous parameters: acoustics, volume, the architecture of a space, as well as the technology employed and its positioning in space, or the mass and movements of bodies within it. Any work implying this type of feedback can thus only be in situ: it depends upon how sounds wander in space. By analyzing Neuhaus and Lucier’s first experimentations with feedback, the specificities of their apparatuses and the experiences they aim at and foster, this presentation wishes to question the role they played in the emergence of both musicians’ concern with space, which is at the core of any understanding of their later works. And beyond these singular paths, we will reread the history of live electronic music in the light of its bifurcations and lines of flight, in order to explicate the birth of a certain art of sound installation, in which the liveness of live electronic music, far from being deserted, seems to lead into other forms of creation and specific aesthetic stakes. If live electronic music can be considered as one of the conditions of possibility for the emergence of sound installations, we will also have to consider, on a broader scale, the relations that the history of sound art practices have with electronics and their ambiguous emancipation from experimental music.

Biography

Matthieu Saladin is artist and musician. He is interested in the production of spaces, the history of artistic forms and creative process, and in the relationships between art and society from a political and economic point of view. He is associate professor in sound art at University Paris 8, member of TEAMeD in the laboratory Arts des images et art contemporain (AI-AC) and research associate at the Institute ACTE (University of Paris 1 – Panthéon-Sorbonne, CNRS UMR 8218). His research is on aesthetics of experimental music and sound art. He is editor in chief of TACET, Sound in the Arts.
Session 2B: Individuals and Institutions

Peter Price (peter@thefidget.org)
The Cosmic Vision and Telepathic Following of Bruce Haack

Few recently rediscovered pioneers of electronic music are as colorful and unlikely as Bruce Haack (1931-1988)

Bruce Haack was born in a tiny mining community in rural Alberta, Canada, an unlikely time and place to produce a future electro-mystic whose absolutely individual work has destabilized received histories of electronic music. Despite being rejected by the University of Alberta’s music program on the basis of his poor notational skills, he was invited to study with Vincent Persichetti at the Juilliard School. Not surprisingly, on the evidence of his later musical output, Haack found the curriculum at Juilliard restrictive and did not complete his studies. But two consequences of his failed conservatory education would have lasting significance: his relocation from rural Canada to 1950s Manhattan and befriending fellow Juilliard student, pianist Ted Pandel, who became a lifelong promoter of Haack’s odd genius and protector of his fragile personality.

From the beginning of his compositional output Haack pursued his interest in experimental electronic music technologies and ignored established genre boundaries. His work in the late 1950s involved scoring ‘serious’ music for dance and theater productions and writing commodity music for labels like Dot and Coral. His electronic scores – such as Les Etapes from 1955 – freely mixed electronically synthesized sounds (with circuits of his own design) with musique concrète at a time when this was rarely done.

Another persistent trope of electronic music – the visionary inventor/artist reduced to a carnival barker pandering to the public’s on-again/off-again interest in odd and futuristic electronic instruments played itself out in Haack’s TV appearances on “I’ve Got a Secret” and “The Tonight Show” with Johnny Carson playing his Dermatron, an instrument that requires skin-to-skin contact by two people to complete the electronic circuit and produce sound.

A major part of Haack’s spotty employment was as a piano accompanist for dance classes. Through this activity he was to meet children’s creative movement teacher Esther Nelson. With Nelson and Pandel, Haack started Dimension Five Records to release albums of the bizarrely original children’s music he developed for Nelson’s movement pedagogy. An early example of an absolutely DIY enterprise, Haack recorded the music in his bedroom studio and even designed many of the memorably bizarre album covers.

In 1968 Haack began working in his own idiom of psychedelic rock, and by 1970, managed to secure a release on Columbia Records of “The Electric Lucifer, perhaps one of the strangest and most accomplished albums intended for a rock listenership to come from a major label.

Mythologies about Haack have filled the void of more systematic research until now. For the past 4 years I have been interviewing Ted Pandel and working through all that remains of Haack’s tapes, correspondence and working notes. As interest in Haack’s life and output continues to rise I intend to prepare the groundwork for future Haack studies. Haack’s musical interests were so varied yet idiosyncratic that researchers from a number of fields will find interest in his mostly unknown output.

Biography

Peter Price is a composer, electronic musician, digital artist and media theorist. He creates sonic and visual environments for live performance, and is co-director of thefidget space, an interdisciplinary arts research laboratory. In 2012 he was named the ‘John Cage Fellow’ of the European Graduate School where he received his PhD in 2010. Peter has published two books of music philosophy: Becoming Music: Between Boredom and Ecstasy in 2010, and Resonance: Philosophy for Sonic Art in 2011. He has lectured and presented papers in Basel, Berlin, Istanbul, New York, Vienna, Zurich and elsewhere, and is the archivist for the estate of electronic music pioneer Bruce Haack.

Rachel Sinsheimer Vandagriff (rsvandagriff@gmail.com)
The Pre-History of the Columbia-Princeton Electronic Music Center

The Columbia-Princeton Electronic Music Center, established in 1958 with a grant from the Rockefeller Foundation, was the first formal institution for such a purpose in the United States. As it happens, the Rockefeller Foundation awarded Vladimir Ussacheffsky and Otto Luening a grant in 1952 “to purchase basic equipment to be used exclusively for creative research in the field of electronic music.” Though well-known and prestigious, the history of the Center’s
funding and institutionalization are as of yet untold in any depth. This paper will seek to redress that, using tools from art-world ethnography, anthropology, sociology, and musicology to examine the often overlooked or invisible driving forces behind the Center so as to reveal why certain musics and technologies were promoted over others. Based on archival material from the Rockefeller Archive Center and Columbia University archives, this paper will investigate the social and economic prehistory of the Columbia-Princeton Electronic Music Center, focusing in particular on the marriage of university and private missions and monies that enabled the Center's existence. The paper will also look at the collaboration among Ussachefsky, Luening, and Babbitt, and their respective musicotechnological interests. Thus, this paper will necessarily discuss the growing notion of music composition as research, and how the packaging of music composition as such has lived on in university music departments, particularly in the field of electronic music.

Luening and Ussachefsky saw what they were doing with tape as distinct from musique concrète and elektronische Musik, describing their work as decidedly more aesthetic-minded than either European camp, and also more worthy of interest and pursuit than experiments in the popular music industry. As they explained it to the Rockefeller Foundation officers, musique concrète was an effort “to make tape recordings of different kinds of sounds in the natural world … without regard to their musical significance.” Luening and Ussachefsky charged that composers of this music had “strayed into a narrow path of intellectual sensationalism.” Moreover, they had “imitators who applied ill-digested precepts of mysticism and fatalism to substitute for the poverty of musical invention.” By contrast, their work emphasized “the musical and humanistic elements” of the compositional use of tape recorders. Ussachefsky and Luening saw the tape recorder as a sort of “prism” through which sound could be run and transformed. Therefore, the tape recorder was a creative tool that had had great “effect on [their] imagination,” allowing them “[t]o achieve freedom from the restrictions [within musical development] which have multiplied in the past thirty years[.]” Tape music, then, was a “means of removing certain barriers that block the course of western music, and of bringing to a synthesis the new materials of the twentieth century and the musical values of the past.” This paper will seek to expose what, exactly, they meant by this, and how it influenced the future Center’s mission.

Biography

Dr. Rachel S. Vandagriff is a postdoctoral teaching fellow at Washington University in St. Louis. She is currently at work on a book about the Fromm Music Foundation and private foundation funding of contemporary music in the United States, post World War II.

Laura Zattra (laura.zattra@unipd.it)
Collaboration and Musical Assistants at IRCAM, CCRMA, and CSC

The revolution of sound recording, synthesis and transformation (commenced in 1948 with concrete music and in 1950 with electronic music), followed by the birth of computer music (since 1957), caused the natural emergence of a new professional profile – someone who can work in the phase of researching, writing, creating new instruments, recording and/or performing live during concerts. From the early days, laboratories and electronic music studios have involved the presence of different individuals with diverse but intertwined competencies. This is true for the Milan, Cologne, Paris and San Francisco centres during the first analogue generation; this has continued with the digital revolution (at CCRMA in Stanford and other centres in the United States, in France, Italy, Great Britain, Germany, East Asia, to name a few).

Although books and essays dedicated to the history of Computer Music do agree, in principle, on the interdisciplinary nature of this music and the importance of collaboration, and the field of music collaboration starts at last being investigated, the existence of the musical assistant has been often unreasonably neglected. In both the musical score and the program notes, or in written sources (a least in the published ones), his/her presence remains hidden most of the time, and literature on the collaboration composer/musical assistant is scattered.

I've been studying collaboration in computer music for a few years. Previous results have allowed me to trace the history of the name of this profession as it developed at IRCAM (Musical Assistant and RIM, Réalisateur en Informatique Musicale) [Zattra 2013a], to outline the analysis of an anonymous survey submitted to different musical assistants all over the world [Zattra 2013b] and to report findings from semi-structured interviews (Musical Assistants' self-knowledge, role and visibility: Zattra 2015).

3 In 2012, I undertook a research project funded by French CNRS - chercheuse invitée CNRS INS2I) within the APM-IRCAM équipe in Paris, from June to October 2012.
In this communication I will report findings from a study based on primary and secondary sources and administrative documents, conserved at three computer music centres: the IRCAM (Institut de Recherche et Coordination Acoustique/Musique) in Paris, the CCRMA (Center for Computer Research in Music and Acoustics) at Stanford University and the CSC (Centro di Sonologia Computazionale) in Padova. The analysis will examine two points: 1) institutionalisation and recognition: I would investigate the presence (or absence or understatement, as the case may be) of an express concern for the theme of collaboration and the role of the musical assistant; 2) the presence of passages inside the sources, describing the ways in which this collaboration was undertaken between musical assistants and composers.

My study covers the technological historical period which runs from the early computer programs until the first real time experiments. It is intended to enlighen the hidden art-science collaboration, the emergence of a profession, the traces remaining from the habitually wordless communication between a composer and an assistant, in the early era of computer music. It introduces questions about cooperation and the way it could induce dilemmas when considering authorship. The choice of these three centres is motivated by the close historical, musical, organisational, scientific and technological connections, and by the numerous technical, cultural and scientific exchanges between the three.

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Biography
Laura Zattra obtained her PhD at Sorbonne/Paris IV and Trento University in 2003. She collaborates with universities (Padova, De Montfort, Calgary, Sorbonne) and institutions. She is a member of the APM équipe at IRCAM Paris. She is Lecturing at Padova University, Parma and Rovigo Music Conservatories. Her publications covers the interaction of music and technology, collaboration, analysis, source criticism applied to music and works particularly with institutional and private archives (John Chowning, Agostino Di Scipio, Luigi Nono, Angelo Paccagnini, Teresa Rampazzi and Renata Zatti). http://lazattra.wordpress.com/
Definitions of genre generate an attendant canon – we need examples and we call these ‘paradigmatic’. There’s a simple reason – words are not adequate to describe musical experience. To demonstrate what we mean we can after all use the original – play the music. Concrète, Electroacoustic, Acousmatic, Computer, Tape, Live, Algorithmic, Free Improv, Glitch, Noise etc. - and their many off-shoots and hybrids … Each can (and does) generate its own canon.

There follow questions of quality: is the canon necessarily ‘good music’ – it may be ‘good example of the genre’, showing clearly the characteristics to be demonstrated. But that’s not the same thing. Time is limited – especially in our ‘everything is available universe’ we need ‘help’ to find what we do not yet know. We delegate to somebody (or something?) we trust.

Historically we have willingly and sometimes unwillingly delegated this to others who have an authority taken for granted: from defined curricular in schools, class and peer networks (and their agglomerations into ‘tribes’, ‘clubs’ etc.). We assume these ‘given’ histories have been progressively undermined. But be careful – have others emerged to replace them?

We might think that histories thus become ‘objects’ for our choice. But how do we choose? Or can we create our own? Are we reliable? Do we leave the new searches to ‘chance’? Who are the gatekeepers? Of course these are questions for all aspects of knowledge in this new information world. There is much inaccurate history out there.

If hierarchies of history have become more open to debate then we need some framework to discuss relative rather than absolute value. ‘Importance’ becomes a local negotiation. The many and various contributions to the development of synthesis might equally invoke the ‘mash up’ of Jimi Hendrix’s guitar amp or the experimental turntablism of Grandmaster Flash.

Reliability is tenuous and a potential minefield:
- There is the obvious point that there has been a strong set of normative cultural views – these seem to ask what is the ‘right’ history?
- Then we have legitimiation – a complex issue where one group (perhaps even an individual) validates or legitimates their practice through citing the high cultural capital of another – however distorted that history becomes.

How has music made with technology fared so far in the creation of its multiple histories? This paper will try to address some of these questions with examples from the literature (or remark upon their absence) and from my own observations of the changing views and perspectives over the last 40 years.

Biography

Simon Emmerson is Professor of Music, Technology and Innovation at De Montfort University, Leicester. Recent commissions from Bourges, Paris and Berlin festivals. Recordings of his works are available from Sargasso. Previous writings include The Language of Electroacoustic Music (Macmillan, 1986), Music, Electronic Media and Culture (Ashgate, 2000) and Living Electronic Music (Ashgate, 2007). He was founder Secretary of EMAS (The Electroacoustic Music Association of Great Britain) in 1979 and on its Board till 2004, and a Trustee of its successor organisation ‘Sound and Music’ 2008-2013. In 2009-2010 he was DAAD Edgar Varese Visiting Professor at the TU, Berlin.
Concert and Demonstrations

John Bowers (john.bowers@newcastle.ac.uk)
The Victorian Synthesizer

For some 15 years, I have had an ongoing project I refer to as The Victorian Synthesizer. The basic idea is to explore devices with the features we associate with hardware music synthesizers (oscillators, filters, LFOs, means to shape signals and modulate them, and so forth) but with means that were known to the Victorians (strictly 1837-1901). Some inventions, then, are strictly off-limits: oscillators made by feeding back an amplifier’s output to its input await analysis by von Barkhausen in 1921. Magnetism, mechanics, electrics (not electronics) and electro-mechanics become our preferred technical idioms. Moving-coil loudspeakers, though, were known to the Victorians (independently investigated by physicist, psychical researcher and occasional mystic, Oliver Lodge in 1898, and Ernst Siemens in 1877). Pairs of coils engaging and disengaging switch-gear form the basis of Elisha Gray’s musical telegraph (1874).

My designs are much more minimal than Gray’s, though. I connect a battery’s terminal to a loudspeaker via crocodile clips and hear a pop as another wire between the battery and the speaker makes or breaks the circuit - an old sound engineer’s trick to check on a speaker’s health but actually, unrecognised, the basis of The Victorian Synthesizer. By incorporating a tilt switch into the circuitry and placing it on top of the speaker’s cone, self-oscillations, which can be surprisingly long-lived, are possible. By duplicating the circuit with two loudspeakers, tilt switches and power sources, and by crossing over the switches between speakers, cross-modulations are possible. The simplicity of the set-up invites an incremental experimentation - for example, adding nuts and bolts to rattle as they are bounced around by the cone or using a textured conductive surface (like a nail-file) to make and break the circuit. The hand can be introduced to manually restrain the apparatus and provide a filtering or enveloping effect. And so on. The Victorian Synthesizer has become a mainstay of instrument-making workshops by myself and others, including Nic Collins, who devotes a chapter to the technique in his Handmade Electronic Music textbook.

AHEM provides an opportunity to review 15 years of experimentation, pedagogy, performance practice, and reflection on the very idea of electronic music prompted by The Victorian Synthesizer, and its further, perhaps philosophical, implications. I will discuss a range of constructions I and others have made adding to the basis provided by an impulsive pop as current flows through a coiled wire in a magnetic field. This will include hand-cranked synthesizers where coils in a motor/dynamo arrangement are listened to directly, as well as hybrids where fundamentalist Victoriana is interbred with digital technologies (including bizarre attempts to physically model The Victorian Synthesizer in software). I reflect on The Victorian Synthesizer as the most minimal electronic musical instrument possible - it must be, having only a power source and being its own means of musical-sonic reproduction - and hence speculatively reconstruct the history of electronic instruments as developments from this otherwise unrecognised Ur-instrument. Developing my previous work on the concept of ‘infra-instruments’, I characterise The Victorian Synthesizer as an Unmade, with due salutations to Marcel Duchamp, as a loose assemblage of components in provisional contact with each other, which through their relationships give a little bit of their natures away. Developing some remarks of David Tudor, I characterise performing The Victorian Synthesizer as a matter of ‘discovering and disclosing’ componential potentialities - a matter which I will discuss also in relationship to Graham Harman’s writings on Object Oriented Ontology and Bruno Latour’s compositionism. Like Tudor or Gordon Mumma’s circuitry, The Victorian Synthesizer puts the composer ‘inside’ electronics but, here, in a radical sense: there is no circuit diagram, there is only contingency. The idea of an ‘escape from the diagrammatic’ will be discussed in relationship to the thought of Deleuze and Guattari and Tim Ingold’s writing’s on lines and meshworks.

These may seem like grandiose claims: that from a battery popping a loudspeaker a whole philosophy is unfurled. Perhaps an academic hoax or at least high pretentiousness. Perhaps. But, equally, that could be my whole point. By reductions and unmakings, we can expose ourselves to what is taken for granted or ignored, perhaps at our peril, in technologies, commodities and great works. We can start again, we can think again, make new histories and lineages, and conceive of new futures. Let us begin with a pop.

Biography

John Bowers is an artist-researcher working within Culture Lab, Newcastle University, with a particular interest in the use of art and design-led methods to explore digital technologies and novel interaction concepts. He also works as a sound artist improvising with electronic, digital, acoustic and electro-mechanical devices and self-made instruments in performance and installation settings, typically accompanied by live digital image. His research is often grounded in field research methods drawn from the social sciences (ethnography, interaction analysis) and related to theoretical and practical issues in Human Computer Interaction (HCI), design research, the digital humanities, material culture, media archeology and critical theory. His work has been performed or exhibited at festivals including the collateral programme of the Venice Biennale, Electropixel Nantes, Piksel Bergen, BEAM Uxbridge and Spill Ipswich, and he has toured with the Rambert Dance Company performing David Tudor’s music to Merce Cunningham’s Rainforest. He
contributed to the design of The Prayer Companion - a piece exhibited twice at the Museum Of Modern Art (MoMA), New York, and acquired for their permanent collection. Amongst many musical collaborations, he works with Sten-Olof Hellström and in the noise drone band Tonesucker.

Aleks Kolkowski and Federico Reuben (aleks@recording-angels.info, freuben@gmail.com)
Singing Arcs: Sounding the Early History of Electronic Music

Singing Arcs is a performance-presentation made from sounds and texts of early electronically produced music, electronic sound reproduction and radio transmission. It recreates and reimagines the sounds produced by Elisha Grey's Musical Telegraph (1875), William Duddell's Singing Arc (1899), the Telharmonium of Thaddeus Cahill (1897) and the earliest binaural listening experience through the Theatrophone of Clément Ader (1881). Pioneering radio transmissions are re-enacted, employing wax cylinder phonographs, (as used by Reginald Fessenden (1906); Charles Apgar (1914) and Guglielmo Marconi) and analogous sound devices such as valve sets and moving-iron horn loudspeakers. Historic recordings from the British Library Sound Archive, the BBC and the Science Museum, among other sources, will be montaged, together with newly-made material by the two composer-presenters. The texts will almost exclusively be drawn from contemporary sources, patents and press reports, newly recorded onto cylinders and discs and reproduced on period machines. A slide presentation with contemporaneous imagery and texts will play simultaneously as part of the performance. Singing Arcs is derived from the research and source materials assembled for the large-scale composition Spiritus Telecomunitas by Federico Reuben, in collaboration with Aleks Kolkowski, commissioned as part of the Online Orchestra project and premiered in Truro Cathedral, July, 2015. (Duration: 30 minutes).

Biographies

Federico Reuben was born in San José, Costa Rica in 1978. He studied politics and piano performance at the Universidad de Costa Rica and music at the University of Maryland, College Park, USA. He studied composition with Louis Andriessen, Richard Ayres, Gilius van Bergeijk and Martijn Padding at the Royal Conservatoire, The Netherlands. He also attended a one-year course at the Institute of Sonology, studying human-computer interaction, digital signal processing and algorithmic composition. He holds a PhD from Brunel University, London, UK, where he studied with Richard Barrett and Christopher Fox. He is currently Senior Lecturer in Music Technology at The University of York.

Aleksander Kolkowski is a composer and violinist who uses historical sound recording and reproduction apparatus and obsolete media to make contemporary mechanical-acoustic music. His numerous international projects in this field have combined wax cylinder phonographs, gramophones and vintage disc recording machines together with live musicians. Since obtaining a PhD at Brunel University in 2012, he has been active as the first sound artist-in-resident appointed at the Science Museum, London, and held research associateships at the Royal College of Music and the Science Museum. He is currently composer-in-residence at the British Library Sound Archive.

Andi Otto (mail@andiotto.com)
Fello demo

The making of new musical instruments can be seen as a central strategy of musical innovation in the 20th century. One institution where ideas of novel electronic instruments have been especially fostered is STEIM in Amsterdam. Countless projects and artistic residencies have been commissioned at the `Studio for Electro-Instrumental Music’ for the past 40 years, with a main focus on the performing player and the dialogues of the body with electronic or digital setups. A significant difference to the research conducted at the major institutions for electronic music after 1970 is STEIM's leaning towards improvisation, both musical and structural. The studio has been run by Michel Waisvisz as artistic director for 25 years who can be seen as one of the often neglected origins of musical cultures such as glitch and circuit bending. However, he had the support of technicians at his hands, but the necessity to open and bend the black boxes provided by the instrument industry was a STEIM dogma which has even been tagged on the workshop wall in the 70s: „If you can’t open it, you don't own it.” Instruments like Waisvisz’ cracklebox or his sensor-interface “The Hands” are unique configurations of technology to improvise with electronic sound, and they inspired a whole scene of international artists to work on their individual instruments at STEIM. Many excellent projects yielding from the residencies (e.g. Laetitia Sonami, Nicolas Collins, Jon Rose), as well as countless other instruments which do not float on the surface of an archiving process but are still tremendously significant for the writing of STEIM's story. The role of STEIM in the histories of electronic music has not yet been discussed in apt detail. Since 2009 the author of this abstract has dedicated his hours to building up the STEIM archive, especially the archive of the former director Michel Waisvisz in collaboration with Kristina Andersen. The big picture of a STEIM history which shall be presented
at the AHEM conference reveals an aesthetic attitude where big ideas for the new often don’t demand big budgets (sometimes yes) but definitely no high-tech.

To capture the standpoint from which STEIM has worked its influence on electronic music of the 20th century, we have to look back to the origins in the 60s. The founding story of STEIM shows strong links to the Dutch Jazz scene, to the serialism of the school of Kees van Baaren, and to political activism and the notion that renewal in music and society are unseparable.

In the autumn of 1967 a few of the Netherlands’ most prominent and progressive composers Peter Schat, Jan van Vlijmen, Misha Mengelberg, Louis Andriessen, Reinbert de Leeuw, Dick Raaymakers and Konrad Boehmer established a workgroup to create a research laboratory and development workplace for live electronic music. Two years later in 1969 the foundation STEIM was initiated as an ‘instrument pool’ following the completion of their opera ‘Reconstructie’. How the work group managed to receive government fundings from the system they opposed is a wondrous story in its own from today's perspective. Dutch music theatre (often with a peculiar humour), improvised jazz and political discussions were the common ground for the diverse group of composers who set up STEIM. Whereas ‘electro-instrumental’ later on means to play a particular individual electronic instrument (as we mainly understand it today), the term at first pointed at the mere extension of ‘traditional’ live practice in jazz with electronic means. This contribution aims at telling a selection of stories sampled in the STEIM archive which share an understanding of the interface between body and electronic sound as a vital key to new music.

Biography

Andi Otto is a sound artist and researcher of electronic music based in Hamburg, Germany. He is a PhD candidate at Leuphana University Lueneburg, discussing the history of STEIM in Amsterdam with a focus on the sensor-based instruments of the 1980s. At STEIM he has also developed a sensor-extended cello bow called ‘Fello’ with which he performs internationally. He has received various scholarships for his work such as the Villa Kamogawa residency in Kyoto and he has toured his music extensively in India. As ‘Springingtut’ he has released four albums. Andi Otto is also one of the founders of the Pingipung label and as a resident DJ he hosts regular nights at Hamburg's Golden Pudel Club. www.andiotto.com
Session 3: Roots Pre-1945

Andrey Smirnov (asmir@theremin.ru)
Music out of Noise, Light and Paper. Russia’s contribution to the history of electronic music and audio technology

The following paper is devoted to Russia’s contribution to the birth of electronic music, sound synthesis and audio technology. While the 20th Century is one of the most over-documented in the history of the world, yet it seems, the history of experimental and electronic sound and music, and the impact that it has had on our culture, is largely unknown even by authoritative scholars. Much interesting and significant material from history doesn’t ever come to light, is forgotten or overlooked, whether for political or financial reasons, because stories are not well documented or simply because they are just not heard by the right people at the right time. In Russia a lot of material from the first half of the 20th Century was actually destroyed or written out of the history books as it did not fit within the Stalinist regime’s vision of what sound and music technology should be.

The illustrated talk draws on materials from various Russian archives, much of which has not been seen or heard before in the West, but which throws new light on the early history of the astonishing early history of Russian electronic music and sound art.

The most fertile and adventurous period in the history of sound experiments in Russia is arguably from 1910 to the late 1930s, when they were developed around avant-garde ideas. Musicians turned to the study of physics; mathematicians set about mastering musical theory; and artists who had grasped the basics of acoustics worked on new methods for synthesising and transforming sound. The talk’s heroes include the artist and creator of the theory of Projectionism Solomon Nikritin, composer and theorist Arseny Avraamov - inventor of Graphic Sound and a 48-note scale; pioneering film maker Dziga Vertov, director of the Laboratory of Hearing; Vladimir Popov, inventor of Noise Orchestras and Sound Machines; Leon Theremin, inventor of the world’s first electronic instrument, and others. The Theremin, early synthesizers, noise orchestras, graphical, ornamental and paper sound, syntones and audio computing,— these were just a few of the Soviet experiments in music technology and sound art developed by the artists, actors, filmmakers and poets who have created the concepts and methods, that outstripped time for decades, offering a promising basis for future scientific and cultural development.

The revolutionary utopia of the 1920s was replaced by the totalitarian era of the 1930s-1950s. The rapid growth of censorship and repression, the fight against "formalism" and other such changes had, by the late 1930s, put a stop to practically all experimentalism. A new generation of Soviet inventor-engineers appeared in the cultural and informational isolation of the 1970s; unaware of their own history, which was banned and almost forgotten, they were generally preoccupied with replicating Western music technologies.

The irony of history lies in the fact that, in the light of Smirnov's research, a considerable part of these Western technologies might be seen as a result of emigration from Russia, and, not in the last instance, of the ideas of those inventors who had broken new cultural ground within the revolutionary 1920s, and which are to this day almost unknown to the world and absolutely forgotten in Russia – the country which until now did not manage to utilize any of the brilliant technical solutions, discovered by these forgotten pioneers.

Biography

Andrey Smirnov is an interdisciplinary artist, independent curator, composer, collector and researcher. He is the founder of the Theremin Centre in Moscow. He is currently a senior lecturer and a researcher at the Center for Electroacoustic Music at the Moscow State Conservatory and the Rodchenko School for photography and multimedia. He teaches History and the Aesthetics of electro-acoustic music, composition and the new musical interfaces. His main ongoing project is focused on restoring the censored history of artistically utopian early 20th century Russia. The project includes a series of "Generation Z" exhibitions and the book, “Sound In Z: Experiments In Sound And Electronic Music In Early 20th Century Russia” (Walther Koenig, 2013).

Frode Weium (frode.weium@tekniskmuseum.no)
Popular entertainers, radio hobbyist and film composers. Alternative (pre)histories of electronic music

The origin of electronic music is usually presented as a tale of forward-looking inventors, musicians and composers wanting to explore new musical possibilities. As expressed by Nick Collins and Julio d’Escriván in their Cambridge
**Organic Instruments: Early Electrophones and the Valorization of Technology in the Weimar Republic**

In standard histories of electronic music, early electric instruments typically appear as mere novelties in contrast to the studio technologies of the post-WWII period. But these earlier devices not only anticipated later developments in the history of what became known as “electronic music,” they also reveal connections to bigger debates about the role of technology in modernity. In this paper, I examine how the instruments of two German inventors of the 1920s and ‘30s change our understanding both of history of that period and the broader contours of sound technology in the twentieth century and into the present.

Jörg Mager (1880-1939) is arguably one of the most important forgotten figures in the history of electronic music. Inspired by the rhapsodic visions of Busoni’s *Sketch of a New Aesthetic of Music*, Mager first experimented with microtonal organ building before delving into electric tone-generation in the early 1920s. In 1926, Mager unveiled his crank-operated instrument called the *Sphärophon* at the summer music festival in Donaueschingen, a major center of...
European modernism. By 1930, his instrument had evolved to a multiple-manual “electric organ” that could create both microtonal intervals and stunning new tone-colors. Supported by an organization called the Society for Electroacoustic Music, Mager conducted groundbreaking research into the production of timbre and noise by electronic means. He demonstrated his instruments around Germany and was hailed as the prophet of a new age of music.

In 1930, another new instrument appeared: the Trautonium. It was the pet project of three men: Friedrich Trautwein, inventor and namesake, Paul Hindemith, who wrote its first original compositions, and Oskar Sala, the instrument’s sole virtuoso. From the beginning, the Trautonium promised to bring “electric music” to the masses: a year after it was introduced, a companion booklet included a blueprint instructing how radio enthusiasts could build their own model. Within a few years, the instrument was developed from a modest laboratory prototype to an ambitious, mass-produced version called the Volkstraution, unveiled in 1933. Funded by the radio firm Telefunken, the instrument could be plugged into domestic radio receivers for amplification, and its marketing copy promised that anyone could learn to play it. In spite of its failure to seize the market, the Trautonium gained considerable notoriety under the Third Reich, as electric instruments became powerful emblems of the political-aesthetic program Propaganda Minister Joseph Goebbels called “steel romanticism.”

The instruments of Mager and Trautwein, far from being marginal phenomena in the musical culture of the Weimar Republic, figured prominently in ongoing debates about technology and its role in modern life. In contrast to “mechanical” devices such as the player piano and gramophone, which threatened to displace performers with machines and stoked the public’s fears of technology run amok, the Spherophone and Trautonium were seen as “organic” instruments that gave their performers enhanced powers of expression. Thus, these inventions became symbols of a perfectly humanized instrumentarium, and so contributed to the valorization of technology that became one of the most powerful trends in twentieth-century culture.

Biography

Thomas Patteson is a musicologist, curator, and teacher who specializes in sound technology, aesthetics, and the cultural history of music since 1900. He has studied at New College of Florida, as a Fulbright scholar at the University of Pennsylvania, and at the University of Pennsylvania. Patteson is Professor of Music History at the Curtis Institute of Music in Philadelphia, where he has taught since 2013. His first book, Instruments for New Music: Sound, Technology, and Modernism, will be published in November 2015 by the University of California Press.

Benedikt Brilmayer (benediktbrilmayer@gmail.com)
The Trautonium: Oskar Sala and the development of electronic music in Germany

The history of electronic music in Germany seems to have started with the establishment of the NWDR’s studio in Cologne. But this institution wouldn’t have been able to exist without antecedent experimentation with electronics and music. In this lecture, I would like to show, how focusing on the biography of one person and his work with one instrument offers an alternative perspective for Germany’s history of electronic music.

In 1988 a person reentered the concert-stage, opening awareness for his former activities parallel to and earlier of those of the Cologne studio. Oskar Sala, born in Thuringia in 1910 and had his career as soloist on the Trautonium relaunched after working in his private studio for about 30 years, virtually unknown to the public. His instrument, the Mixtur-Trautonium, was constructed in the 1940s and 1950s. But even in the late 80s it still provided a solid potential for producing electronic music on stage. In his studio Sala predominantly composed for television, radio and movie productions, the most famous example being his work for Alfred Hitchcock’s The Birds (1962).

Why do this man and his instrument offer an alternative view on electronic music?

First of all, he gave concerts and produced music on the Trautonium in the 1930s, thus starting to create music with electronic means two decades before Herbert Eimert and the Cologne studio did. Secondly, Sala together with his colleague Friedrich Trautwein, inventor of the Trautonium, was involved in the design of the Cologne Studio, both even were lecturers at the International Summer Course for New Music (Darmstadt). Sala also was a consultant for designing the Siemens Studio in Munich and even was visited by Ussachevsky. His correspondence, which for the first time ever I evaluated for my dissertation, offers an insight in his view on electronic music, which is pointing to his former mentor and teacher, the composer Paul Hindemith.

Sala and Trautwein worked from 1929 on in one of the first research laboratory in electronic music technology, the “Rundfunkversuchsstelle” (Radio-Research-Institute) in Berlin. This institution marks the beginning of systematic research and experiments in electronic music. Paul Hindemith himself was very interested in the development of electronic musical instruments, as well as electronic music. His aesthetic position of course completely differed from
that of Arnold Schoenberg and Anton von Webern, who had been the authorities, Herbert Eimert and Karlheinz Stockhausen referred to in their music and writings.

Oskar Sala and the Trautonium are two keystones in an alternative view on electronic music. Sala's education both as a composer and as an electro-engineer enabled him to develop his own musical style and the Mixtur-Trautonium. His efforts in electronic music after the war soon were overshadowed by the Cologne studio, but his work enables us now to gain new perspectives on the genesis of German electronic music. His connections reached out to a wide field of people, all reestablishing cultural work in post war Germany.

Biography

Benedikt Brilmayer studied musicology, cultural administration and psychology in Weimar and Jena. He worked at the Klassik Stiftung Weimar in a research project to conserve and document historical keyboard instruments. For his dissertation project he went to the University of Augsburg to start his research about Oskar Sala and the development of electronic music instruments. His dissertation: The Trautonium. Characteristics of the Transfer of Technology in constructing musical instruments. Since March 2015 he is the director's assistant at the Museum for Musical Instruments, Berlin. He published several essays on electronic music, organology and historical performance practice and holds lectures.

Dorien Schampaert (d.schampaert@leeds.ac.uk)
The Ondes Martenot: Constructing Narratives of Obsolescence

This paper will examine the ways in which we construct narratives of obsolescence around the Ondes Martenot regardless of the instrument's actual status, and how this influences its current position.

The Ondes Martenot is, in its physical form, an instrument, but it can also be seen as a concept in its broader sense. If we consider the Ondes Martenot through the lens of Actor-Network Theory, we can imagine a network of human and non-human actors which exert a certain influence on the concept of the instrument, constructing or ‘performing’ it at any given moment in time. Sometimes this influence helps the Ondes Martenot to keep existing, and sometimes it pushes it towards obsolescence. The instrument’s position on this axis has shifted in both directions over the past century, but it is clear that the Ondes Martenot has been steadily gaining momentum in the past fifteen years. It is, for now, not in immediate danger of disappearing and becoming a thing of the past.

However, many academic and other sources portray the Ondes Martenot as just that – a thing of the past.

By placing the Ondes Martenot in a linear history of electronic instruments, using anachronistic and reductive language, portraying the instrument as an unfinished idea, but also by equating value with commercial success and using a dated instrument classification system, it becomes easier to ignore the later decades of activity surrounding the instrument.

The main reason for this reductive narrative is the lack of documentation on the instrument. The only published book, Jean Laurendeau's Maurice Martenot, Luthier de l’électronique (1990), has yet to be translated to English. However, narratives of obsolescence are also found in other areas of electronic music history. This case study brings some of the mechanisms behind this construction to light.

Biography

Dorien Schampaert studied Art Science at the university of Ghent, Belgium (MA in musicology) and went on to do a teacher degree. Dorien is research associate at Leeds since 2011. She lectures in popular and world musics, analysis and electronic instruments, whilst working on a Ph.D on the Ondes Martenot.
Keynote 2: Electronic Music Filtered Through Science and Technology Studies

Trevor Pinch
(tjp2@cornell.edu)

“Musical instrument design is one of the most sophisticated and specialized technologies that we humans have developed.” – Robert Moog.

If music is about technologies then how should we think about technologies? In this talk I will approach the history of electronic music as conceived by another academic discipline: Science and Technology Studies (S&TS). I will briefly outline the main ideas and approaches in S&TS and the sorts of methods developed. The mutual shaping of technology and culture offers clues to thinking about the development of the technology used in electronic music and how it shapes and is shaped by culture. The S&TS approach draws attention to “opening the black box”, which means understanding the design and working of musical technologies and thinking about how they could be otherwise and paths not taken. It is sensitivity to these alternative developments and questioning the very notion of what it means for a music technology to “succeed” which gives clues as to what an alternative history of electronic music might look and sound like. If we think about musical technologies rather than musical instruments we end up in new sorts of spaces – such as the studio at the BBC Radiophonic workshop where the music for Dr Who was created or a bath in London from which Peter Zinovieff dreamt up designs for new instruments. The S&TS approach leads scholars to focus upon particular actors such as users, tinkerers, and intermediaries and particular contexts and spaces where instruments are developed, tested, demonstrated, and used. I will argue that following salesmen is as important as following composers. My main examples will come from the development of the Moog and Buchla electronic music synthesizers developed in the period 1964-75 but I will also reflect a little on the nascent British synthesizer industry from that period - particularly EMS.

Biography

Trevor Pinch is the Goldwin Smith Professor of Science and Technology Studies and Professor of Sociology at Cornell University. He holds degrees in physics and sociology. He has authored many books and numerous articles on aspects of the sociology of science, the sociology of technology, the sociology of economics, and sound studies. His books include Analog Days: The Invention and Impact of the Moog Synthesizer. He is co editor of the Oxford Handbook of Sound Studies. He is also a performing musician with the Electric Golem and The Atomic forces. He has an honorary degree from Maastricht University.
Session 4A: Coding, transcoding, automated systems and computing

Jon Pigott (jpigott@cardiffmet.ac.uk)
Electromechanical Perspectives of Sound and Music

From a technological necessity in projects like the Telharmonium, to a creative opportunity enjoyed by current sound installation artists, the electromechanical condition is a mainstay of electronic and experimental music and sound art. As a core component of loudspeaker technology in a fully electrified and digitised sound world it is also likely to remain a mainstay, as long as hearing continues to be linked to the mechanical world of acoustics. In this way the electromechanical is simultaneously both outmoded and future-proofed.

This paper will trace the electromechanical condition throughout electrified sound and music, identifying its role in sound modification, transmission and production. This provides a non-human centric perspective of electronic music making that aims to avoid technologically deterministic and linear historical narratives. Certain music technologies that have made particular use of electro-mechanics such as the speakers of the Ondes Martenot, the rotating Leslie loudspeaker and mechanical reverberation devices will be explored as a general technological context. Particular examples of creative practice that forefront the electromechanical condition will be presented from the canon of American 1960s sound art and experimental music practice, including the work of practitioners such as Alvin Lucier and David Tudor. Connections will be made between these examples and the work of kinetic artists such as Len Lye, Jean Tinguely and Takis. Here the electromechanical will be presented as a kind of transitional media between materialised and dematerialised modes of sonic and visual art practice, making its presence felt at a time of burgeoning computer power and systems thinking.

Current sound art practice that uses the electromechanical as a core creative element will be discussed. This will include works by practitioners such as Peter Bosch and Simone Simons, Daniel Wilson, Andrea Valle as well as original pieces by the author. In the context of easily accessible digital technologies of synthesis and control these current electromechanical approaches are used to explore tensions between the control and the autonomy of sounding objects and materials.

Biography

Jon makes kinetic sound sculptures that explore the relationship between objects, systems and sound. His research specialisms relating to this practice include histories and theories of sound art, sculpture and technology as well as various making processes including digital fabrication and hand made electronics. In 2007 Jon was awarded a distinction for his MA in Creative Music Technology by Bath Spa University where he is currently completing a PhD research project in electromechanical sound art. In 2008 Jon joined Cardiff Metropolitan University from his position as technical manager of an internationally renowned recording facility where he had helped to bring countless high profile music and film productions to fruition. He teaches on the BA Artist / Designer : Maker programme within Cardiff Met’s School of Art and Design and has exhibited and published his own work internationally both in a solo and collaborative context.

Alex McLean (a.mclean@leeds.ac.uk)
Unravelling live coding

Technology is often seen as a linear development, towards an ideal of seamless expression, where technology efficiently brings ideas into the world. However, much work in electronic music picks at those seams, stripping back interface design to reveal the systems within. At this moment, we enjoy huge resurgence of interest in modular synthesis, and more generally in maker culture, with great emphasis on revealing how things understanding work, and how they can be repurposed or rebuilt. In electronic music, the state of the art is now not necessarily in the 'fastest' machines, but in the most 'hackable' (Zappi and McPherson, 2014).

Live coding, as a musical practice, has emerged into electronic music culture over the past 16 years. Its history is complicated by emerging from at least three places at once; from the SuperCollider community following the release of version 3.0, where language was decoupled from synthesis, providing grounds for the 'Just-in-Time' environment (JITLib) by Julian Rohrhuber. It also emerged from the work of Ge Wang on ChucK, supporting 'on-the-fly' programming (Wang and Cook, 2003). A third location was the band Slub (of which I am a member), who from the start worked towards writing code while people danced to it, realised through the production of various handmade livecoding environments including MAP/MSG, Pure Events, feedback.pl, Fluxus and Tidal. There were many further
precedents, but the exact chronology of these developments is perhaps less interesting than the fact that this burst of activity took place over a few years, from the year 2000. It seems that at this time, there was something ‘in the air’, a faultline running through assumptions of how software should be made and used in the arts.

That live coding arose from several unconnected places at once hints at technological determinism. But what could this mean, where the artists themselves are creating the technology, and where that technology appears to be almost Luddite in unravelling modern interface paradigms? Furthermore, is it possible to break out of a linear perspective of technology entirely, looking at ancient patterning systems such as the warp weighted loom, to reappraise the role of the human in digital technology?

Through reflection on participating in the AHRC Weaving Codes, Coding Weaves project, and on sixteen years of live coding practice, as well as surveying members from the early live coding community, the author both explores what a history of Live Coding might look like, and how live coding practice challenges the history of computation in general.


Biography

I have made music with code since the year 2000, taking an experimental approach to performing and producing Techno using self-built live coding environments. I work solo as Yaxu, and within a range of collaborations including Slub (w/ Dave Griffiths and Ade Ward), Sound Choreographer <> Body Code (w/ Kate Sicchio), and Canute (with Matthew Yee-King). My community activities include co-founding TOPLAP, Algorave, runme.org, dorkbotlondon and dorkbotsheffield, and releasing the free/open source Tidal live coding environment.

I currently work as Research and Teaching Fellow in Human/Technology Interface at the University of Leeds. My research is interdisciplinary and collaborative, including the AHRC funded Weaving Codes <> Coding Weaves project with Ellen Harлицius-Kluck and Dave Griffiths, the AHRC Live Coding Research Network with Thor Magnusson. I am currently co-editing the Oxford Handbook on Algorithmic Music with Roger Dean.

Thor Magnusson (t.magnusson@sussex.ac.uk)
Generative Music: A Form without a Format

This paper explores the history and context of generative music dissemination in the form of distributable computational systems, rather than merely as rendered fixed-media outputs. Coinciding developments in musical scores and technology are highlighted and framed as the basis on which much contemporary work stands. After contextualising computer-based generative music as a narrative that extends over five decades of academic research and development, it introduces a few selected projects and expounds the heterogeneous nature of generative systems. The problem of technological formats for the music will be discussed and contextualised with current developments that point to diverse future possibilities. The paper discusses the musicology of generative music, arguing that musicologists, critics and reviewers have to engage with the natural score format of generative music, namely the code itself.

Biography

Thor Magnusson is a lecturer in Music at the University of Sussex. His work focuses on the impact digital technologies have on musical creativity and practice, explored through software development, composition and performance. He is the co-founder of ixi audio (www.ixi-audio.net), and has developed audio software, systems of generative music composition, written computer music tutorials and created two musical live coding environments. As part of ixi, he has taught workshops in creative music coding and sound installations, and given presentations, performances and visiting lectures at diverse art institutions, conservatories, and universities internationally. Further information here: http://thormagnusson.github.io
Margaret Schedel (margaret.schedel@stonybrook.edu)
Color is the Keyboard

In this talk, I will present a series of diverse case studies covering the spectrum of techniques and used to transcode visual data into auditory signals. Some of these algorithms are simple analog electro-mechanical devices, while others are complex programs that perform calculations, process data and make logical (or even illogical!) decisions. At its most basic definition, and algorithm is a set of instructions, some of these heuristic techniques are included for the historical context of translating image to sound. Talking about transcoding necessitates the use of analogous language; the writer, historian and philosopher François-Marie Arouet, more famously known by his nom de plume Voltaire, fully accepted the similarity between tones and colours, writing “this secret analogy between light and sound leads one to suspect that all things in nature have their hidden rapports, which perhaps some day will be discovered.”

While preparing his book on the Newtonian world view, *Éléemens de la philosophie de Neuton*, Voltaire corresponded with the inventor of the Ocular Organ, Louis Bertrand Castel. Although it was never built, the ocular organ can be seen as a prototypical synesthetic algorithmic instrument, meant to generate simultaneous visual and sonic material by changing the mechanism of a harpsichord so that “the pressing of the keys would bring out the colours with their combinations and their chords; in one word, with all their harmony, which would correspond exactly to that of any kind of music.”

Transcoding is a sort of extreme analogy, where we establish complete correspondence based on transformations between entities.” Often authors speak of “mapping” features from one domain to another. In these case studies, when possible, I will indicate how features in the visual arena control aspects of the resultant sound. Unfortunately for some of the more complex systems or older machines, there is not enough data to fully describe the algorithmic process of transcoding from the visual to the sonic. While synesthesia is an extreme form of stimuli becoming interconnected, human thought is quite generally founded on the concept of connectivity and comparison. Language overflows with metaphors and analogies precisely because humans learn best by comparing new concepts with established ones; integrating new thoughts as reformulations of older ones. Algorithmic transcoding is thus a potent method for illuminating both inputs and outputs. As Nietzsche describes it: “Everything which distinguishes man from the animals depends upon this ability to volatilize perceptual metaphors in a schema, and thus to dissolve an image into a concept.” The musicians, artists and inventors in these case studies conceived of metaphors of expression, created algorithms to transcode data and thus dissolved images into sound.

This talk will cover 1) Light Bulbs, Then and Now: The Rhythmicon and Thermal Image; 2) Sound-on-Film: Fischinger, McLaren, Whitney Brothers, Spinello, and Sholpo; 3) Drawing Sound: Oramics, UPIC, and Metasynth; 4) Glitch: Similacra, and Pixel Player; 5) Slit Scanning: Phonopaper, ANS; 6) Image as Control: Graphic Converter, Augur and Light Pattern; and 6) Live Video and Design: Hearing Red, Ocusonics, and Giant Theremin.

Biography

Margaret Anne Schedel is a composer and cellist specializing in the creation and performance of ferociously interactive media whose works have been performed throughout the United States and abroad. She is a joint author of *Electronic Music and recently edited an issue of Organised Sound on the aesthetics of sonification. Her research focuses on gesture in music, the sustainability of technology in art, and sonification of data. She sits on the boards of 60x60, the International Computer Music Association, and is a regional editor for Organised Sound. From 2009-2014 she helped run Devoion, a Williamsburg Gallery focused on the intersection of art, science, new media, and design. She ran SUNY’s first Coursera Massive Open Online Course (MOOC), an introduction to computational arts. As an Associate Professor of Music at Stony Brook University, she serves as Co-Director of Computer Music and is the Director of cDAct, the consortium for digital art, culture and technology.

Giuditta Parolini (giudittaparolini@gmail.com)

Pietro Grossi (1917-2002) and the S 2F M, the electronic music studio he created in Florence, are one of the Italian experiences in electronic music listed in Hugh Davies’ *International Electronic Music Catalogue*. Fascinated by the new opportunities offered by technologies, Grossi, a cellist and composer, left his successful career of thirty years in the orchestra of the Maggio Musicale Fiorentino for an uncertain venture in electronic and computer music, and later also in visual art. Grossi’s choice was inspired by a radical project: to make music without musicians, to free the intellectual act of composition from the labour of the musical performance.

Grossi’s interest in electronic music began with a visit to the electronic music studio set up by the Italian public broadcasting corporation (RAI) in Milan. There he created his first composition in electronic music, *Progetto 2-3*...
In the second half of the 1960s Grossi began to experiment with computers. In the following decades computer music became the main interest of Grossi and his S 2F M. Establishing collaborations with producers of mainframes based in Italy (Olivetti-General Electric and IBM) and scientific institutions involved in computational research (in particular the Italian University Computing Centre (CNUCE) based in Pisa), Grossi had the opportunity to promote the development of both hardware and software tools for computer music. More appreciated by computer scientists and high-tech entrepreneurs than by musicians, Grossi’s work eventually turned in the 1980s to the production of visual art displays with the personal computer (Homeart).

My talk will analyse Grossi’s career path from electronic to computer music. I will investigate the role that technologies – at first oscillators, filters and synthesizers, and later digital computers – played in this process and the alliances that Grossi established with technicians, scientists and hardware developers to pursue his projects. I will argue that in Grossi’s vision electronic music was the first, but incomplete step, towards the full automation of the musical performance that computers made possible. The talk will also consider Grossi’s connections with national and international experiences in electronic and computer music, and his activities for the dissemination of electronic and computer music in collaboration with the Italian public broadcasting corporation.

Biography

I am an historian of twentieth-century science and technology. I hold an MSc in the History of Science, Medicine and Technology from Imperial College London (2009) and a PhD in Science, Technology, and Humanities from the University of Bologna (2013). I am currently a postdoctoral fellow at the Technische Universität Berlin and the Berliner Zentrum für Wissengeschichte, where I work on the research project “Uncovering statistical knowledge in experimental research”. My interest for Pietro Grossi stems from my earlier work on the history of computer science in Italy (Mario Tchou: Ricerca e sviluppo per l’elettronica Olivetti, Egea, Milano, 2015), as Grossi’s experiences in computer music were developed in collaboration with R&D departments of computer manufacturers and with Italian scientific institutions engaged in computing research.
Session 4B: Instruments, DIY approaches, and jazz

Settimio Fiorenzo Palermo (s.palermo@mdx.ac.uk)
Serendipitous and Subversive: A Critical Organology of Hugh Davies’s Found Instruments

The invented instruments of the British composer, performer and musicologist Hugh Davies have played a significant role in articulating not only aesthetic, but also social and political concerns, and thus, deserve closer scrutiny than has been granted them so far. Indeed, Davies’s inventions are an ideal example of what Kevin Dawe has described as instruments existing at an intersection of material, cultural and social worlds. Of particular relevance are his “found” instruments, which consisted in reclaimed objects with little modification except for their amplification, often electronic. Davies discussed this unorthodox lutherie praxis as a result of a serendipitous process; this, however, is not to be understood merely as a naïve activity, but rather as part of a subversive project. Indeed, these instruments questioned the historical identity and status of the musical instrument, jettisoning traditional lutherie craft and skills and posing a challenge to the category of the musical instrument itself, thus representing a possibility for its cultural transformation. The study of such instruments, thus, necessitates a focused and yet multidisciplinary approach, able to discern and disentangle the complex discourses imbricated in their polyvalent and polysemic nature. Such an approach implicates a shift from the positivist paradigm of organology to the perspectives of what can be termed a “critical organology,” which calls for an expanded notion of the ontology of the instrument, not only confined to its material entity and the productive labour involved in shaping it, but also intent at understanding the immaterial aspects of the instrument, those forged by the social environment and the artistic labour invested in its realisation. From such a position, the musical instrument can no longer be considered as a medium through which music flows—a tool—but rather the domain in which music is ordered and re-ordered. Indeed, the two instruments by Davies discussed in particular, the Egg Slicer and My Spring Collection, are interpreted as laboratories for the development of a progressive musical aesthetics, as congeries of different kinds of labour, and as articulations of a queer politics. It will be argued that one of the achievements of Davies’s found instruments is to have understood the term “musical instrument” as the terrain on which a radical emancipatory struggle is enacted, and a persistent site of contest, therefore rendering this category permanently problematic and, thus, crucially significant. A critical organology of Davies’s found musical instruments is thus useful in gaining a better understanding of Davies’s music, but also to more fully comprehend the significance of the musical instrument vis-à-vis its socio-cultural context, as well as being strategically important in uncovering marginalised histories of practices that have not conformed to the canonical narratives of conventional instrumentality.

Biography

Settimio Fiorenzo Palermo studied sonic art with Hugh Davies as an undergraduate at Middlesex University; he subsequently catalogued the Hugh Davies Collection at the British Library and was awarded a PhD on Davies’s work in 2015, supervised by Dr. John Dack. He has presented his research internationally and has been invited by a number of institutions such as the British Library and the V&A to discuss Davies’s work. In 2012 he co-curated the Shoe-Zyg exhibition at Goldsmiths College, which saw some of Davies’s instruments and archival items displayed, as well as the performance and presentation of some of his pieces. An authored chapter in the edited volume “Music and Sonic Art: Theories and Practices” on Davies’s instrument Shozyg I is to be published early next year by Cambridge Scholars Publishing.

Andi Otto (mail@andiotto.com)
The early years of STEIM. Ambiguities of "Electro-Instrumental" music

The making of new musical instruments can be seen as a central strategy of musical innovation in the 20th century. One institution where ideas of novel electronic instruments have been especially fostered is STEIM in Amsterdam. Countless projects and artistic residencies have been commissioned at the ‘Studio for Electro-Instrumental Music’ for the past 40 years, with a main focus on the performing player and the dialogues of the body with electronic or digital setups. A significant difference to the research conducted at the major institutions for electronic music after 1970 is STEIM’s leaning towards improvisation, both musical and structural. The studio has been run by Michel Waisvisz as artistic director for 25 years who can be seen as one of the often neglected origins of musical cultures such as glitch and circuit bending. However, he had the support of technicians at his hands, but the necessity to open and bend the black boxes provided by the instrument industry was a STEIM dogma which has even been tagged on the workshop wall in the 70s: ‘If you can’t open it, you don’t own it.” Instruments like Waisvisz’ cracklebox or his sensor-interface “The Hands” are unique configurations of technology to improvise with electronic sound, and they inspired a whole scene of international artists to work on their individual instruments at STEIM. Many excellent projects yielding from the residencies (e.g. Laetitia Sonami, Nicolas Collins, Jon Rose), as well as countless other instruments which do not float on the surface of an archiving process but are still tremendously significant for the writing of STEIM’s story. The role of STEIM in the histories of electronic music has not yet been discussed in apt detail. Since 2009 the author of...
Tony Oxley occupies a unique position in the history of improvised music, but much of his more experimental work has been overshadowed by his skill as a jazz drummer and his position in the history of that music. He had a most coveted position in this country as the house drummer at Ronnie Scott’s Jazz Club from 1966 to 1972, during which time he played with musicians of the stature of Sonny Rollins, Bill Evans, Johnny Griffin and Joe Henderson.

This paper seeks to draw attention to Oxley’s work with electronics from 1970 onwards. As an artist who was not satisfied to rest on his laurels, he was moved to find ways to expand the sound-world at his disposal. In 1965 he was inspired by hearing a gong glissando on Cage’s First Construction in Metal (1939) that was achieved by submerging the gong in water immediately after being struck. He was unaware of the use of water and conducted experiments putting cymbals under tension to try to achieve a similar sound, before realising that it could not be achieved by mechanical means. This led him to investigate the possibilities of electronics as a way to achieve what he was hearing in his imagination.

By 1970 his desire to incorporate electronic sounds into his instrumental set-up led him to construct a Dexion frame to which he attached sound-sources, including clamped knives, taught strings and springs, domestic and industrial egg slicers, toy motors and inverted cymbals. At first two contact microphones, and later three were attached to the frame and their outputs were combined into one channel that was fed into a series of devices that were hand built for Tony by Alan Willey, an electric guitarist in Liverpool. Tony described the sounds he would like to achieve to Willey, who then built the boxes and transported them to London by train for Oxley to collect. The first device was a Dynamic Compressor followed by a Ring Modulator and an Octave Divider. These were connected in that order to a volume pedal and finally a stereo amplifier and two loudspeakers. The frame was positioned to Tony’s left as an integrated part of his instrumental set-up, alongside his unique drum set, which challenged orthodoxy by dispensing with the snare drum and incorporating a wide timbral range, borrowing heavily from orchestral percussion. This combination of acoustic and electronic percussion foreshadowed contemporary hybrid kits by at least forty years and he was one of the very few players of live electronics active in improvised music in the early seventies.
In 1977 he was invited by composer Martin Wesley-Smith, founder of the Electronic Music Studio, Sydney Conservatorium of Music, Australia to be artist in residence for three months; specifically in his capacity as a player of electronics. For this project Tony played his Dexion frame with the compressor, ring modulator and octave divider and eschewed his usual percussion set completely, thus confirming his commitment to the use of live electronics within improvised music.

Biography

Paul Hession is a drummer working within jazz and improvised music who has been active as a performer for over forty years. He has played in many countries with musicians as diverse as Derek Bailey, Lol Coxhill, Marshall Allen, Otomo Yoshihide and Squarepusher. He relishes the interaction of group improvisation, but also enjoys the challenge of solo performance.

He is currently studying for a PhD at the School of Music, University of Leeds where his interest in combining electronics with acoustic percussion led him to study with Tony Oxley in Viersen, Germany.

**Jeff Kaiser** (jkaiser@ucsd.edu)

**Electrifying: Jazz and Electro-Acoustic Experimentation in the 60s**

This research project complicates the history of electro-acoustic improvised music by examining the role of jazz musicians using electronics in the 1960s and into the 1970s. It was at this time that electronic resources—for both sound generation and the processing of acoustic instruments—became more readily available for musicians working outside of the academy. These resources included the echoplex, varitone, wah-wah pedal, ring modulator, synthesizers and more. In particular, I will focus on the experimental use at that time of electronic music technology to process traditional instruments by Eddie Harris, Cannonball Adderley, Nat Adderley, Don Ellis, Benny Golson, Lee Konitz, Sonny Stitt, Muhal Richard Abrams, Buddy Terry, Clark Terry, Miles Davis, Rahsaan Roland Kirk and others. This exploration—illustrating these artists as continuing influences and important forces in experimental electro-acoustic music—will highlight how including these artists challenge certain histories of experimental electro-acoustic music.

Biography

Jeff Kaiser is a trumpet player, music technologist and scholar currently living in San Diego, California. Classically trained as a trumpet player, Kaiser now views his traditional instrument as hybrid with new technology (in the form of software and hardware interfaces) that he creates. He gains inspiration and ideas from the intersections of experimental composition and improvisation and the timbral and formal affordances provided by combining traditional instruments with emerging technologies. The roots of his music are firmly in the experimental traditions within jazz, improvised and Western art music practices. He currently is the instructor of a variety of classes (including interactive arts technology, digital audio composition and American music, among others) at the University of San Diego.

**Sean Williams** (Sean.williams@ed.ac.uk)

**The Hohner Electronium: a 1950s portable monophonic valve synthesizer**

In the early 1950s René Seybold designed the electronic accordion for the Hohner company, names the Electronium. This design ostensibly allowed an accordionist to play with more volume, and also allowed sounds in the lower octave ranges to be loud enough to be heard in more festive and noisy situations. In the early 1960s Harald Bojé started playing the Electronium as a tabletop keyboard instrument rather than using the shoulder straps, and modified his instrument to allow for this. Within the context of the electronic music made in Cologne at the time, the use of a piano style keyboard was anathema. The two electronic instruments initially present in the WDR Studio for Electronic Music at its inception—the Melochord and the Monochord—had been summarily ejected primarily because the keyboard interface was a problematic link to an old fashioned way of thinking about music.

Bojé’s choice of instrument, then, to play mostly compositions by Karlheinz Stockhausen within the Cologne Ensemble was a strange one. Through documents including photographs and letters, this paper will show the evolution of Bojé’s Electronium, and the reactions of technicians and co-performers will illustrate the reception of this electronic instrument in the key period of the mid 1960s when portable synthesizers were not yet available. The many modifications made to the instrument and its appearance in Stockhausen’s compositions from 1967 to 1973 provide great early examples of repurposing and DIY culture in electronic music performance practice, and I will demonstrate
how the design of the instrument itself affords many of these modifications, and therefore influences the sound of the music made and composed with this device.

Biography

Sean Williams is an empirical musicologist specialising in early electronic music practice, particularly the music of Karlheinz Stockhausen other music made at the WDR Electronic Music Studio in Cologne. As a solo performer and with his ensemble “Grey Area” he performs new and historical pieces using a combination of contemporary and historical tools and techniques, including self-built instruments. He teaches sound recording and other music technology related courses at the University of Edinburgh.
Keynote 3: Music at any cost - fulfilling our desires for intense sonic experiences in the electric and pre-electric eras

Sarah Angliss
(hello@sarahangliss.com)

Sound, more than any other sensory modality, is a stimulus that many of us are willing to experience at a high personal cost. The gig goers who vie to stand near the deafening loudspeakers at a drone metal concert know this. So do the audiophiles who spend thousands chasing elusive ‘perfect’ sound via their modular synths or top of the range headphones. In this talk, I’ll explore this aspect of sound culture which I call the ‘sonic imperative’. I think the sonic imperative has been somewhat overlooked in current histories of electronic music. I’ll attempt to explain why. I’ll also ask what we can learn if we consider it more closely.

Electronics, digital processing and electroacoustic transducers have given composers, instrument makers and listeners new ways to meet their cravings for intense or sublime sonic experiences. They’ve augmented the possibilities on offer. Yet in many ways, these developments have merely intensified highly sought-after, extreme sonic experiences that were already available in the pre-electric era. For example: in terms of shock and awe, a thrash metal guitar, played at maximum volume, arguably has a strong family resemblance to a Wagnerian fortissimo brass section. The hi-fi can bring this to the listener invisibly, creating a thrill that’s comparable to the mystic abyss of the Festspielhaus.

Whether they’re working with new or old tools, composers generally use them to create music with a certain affect (even if that affect is a sensation of emotional coldness). This can sometimes be lost in histories of electronic innovation - for instance in the UK, when talking about the work of Tristram Cary. Perhaps this is because certain composers are reluctant to discuss their emotional intent. It may also be due to the difficulties of describing affect when working with electronic sounds (which can be unfamiliar). According to his son John, Tristram Cary was ‘very buttoned up’ and unwilling to talk about the emotional heft of his music, preferring to talk about compositional concepts and machines, even though the emotion may be evident to the listener. Sonic imperatives and emotional intentions don’t readily reveal themselves when we survey the physical relics of our electronic music culture, such as the dead machines in museum collections. What's more, the technical history of electronic music is tightly bound up with other technical narratives, such as the history of radar and telecommunications. Thus, it's tempting to present a partial history of electronic music machines, one which talks about engineering developments while neglecting any discussion of sonic desire and affect. If we consider these issues, perhaps it will be easier to see electronic music as a continuation of music culture from the pre-electric era.

Biography

Sarah Angliss is a composer, performer and automatist whose research interests are often inspired by ongoing questions concerning live performance. Her research interests include the history of ventriloquism (2014); the use of trained birds as primordial, feathered sound recorders (2011); the reputed psychological effects of infrasound (2004); early attitudes to drum machines, samplers and the talkies (2011) and clog dancing from Lancashire, UK, as a 19th century industrial ancestor of Detroit techno (with Caroline Radcliffe, 2009). Sarah’s compositions have been commissioned by the National Theatre, The Old Vic, the BFI, BBC radio and many others. She’s currently a visiting research fellow at Goldsmiths, University of London.
Session 5: International Perspectives

Kevin Austin (kevin.austin@videotron.ca)
A Brief Speculative History of EA in Canada

Canada was an outlier to the French, German and American electronic music scenes, exacerbated by being physically huge, and having grown from two European colonial powers. An unpromising start. The early traditional history of electronic music in Canada has the names Hugh Le Caine, University of Toronto Electronic Music Studio [UTEAMS], acousmatic music legacy [in Montreal], and empreintes DIGITALEs. Sometimes added to this is soundscaping, and, granular synthesis. These events are separated by around 4,500 kilometers.

From the 1940s, – McLaren and Le Caine, until the late 1980s there were multiple parallel timelines and little personal, aesthetic or cultural connection between many of the major developments.

This presentation will talk about some of the less-known contributing features of electronic music / electroacoustic studies in Canada that are either only locally-documented, anecdotal or possibly apocryphal. The subjects include:

- multi-channel pieces from the early-1970s – from McGill University
- Canada’s EMS representative – Otto Joachim
- live electronic music groups – Canadian Electronics Ensemble, MetaMusic
- continuous promotion of electroacoustics to the public
- local / regional associations [Acreq, Music Gallery, BEAMS]
- performing / concert production group [CECG/GEC – EuCuE, GEMS]
- numerous individual initiatives – Contact List for Electronic Music eg
- integration into pop music – disco
- archival collections of pieces – the 3,000+ works in the Concordia Archive, McGill
- publications – Q, Q-résonance, Newsletter/Bulletin, and others
- conferences – 1985-1993
- development of university and private studios
- attempts to have Canadian ea recognized nationally and internationally

and eventually, the coming together of some 100 practitioners to form a national association – a Canadian electroacoustic community.

As is characteristic in young countries with poor communications – another example being Australia, like the helicopters from the maple tree, many seeds appeared, few survived more than one or two freezing winters.

By the late-1970s Montreal had become recognized as the center of electroacoustic activity in Canada, eventually with four major educational / research mandates. The particular educational, historical and political history led to four somewhat different interpretations regarding what electroacoustics is, with three – Université de Montréal, McGill, Conservatoire having Master and Doctoral level programs, and Concordia having ‘in-house’ multi-disciplinary opportunities including performance art, theater, dance, animation, film and mediatic arts.

The presentation will first provide the broader context for the history of ea in Canada, and then follow many of the threads noted above, with examples, leading up to the Google-, Wikipedia-, YouTube-age, when the histories of ea nationally and internationally essentially ceased to exist in isolation.

Throughout the presentation there will be a number of observations, perhaps occasionally irreverent, of what it was like developing a national ea profile when 90% of the contact between members of the community was having listened to the same LPs and eventually many of the same CDs, but not having met each other. And knowing what ‘cold’ is.

Biography

Kevin Austin is a Montreal-based composer, educator – at Concordia University, and arts animator. Now 45 years after he started working in an EMS, his history is littered with compositions, live-ea, archiving, soundscaping, and continuous teaching in ea and previously across most areas of music – including a two-year university-level aural skills course. In the mid-1980s with Jean-François Denis he co-founded the Canadian Electroacoustic Community and has continued his commitments to the Canadian and international ea communities since. Despite living 59 years in Montreal, he speaks with the north-London non-retroflex /r/.
Ricardo Dal Farra (ricardo.dalfarra@concordia.ca)
Why didn’t you tell me this before? (Maybe you didn’t want to hear this side of the story)

Who tells history? Who knows about it or who has the opportunity to do it?
We can find several versions about the electroacoustic music history during the past century, most of them with subtle differences, but it is unusual to find references pointing to no “first-world” countries. In fact, this same conference is happening in one of the “central” countries where the history of the world seems to be written. Why is this happening?

The political and economic instability in most Latin American countries has been deeply affecting the life of its inhabitants for decades. Support for artistic activities has usually been postponed to solve urgent social problems. In spite of that, the electroacoustic music development in the region is really astounding. Mauricio Kagel (Argentina, 1931 - Germany, 2008) composed eight electroacoustic studies in Argentina between 1950 and 1953, according to Hugh Davies’ Catalog. Kagel was among the many composers that were laying the foundations of a rich history of experimentation and creation in the region. Reginaldo Carvalho and Jorge Antunes in Brazil, León Schidlowsky and Juan Amenabar in Chile, Joaquín Orellana in Guatemala and Horacio Vaggione in Argentina are just a few names in the ocean of electroacoustic music creativity that has always been Latin America.

The Cuban composer Juan Blanco registered in 1942 the description of a new musical instrument he named Multiorgan, based on 12 loops using magnetophononic wires. This predated the Mellotron - that changed the way of doing music- by many years but recent documentaries don’t even mention him or his device. Mexican engineer Raúl Pavón developed in 1960 an electronic musical instrument: the Omnifon. It was among the firsts voltage-controlled electronic sound synthesizers built. Fernando von Reichenbach invented in Argentina the Analog Graphic Converter in the 60s. It was used to transform graphic scores -from drawings done on a paper roll- into electronic control signals adapted to work with analog sound equipment. José Vicente Asuar produced in Chile a hybrid analog-digital computer system in the mid 70s exclusively devoted to create music.

If you know about the history of electroacoustic music but didn’t hear about what has been happening in Latin America for the past 60 years or so, it is clear that something around has not been said. Maybe it was lost (in translation?) or for some reason didn’t show up in the official history (story?)

If history is written by winners: are those persons named some of the losers of the electroacoustic music history? “Why didn’t you tell me this before?” is not just a presentation about pioneers and their creations but also a strong regard towards the way the electroacoustic music history has been reported and what is being done to that respect.

References:

Biography


Rasmus Christensen, Jan Høgh Stricker and Jonas Olesen (hej@rasmuscleve.dk, jan.stricker@gmail.com, totem_tm@yahoo.dk)
Volf, Plaetner and Viktor: Outsiders of Early Electronic Music in Denmark

By the end of the 1950s, when the possibilities of electronic music became apparent to most European public broadcasting institutions, and studios were being built close-by in Stockholm, Warsaw, Helsinki etc., the Danish Radio
Council didn’t think a similar initiative was necessary in Denmark. Based partly on economic concerns and partly on a desire to see how the Swedes would do, a crucial decision was made not to establish an official Danish studio for electronic music at the time. Not until 1987, after much debate, was a national studio for electronic music realized in Denmark. By then, a number of composers had sought overseas to fulfill their ambitions to create electronic music. Others had developed more ad hoc approaches to electronic composition than those of the advanced studios of Cologne, Paris, Milan, and beyond. As an effect, electronic music produced in Denmark in this period is – to this day – rather obscure, and the academic work dedicated to it close to non-existent.

This paper proposes a narrative of electronic music in Denmark that focuses on marginalised artists and composers developing and creating music on DIY-equipment in home-built studios resulting in ingenious and very inventive music and sound.

Collaborating with the archive of the Danish Broadcasting Corporation (Danmarks Radio, henceforth DR) and Dansk Kulturarv (the centre for Danish cultural heritage) we have dug through the DR archives for recordings, interviews, and professional discussions that reveal yet unknown works of music and contribute to understanding the initial discourse on electronic music in Denmark in the 1950s, 60s and 70s.

Despite the institution’s initial antagonism towards the new electronic realm, forces within the music department of DR did a fair deal to communicate and promote the ideas of electronic music to the radio listening public. The archives are not complete – far from it – but they are ample for investigation and, strangely enough, today’s main resource in (re)discovering these lost sounds.

Using the archive material as a starting point for further investigation amongst collectors, artist relatives, and the cardboard boxes in their attics, we have made discoveries that – in our minds – demand a new or alternative history of Danish electronic music.

For a possible presentation at the AHEM conference in Leeds, we would focus on three outsider figures, who represent the material we’ve come across: 1) The earliest known works of electronic sound in Denmark (dating back to 1936/37) by the scientist and therapist Christian A. Volf; 2) The electronic music originating from composer Jørgen Plaetner’s private studio in Kalundborg (probably Denmark’s first home studio) and the now closed-down Holstebro Electronic Music Studio, which he built and managed from 1967-77; and 3) The largely unknown Danish pioneer in field recording and electronic soundscape-composition, artist and composer Knud Viktor, who spent decades in the mountains of Luberon in the south of France recording and manipulating sounds on his home-built electronic equipment without releasing more than two LPs in 1972.

These three cases represent a chronology or progression in the history we are trying to reconstruct: One preceding the existing narrative completely; one personifying the struggle of the composer during a time when Denmark was technologically behind most of Europe; and one representing the ultimate DIY-approach working completely outside the limits and conditions of the institutional and musical system.

Biography

The overall purpose of IDSA is to uncover, publicise and release historical Danish electronic music and sound art. The work of IDSA contributes to establishing a narrative of electronic music and sound art in Denmark – a neglected field of research – as well as mapping out public, semi-public and private archives in Denmark, which contain works and recordings that fall within this field. IDSA has presented its research at the event “Close your eyes and listen” at the National Gallery of Denmark, at the Transnational Radio Encounters conference in Berlin (both November 2014), at the National Gallery of Denmark’s exhibition “What’s Happening?”, and at the Museum of Copenhagen (both June 2015).

IDSA is initiated by:

Jan Høgh Stricker holds an MA in Modern Culture from the University of Copenhagen with the thesis “Radio as art and concept in the European Avant-Garde”. He is co-founder and chairman of the Copenhagen Radio Cinema and co-founder and board member of the experimental radio station The Lake Radio. He works for the organisation SNYK (National Agency for Contemporary Music) as well as being a critic and co-editor at the online journal for contemporary music and sound art Seismograf.org. Previous positions include part-time lecturing in Musicology and Auditory Culture at the Department of Arts and Cultural Studies, University of Copenhagen.

Jonas Olesen is a an electronic composer who works with sound and installation art and produces music under various aliases including IR and Batch Totem and has worked in different collaborations with Rune Sochting, Morten Riis, Christian Marclay, Lights People, Bjørn Svin, Karsten Pflum amongst others. He has run the label BIN since 2007.
and is a lecturer at the Danish Institute for Electronic Music as well as coordinator of the Nordic Sound Art program at the Royal Danish Academy of Fine Arts.

Rasmus Cleve Christensen holds an MA in Modern Culture from the University of Copenhagen with a thesis on sonic experiments in the early Soviet Union. He was project manager and curator at LAK, Festival of Nordic Sound Art in 2012-13 and co-founder of the Copenhagen Radio Cinema in 2013. He has worked as a freelance radio producer for the Danish Broadcasting Corporation and is now a producer and editor at the online radio station The Lake Radio. He is also a critic and co-editor at the online journal for contemporary music and sound art Seismograf.org and part-time lecturer in Auditory Culture at the University of Copenhagen.

Mikko Ojanen (mikko.ojanen@helsinki.fi)
Electroacoustic music in Finland in the 1960s and 1970s: a case study of Erkki Kurenniemi’s music and instrument design

In this presentation, I will introduce my PhD project which is focused on the history and analysis of Finnish electroacoustic music and electronic instrument design in the 1960s and 1970s. At the center of the focus is an instrument designer and composer Erkki Kurenniemi (b. 1941). Kurenniemi gained strong technical know-how, first, as an amateur radio operator already during the 1950s and later as a student and an assistant at the Department of Nuclear Physics in the University of Helsinki. During the academic year 1961–62, Kurenniemi was invited to build an electronic music studio for the Department of Musicology at the University of Helsinki. Between 1964 and 1975, he built ten innovative instruments mainly employing digital logic in their sound synthesis, sequencer and memory applications. Amid his studio and instrument design, Kurenniemi pursued an artistic career and produced approximately 30 pieces of electroacoustic music including music and sound effects for films, theater, radio plays and exhibitions. In 1970, together with Jouko Kottila and Peter Frisk, Kurenniemi founded a company Digelius Electronics Finland with the main target in designing and marketing of his instruments. Failing to achieve a foothold in the market with any of its products, Digelius went to bankruptcy in 1976.

At the time when necessary technology was practically non-existent and the studios of the genre were rare and expensive to design, Kurenniemi’s work enabled a good part of Finnish electronic music production. Kurenniemi collaborated with several Finnish and Swedish composers and artists, and his visionary ideas and technical know-how had its influence on the works of his contemporaries – and vice versa. Thus, his work serves here as a lens through which I am observing also the broader cultural and historical circumstances of electronic music – even beyond the Finnish scene. Therefore, another central target of this study is to shed light on the intangible social networks of experimental artists and electronic music composers in the Nordic countries.

Beyond the temporal and geographical frames, the works by Kurenniemi and his Nordic collaborators also provide a more general point of view to the interaction between music and technology. The broad focus of my PhD project can be introduced with three main threads; music history (the point of view to the historical and cultural context in the Nordic countries in the 60s and the 70s), music technology (the point of view to the instrument design and usage) and electroacoustic music (the point of view to the aesthetics and musical analysis). The study belongs to the domain of music technology research and its scientific stance is interdisciplinary. On the one hand, for describing the social networks and technological development I employ the concepts from the framework of the social construction of technology as well as from the actor network and innovation theories. On the other, for analysing and describing the cultural and historical context of electronic and experimental music I employ music analysis and the concepts of the modern historiographical paradigm and aesthetic theory.

Biography

Mikko Ojanen received his master’s degree from the Department of Musicology, University of Helsinki in 2007. Later he has continued his research project on the history and analysis of Finnish electroacoustic music as a salaried PhD candidate in the Doctoral Programme for Philosophy, Arts and Society, University of Helsinki. He works also as a part-time lecturer at the university’s Electronic Music Studio teaching studio technology and history of electroacoustic music. Amid his research and work at the university Ojanen performs frequently as a musician, sound technician and music producer in several electronic, experimental and popular music projects and groups.

James Andean (james.andean@dmu.ac.uk)
Electroacoustic Mythmaking: National Grand Narratives in Electroacoustic Music

Histories of electroacoustic music tend to converge around a limited set of grand narratives, which construct an outline of electroacoustic history organized around themes including the ‘Great Studios’, a small handful of ‘Great Composers’
(Stockhausen, Schaeffer, Berio, Cage...), and contrast and conflict between ‘Great Nations’ – primarily, between France and Germany. While all of the above had roles to play in the development of the genre, these narratives can at best be described as misleading, and at worst be accused of rather sinister undercurrents.

Not only are such simplifications extremely reductive, and at times demonstrably false, they also support a form of broad national caricature that demands a thorough and critical rethinking. Where composers of this period of post-war Modernism were desperate to ensure that the nationalist romantic mistakes of the past would not be repeated, the retrospective gaze of electroacoustic history has re-imposed this same narrative once again, by emphasizing post-war animosity as a defining factor in the birth of a new musical genre.

These narratives of ‘great men’, ‘great studios’, and ‘great nations’, are all focused on loci of power – but silently and invisibly, without addressing the various sources and motivations that lie behind these accumulations of power. The picture that emerges as a result appears to privilege and celebrate power, lacking an essential level of scrutiny.

To balance this largely unintentional narrowness of vision, we might usefully pursue two parallel paths. A focus on various forms of power as a defining factor in the development of electroacoustic music is not without its relevance, but requires contextualization and closer examination; for example, an examination of the resources involved in EA’s development – the flow of resources, points at which resources are or have been abundant, or at which they have been lacking or denied – would serve to openly address and balance narratives of power, and could be expected to lead to greater insight into the forces that formed our field, and may potentially help in shaping strategies for future development.

On the other hand, we might move away from power as a central narrative, to focus on some of the more positive forces that have had every bit as much of a formative effect. Many of the ‘great men’ and ‘great studios’ were of such great importance not only through the force of their thought and creative output, but, very importantly, through their often significant efforts and successes in building communities of interest. Taking this as a starting point, a number of alternative approaches to electroacoustic history suggest themselves, taking the interplay of communities and community outreach as cornerstones: for example, a mapping of electroacoustic history through its great pedagogues, and the communities and webs of influence they have helped to inspire. This would retain something of a ‘great men’ approach, but a focus on pedagogical figures leads us, in my opinion, to a more accurate and fuller image of the changing electroacoustic landscape.

**Biography**

James Andean is a musician and sound artist. He is active as both a composer and a performer in a range of fields, including electroacoustic music, improvisation, sound art, and audiovisuals. He is a founding member of several groups and ensembles, including Rank Ensemble, LOS duo, and Plucié/DesAndes. He has performed throughout Europe and North America, and his works have been presented around the world. He is a lecturer at the Music, Technology and Innovation Research Centre of De Montfort University.
Keynote 4: Rethinking the History of Sound-based Music

Leigh Landy
(LLandy@dmu.ac.uk)

The first entry in Hugh Davies’ “A History of Recorded Sound” (1979) was dated ‘unknown (mostly B.C.’). Creating an alternative history for electronic music that is more radical or inclusive is going to be difficult.

The notion of alternative history will be investigated in a number of ways in this talk and will focus upon the following two. A) Music has always involved some forms of technology throughout its history. One of the most radical developments of the use of technology in music history is what is being called electronic music at this event. However, there are major issues with this term today as it is used in various musical communities in different ways. Examples include the broad usage throughout most of the USA where electronic music is synonymous with electroacoustic music as used in other countries; electronic music means music in which sounds are created or generated electronically to many in the field; electronic music represents a variety of forms of popular music; and that is not all. Beyond the obvious terminology issues the lack of a clear definition for this body of music means that histories of that music will be based on the definition of the day. As awkward as this is, this point is less important than the following one. B) Accepting what most participants at this event will understand to be electronic music, it will be proposed that most of this body of work resides in a truly radical area, namely where the traditional musical note is not its basic unit; it is instead the sound that is not originally intended to be seen as something related to our do-re-mi system. Most histories of electronic music do not focus on the aesthetic results that separate note-based from sound-based works. In my 2007 book, instead of adopting one of the current terms in use, I opted for sound-based music (as opposed to the terms mentioned above as well as sonic art) as this term unambiguously is speaking of works in which the sound as opposed to the note is the basic unit. It also means that some works that do not need electricity (or other form of power) qualify as pertaining to this super-genre as it is the material, not power generation that holds the music together. This term was chosen above sonic art(s) as it clearly places its corpus within music, thus broadening the field from all notes to all sounds in a similar fashion as dance evolved from movement related to particular genres to any movement during the same period.

The history of sound-based music proposed in this talk comfortably crosses genres and categories (including the art music/pop music divide and, in fact, can ignore it); it crosses art forms comfortably (e.g., sound artworks can often be experienced as fine art and music); it benefits from its own paradigm that coexists with the note-based paradigm known from early forms of music production developed in ‘unknown (mostly B.C.’). Given the ubiquity of technology in today’s music, it will be proposed that rethinking the global history of sound-based music is indeed a valuable alternative to that of electronic music.

Cited texts:

Biography

Leigh Landy (www.mti.dmu.ac.uk/~llandy) holds a Research Chair at De Montfort University where he directs the Music, Technology and Innovation Research Centre. His scholarship is divided between creative and musicological work. His compositions include several for video, dance and theatre and have been performed around the globe. His publications focus on the studies of electroacoustic music, including the notion of musical dramaturgy and access and the experimental time-based arts. He is editor of “Organised Sound” (CUP) and author of eight books including “Understanding the Art of Sound Organization” (MIT) and “The Music of Sounds” (Routledge, 2012). He directs the ElectroAcoustic Resource Site (EARS) projects and is a founding director of the Electroacoustic Music Studies Network (EMS).
Session 6A: Great Britain

Ian Helliwell (ianhelliwell@yahoo.co.uk)
Tape Leaders - Excavating early British electronic music

Exposure and acknowledgement for early British electronic and tape music has always been scant, with only a small number of celebrated composers coming to represent an area in which so many others participated. During more than six years of research for the book Tape Leaders, a different, rich and varied picture has emerged, revealing over 100 electronic music makers active in Britain before 1970. How have a handful of composers been given recognition, while dozens of others have been eclipsed and languish in obscurity? Why have historians and academics failed to properly investigate this forgotten period, and left so much of its rediscovery to small record labels and maverick, independent researchers?

A significant body of experimental amateur work remains almost totally lost in the mists of time. A great deal of this output will inevitably have been less than world class, but should it therefore be ignored and literally consigned to the dustbin? It is sad to say that many tapes have been thrown away, equipment sold off and analogue studios dismantled, and efforts to properly document and salvage this British electronic music heritage have been woefully inadequate. Unlike British folk music, where the importance of documentation and preservation was recognised decades ago, the same cannot be said for its electronic music counterpart. It could be argued that the British amateur tape club movement and its intersection with electronic sound and musique concrete, in fact represents the real ‘folk’ music of the second half of the 20th century, and it is the failure of this to be identified which has partly led to it being so undervalued, its existence ignored and the danger it will be lost forever.

There are perhaps a number of other reasons for the lack of acknowledgement for early British electronic music as a whole. These include hostile critical receptions; professional composers’ instrumental and vocal music overshadowing their electronic output; private and home studio work not being taken as seriously as that created at broadcasting stations or university studios; an ambivalence about tape music amongst the composers themselves; the tendency of critics and commentators to promote and write about only the ‘key players’ while ignoring everyone else; a perception in the public mind that electronics equalled harsh or weird sci-fi noise, and was thus not to be taken seriously as music; and a gradual shift as time went on, away from the new experimental sounds, towards something much safer and more palatable for general audiences.

A further explanation also presents itself - with a whole area of musical history unexplored for decades, and many of the participants now dead, tapes having been lost or discarded and memories long faded away - the job of ‘electronic archaeology’ becomes a monumental task, and apparently not one that professional researchers appear willing to take on. The conventional wisdom - that a handful of composers along with the BBC Radiophonic Workshop, represents more or less the whole story of early British electronic music - has been allowed to continue unchallenged for decades. The establishment consensus and focus on just a small number of names, is surely long overdue for reappraisal.

Biography

Ian Helliwell works in music, film, animation, analogue electronics, instrument building, collage, installations, light show projection, live performance and film programming. Since the early 1990s he has made over 100 short experimental films with his own electronic music soundtracks. In 2011 he completed his first feature length documentary film, Practical Electronica, looking at tape pioneer FC Judd, and his book Tape Leaders, is an A-Z compendium of early British electronic music composers, due for publication in 2016.

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Tom Richards (trsound@gmail.com)
Mini Oramics: Potential and Actuality

This paper will outline briefly the continued research into the legacy of the British composer and innovator Daphne Oram (1925 – 2003), before going into some detail about a less researched part of her legacy. Oram was a proponent of drawn sound techniques and the inventor of the Oramics Machine: an innovation that bears comparison to both the RCA and ANS synthesisers. Having had privileged access to both the Daphne Oram Archive at Goldsmiths, University of London, and the Oramics Machine in the Science Museum collection, the author is in the final stages of a practice based PhD study of Oram’s work with a specifically hands on and forensic, techno-historical approach.
This research has led to the initial conclusion that the Oramics Machine was never really finished, and was beset with technical problems, despite the remarkable conceptual vision and technical efforts of Oram and her collaborators. This goes some way to explain its relatively limited musical output despite the fact it was in operation for about ten years.

Having had an acute awareness of these issues, Oram realised that compromise was necessary if the commercialisation of her drawn sound technique was to be successful. In the early 1970s she turned her thoughts to the production of a smaller, simpler version of her machine, to be marketed to private and educational studios. Oram’s insight here is pertinent, given the relative success of smaller and cheaper products such as the Synthi AKS and MiniMoog when examined next to their bigger and more expensive cousins. Oram’s Mini Oramics is still an under-researched area of her practice, and unlike her original machine we do not have a physical artefact to study. However, the archival designs for Mini Oramics are far more complete than those of her original machine, and so in many respects her intentions and ideas are easier to interpret than with the original.

After examining Oram’s plans and contrasting them with contemporaneous developments in music technology, it will be argued that Mini-Oramics could have had an important impact had it been launched at the right time and with sufficient backing; in an era when electronic music sequencing techniques were often restrictive, lacking in temporal nuance, with un-intuitive interfaces (until the advent of MIDI and affordable computing). This line of research has been significantly augmented by the practice-based element of the study, where a hardware version of Mini-Oramics has been constructed, and will be evaluated alongside its contemporaneous technological ‘competitors’. This reconstructive research methodology has provided significant insight into the difficulties Oram and her collaborators faced in the design and construction of her machines. In addition it will enable further research into the practical interface of Oramics, and whether the painstaking nature of programming such a machine was worth the extra degree of compositional nuance it would have provided.

Biography

Tom Richards is an artist, musician, instrument designer and researcher based in London. He graduated with an MA in Fine Art from Chelsea College of Art in 2004 and is currently studying between Goldsmiths and the Science Museum for a practice based PhD on the life and work of Daphne Oram: Electronic Music Pioneer and founder member of the BBC Radiophonic Workshop. In this context he has previously presented his research at Manchester Metropolitan, Brighton, Bath Spa, UEL, Goldsmiths and Stony Brook (US) Universities. As an artist and musician, he has exhibited and performed widely in the UK, as well as internationally in the US, Germany and Sweden. Selected works and live performances have taken place at Tate Britain, The Queen Elizabeth Hall, The Science Museum, Spike Island, Camden Arts Centre, Cafe Oto, MK Gallery, Bold Tendencies and Resonance FM.

Shiva Feshareki and Ivan Hewett (sfeshareki@rcm.ac.uk, ihewett@rcm.ac.uk)

‘Still Point’ - An Unknown Precursor of Today’s Electronic Music

This paper will discuss an unknown work by a pioneer of electronic music, Daphne Oram. Oram is best known as the co-founder and first director of the BBC Radiophonic workshop, where she created numerous musical scores for radio and TV productions. What is less well-known is that she created a theory of electronic sound synthesis known as ‘Oramics’, and wrote a large quantity of concert music, most of which has never been performed.

Our paper will focus on the most substantial score in this neglected body of work. Entitled ‘Still Point’, it is scored for double orchestra, electronically treated recordings on 78-rpm discs, microphones, and Echo and Tone controls. It was composed in 1949, which means it has a good claim to be the first work in history which combines a fully written-out orchestral score with live, real-time manipulation of electronic sound.

Oram entered Still Point for the Prix Italia in 1950, which it failed to win, and unfortunately the score was never returned to Oram and is now presumed lost. What survives are approximately one hundred pages of pencil sketches in the Oram Archive, now housed at Goldsmith’s College, London. The composer and co-author of this paper, Shiva Feshareki, is now working on a reconstruction of the piece, in collaboration with James Bulley, for performance by the London Contemporary Orchestra at St. John’s Smith Square London in the summer of 2016.

The authors aim to address the following topics:
1) We will set this work in the context of Oram’s work as a whole, looking into the relationship between her technical speculations and her aesthetic outlook.
2) We will ask what the influences were on this genesis of this work, with particular emphasis on the poem of T.S Eliot (Burnt Norton from The Four Quartets) which provided the work’s title.
3) We will give a detailed description of the surviving performance materials, with an explanation of the work (both creative and re-creative) required to bring those materials into a performable state.
4) We will attempt to situate the work, and Oram’s work as a whole, in the wider history of electronic music. This is not a straightforward task. On the one hand, she was a visionary, who in this work created a “Concerto for Turntables” a good sixty years before the genre was invented. On the other, her work has many links to earlier traditions in music. The fact that Oram took as her title a line from the most outspoken cultural conservative among 20th-century poets looks significant, but significant of what exactly? And if it turns out on closer inspection that Oram had a vein of cultural conservatism in her make-up, is that peculiar to her? Or might it point to a wider theme in electronic music which is hidden from view, by the rhetoric of radical, technological modernism through which we habitually discuss the genre?

Biography

Shiva Feshareki
Born in London in 1987 Shiva Feshareki is a composer, DJ and turntablist. She is a scholarship graduate from the Royal College of Music taught by Mark-Anthony Turnage, and is the recipient of awards such as BBC Proms/Guardian Young Composer of the Year (2004), Royal Philharmonic Society Composition Award (2009), and was shortlisted at BASCA's British Composer Awards under the Sonic Art category (2010). Since then, she has performed on her turntables at major UK venues such as the Southbank Centre, Royal Festival Hall, Royal Albert Hall, Barbican, Roundhouse etc, alongside ensembles such as the London Philharmonic Orchestra, Philharmonia, London Sinfonietta and London Contemporary Orchestra.

Ivan Hewett
Ivan Hewett studied at the University of Oxford and the Royal College of Music. He is Chief Music Critic for the Daily Telegraph, and he also lectures at the Royal College of Music. He is particularly interested in issues around the creation and reception of contemporary music. He contributed a chapter to the recent New History of the Proms, published by Thames and Hudson, and has also written a chapter for a book examining the varieties of ‘classical’ music around the world, published in October 2015 by Boydell and Brewer. His book Healing the Rift, a meditation on the dilemmas of modern music, is published by Continuum.

James Gardner (lozenge@paradise.net.nz)
The Don Banks Music Box to The Putney: The genesis and evolution of the VCS3 synthesiser

The VCS3, made by EMS, is well known as the first commercially-produced European synthesiser. While in recent years interest in such early analogue synthesisers has grown, and VCS3 prices on eBay have exploded, a thoroughly researched and detailed account of the genesis of this significant device has not yet appeared. One of the aims of this paper is to demystify the origins of the VCS3 and to debunk some of the myths that have grown up around the instrument.

The VCS3’s precursor, commonly referred to as the VCS-1, was brought into being following a request in 1968 from the Australian composer Don Banks for an electronic music device that would cost no more than £50. Banks’ request was addressed to the incipient team of composers Tristram Cary, Peter Zinovieff and engineer David Cockerell. The success of the device they built for Banks led the trio to set up Electronic Music Studios (London) Ltd., or EMS, in order to develop and then manufacture the VCS3.

Drawing on little-known and recently-discovered primary source material this paper traces the development of the VCS3 from Banks’ original request, through various intermediate stages, to its launch in November 1969. A brief discussion of the instrument’s impact and significance is also included, and the vexed question of how the VCS3 came to be yoked to a keyboard is also addressed.

The paper also considers the workings of the informal network of Banks, Cary, Cockerell, Zinovieff and other associates, each of whom at the time were essentially freelance or independent practitioners, beholden neither to academic institutions nor industry. This network formed just one of what Bijker, Hughes and Pinch might call a ‘relevant social group’ with respect to the VCS3. Other such groups would include early adopters amongst the rock music world; early ‘live electronics’ groups such as Intermodulation, Gentle Fire and Karlheinz Stockhausen’s group; and the rash of electronic music studios, particularly in the UK, that sprang up in tertiary institutions in the late 1960s and early 70s.

Starting with an outline history of Peter Zinovieff’s private electronic music studio in London, the paper proceeds to trace the networks of personal and institutional connections, and technological conditions, that engendered the VCS3, and challenges some of the received wisdom regarding its origins, nomenclature and impact.
Biography

James Gardner is a freelance composer, broadcaster, performer, lecturer and researcher based in Auckland, New Zealand. Among other roles, he is currently Adjunct Senior Fellow at the University of Canterbury, Christchurch. James was the artistic director of the contemporary music ensemble 175 East from 1996-2010. He was the inaugural Creative New Zealand/Victoria University composer-in-residence from 2004-2005 and held the Trans-Tasman Composer Exchange residency in 2005/2006. He has made many substantial features for Radio New Zealand Concert on a variety of contemporary composers and other topics. His acclaimed 6-part history of electronic music, These Hopeful Machines, was broadcast in 2013. He is currently writing a comprehensive history of the synthesiser company EMS.

Tom Hall (tom.hall@anglia.ac.uk)

A case study in electronic music collaboration: unpicking divisions of labour in the work of Peter Zinovieff with Harrison Birtwistle

This paper examines the collaborative electronic music partnership between Peter Zinovieff and Harrison Birtwistle in the late 1960s and 1970s. The collaboration is presented as a case study in the problematisation of authorial attribution in studio-based electronic music. Zinovieff’s EMS computer music studio was the first private computer music studio in the UK, out of which the Zinovieff–Birtwistle collaboration began in the late 1960s with a piece for basset clarinet and tape. This work was soon followed by the composition Medusa (1969/1970), a chamber work which included a part written for Hugh Davies’ Shozyg instrument. Given the theme of this conference, Medusa will be discussed in relation to the both Zinovieff’s and the Shozyg’s role in the work. The Zinovieff–Birtwistle collaboration continued with further compositions including the 4-channel tape work from (1970/71), Chronometer, and creation of Birtwistle’s The Mask of Orpheus, for which Zinovieff wrote the libretto and composer Barry Anderson ‘realised’ the electronic music. Like the Orpheus opera, Zinovieff’s EMS hybrid experimental computer music studio was itself the site of collaborative labour by numerous individuals, including those working on electronic music hardware and computer software. In such contexts meaningful authorial attributions are blurred by commonly used terms as ‘realisation’, ‘composer’, ‘technician’, ‘programmer’, etc. This paper seeks to fill in some of the many lacunae in our understanding of the divisions of labour behind such terms in relation to Zinovieff’s EMS company and the works which bear Birtwistle’s and Zinovieff’s names. I will also consider the commonly privileged position of any musical score in such collaborations, where applicable, and examine what sketch (and computer code) studies can reveal in unpicking divisions of labour in the creation of such works. EMS and Zinovieff’s work in computer music of the 60s and 70s has been under-represented and under-examined in electronic music history to date. This paper is timely due to the recent CD publication of much Zinovieff’s remaining audio archive of this period, which has made this work available to the general public for the first time. What is missing at present, and what this paper aims in part to address, is sufficient contextualisation of the work created at EMS, and the divisions of labour within the studio.

Biography

Tom Hall is a Cambridge-based Australian composer, performer and musicologist with interests in both acoustic and live electronic music. He holds an MA by research in music composition and analysis from La Trobe University and a DPhil in music composition from The University of Sussex. His musicological interests include early tape, electronic and UK computer music. Tom’s music combines composed, algorithmic and improvisatory elements often using multichannel and immersive sound. Recent collaborative and practice-based research projects share digital notations with audiences in both concert and installation contexts. Tom is a senior lecturer in music technology at Anglia Ruskin University.
Session 6B: Discourses, narratives and canon formation 2

John Dack (J.Dack@mdx.ac.uk)
The language connection in early electronic music: French and German approaches

The relationship between music and language is frequently cited as mutually beneficial. Before the eighteenth century language properly speaking was considered of prime importance. Music appeared to be an art form with ‘no semantic content’. By contrast, in the nineteenth century this lack of ‘semantic content’ was considered to be a positive advantage. Nevertheless, writers on music still draw upon linguistic terminology and concepts to clarify and explain how music functions. For example, in his Harvard Lectures ‘The Unanswered Question’ Leonard Bernstein refers to phonology, syntax, semantics and Chomskian grammar in an attempt to elucidate how music communicates. In addition, terminology from linguistics and semiotics can be found in many books on music theory and analysis. When viewed from an historical perspective it can be argued that the emergence of electronic music followed a parallel path comparable to that of music’s emancipation from the subservience of language. As music achieved autonomy from vocal compositions, electronic music also achieved independence from traditional pitch and rhythm structures. Nevertheless, electronic music, like traditional music, continues to make extensive use of language studies in developing its own theories and practices. My paper will explore the importance of language to electronic music by investigating two different approaches, one French the other German, to the music/language problematic. The first is the use of linguistic terminology by Pierre Schaeffer in his ‘Traité des objets musicaux’, the second is the appropriation of phonetics by Werner Meyer-Eppler who was a central figure in synthetic sound production in Bonn.

In his attempt to understand how music in general functions, Schaeffer made extensive use of concepts derived from linguistics. Indeed chapter 17 in book four of the ‘Traité’ is entitled ‘Structures comparées: musique et langage’ (Comparative structures: music and language). Schaeffer investigates the application of the rules of language to music. He paraphrases Jakobson and suggests that the concept of ‘levels of articulation’ and the combination of units into increasing degrees of complexity can be used by composers. While Schaeffer did not restrict his ideas solely to musique concrète it is clear that he believed the expanded vocabulary this genre benefitted from a knowledge of linguistics. By contrast Werner Meyer-Eppler and ‘elektronische Musik’ had a different agenda. Meyer-Eppler was instrumental in the establishment of the studio at the NWDR (this became the WDR in 1955). His main concern was the development of synthetic speech and the effective transmission of signals in order to maintain effective communication. Consequently, synthesis and concepts such as information theory figured prominently in the thinking of young German composers and indeed in the evolution of serial thought. My intention is to compare these two radically different approaches to language and music in order to tease out the similarities and differences. My principal methodology will be an analysis of writings by Schaeffer and Meyer-Eppler amongst others. It is well-known that despite the fundamental aesthetic and ideological differences of these two ‘schools’ both made a significant contribution to the history of electronic music. I intend to emphasize the still largely unacknowledged but fundamental role played by their different approaches to the study of language.

Biography

Born: Kings Cross, London 1950. Worked as photographer’s assistant, accounts clerk, gravedigger, peripatetic music teacher. Studied music as a mature student at Middlesex Polytechnic (BA Hons, 1980).

Subsequent studies: PhD with Denis Smalley (1989); City University (post-graduate Diploma in Music Information Technology) (1992) and MSc (1994); Goldsmiths College (MMus, Theory and Analysis, 1998); Middlesex University (MA Aesthetics and Art Theory, 2004). From 1998 to 2011 employed as Senior Research Fellow at the Lansdown Centre for Electronic Arts. Currently employed as a Senior Lecturer at Middlesex University.

Geoffrey Cox (g.m.cox@hud.ac.uk)
‘Sound was an end in itself’: Early documentary sound and the prefiguring of musique concrete

Shortly before his death in February 1972, John Grierson, the ‘father’ of documentary (and inventor of the term), sardonically remarked that ‘of course the French are always finding phrases and discovering terms for things...when I was in Cannes, invited by Jean Cocteau, to hear this amazing new world of musique concrète, I laughed if I did not sneer because it’s something we’d been all playing with a long time before, maybe twelve years’ (Sussex 1975: 207). The work of the British documentary movement which he oversaw in the 1930s and early 1940s is testament to this with Walter Leigh’s title music for the GPO Film Unit’s 6.30 Collection (1934) orchestrated for an ensemble made up of everyday objects and a trumpet, Benjamin Britten working alongside Alberto Cavalcanti, ‘imagining a kind of musique concrète’ in the scores and sound design for Coal Face (1935) and Night Mail (1936) (Mitchell 1981: 83), and

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Humphrey Jennings’ ‘symphony of sound, evocatively blending all kinds of music, the natural sounds of the city’ in *Listen to Britain* (1942) (Aldgate and Richards 1994: 226).

By way of Grierson, the work of the British documentary movement was informed by Russian documentary filmmakers such as Dziga Vertov who as early as 1916 created a ‘laboratory of hearing’ declaring ‘the need to enlarge our ability to organize sound…to transcend the limits of ordinary music. I decided that the concept of sound included all of the audible world’ (Kahn 1999: 140). Technological limitations at the time made his idea all but impossible but he eventually realised them in his first sound film, *Enthusiasm: Symphony of the Don Basin* (1930), of which Charlie Chaplin said that he would never have imagined that ‘these mechanical sounds [the rhythmic sounds of Stalinist industry] could be arranged to sound so beautiful. I regard it as one of the most exhilarating symphonies I have heard. Mr. Dziga Vertov is a musician’ (Petric 1987: 63). In very similar terms Walter Ruttmann declared in 1929 that ‘everything audible in the world becomes material’ leading to his proto *Hörspiel* work (made using film stock), *Wochenende* (1930) ‘a study in sound-montage…In Weekend sound was an end itself’ (Ruttmann 1933). Thus, though billed as an audio documentary, *Weekend* features sounds that to all extent and purposes are abstracted from any source; they are in effect, *objets sonores*.

This presentation therefore aims to draw attention to the various threads of early documentary filmmaking that foreshadowed the sound experiments of Pierre Schaeffer. It will challenge the notion that *musique concrète*’s lineage lies mainly in the Futurists’ declarations, through Cage’s ‘emancipation’ of noise, to Schaeffer’s codifications. Whilst scholars have detailed some of the works mentioned above and occasional connections made with Schaeffer’s ideas, the purpose here is to outline a more comprehensive survey of the material and to offer an alternative history of the origins of *musique concrète* and the notion of the sound object, with a view to a later detailed article on the topic.

**Bibliography**


**Biography**

Geoffrey Cox is a senior lecturer in music and composer of both acoustic and electronic music with a focus on its application to documentary film sound. This has resulted in a number of solo and collaborative film projects: *Cider Makers* (Marley and Cox 2007), *No Escape* (Cox 2009), *A Film About Nice* (Marley and Cox 2010) and *Tree People* (Cox, 2014). The soundtrack to *A Film About Nice* won Best Sound Design / Editing in the Shorts category at the Maverick Movie Awards 2012. He has published articles in *The Soundtrack, The New Soundtrack and Contemporary Music Review* on the contextual underpinning of his work.

**Suk-Jun Kim** (s.kim@abdn.ac.uk)

**Searching for Alternative Histories in Electronic Music through a Survey on Discourses of Space-Place Relations**

Discussing three ways of conceptualizing space in music in Music, Sound and Space, Georgina Born makes a critical observation on the use of spatialisation in electroacoustic music, and more fundamentally, the conceptual framework of the practice on space. Particularly on Denis Smalley’s ‘space form and the acousmatic image’ (Smalley, 2007), she argues that Smalley’s analytical taxonomy ‘offers ultimately an expanded, if rigorous and elegant, sonic formalism’. At the same time, however, she recognises a strain in Smalley’s spatial thinking, ‘a tension between the perspectival and a certain objectivism’ (Born, 2013). This paper aims to explore this strain or tension, which it proposes can be witnessed throughout the history of electronic music. The main topic of this paper meets Born’s argument sideways, by which I mean that I became aware of this issue and started questioning the practice I was engaging in as a composer in a more practical and personal way.

The paper aims to question whether the long-held primacy of spatial thinking in electronic music may have resulted in and continues to lead the dominant discourse in the history of electronic music, and therefore, whether, based on such suspicion, a critical observation of the history of electronic music would engender a passage toward under-recognised dimensions of electronic music practice. To argue for such a question, the paper conducts a critical survey on the relations of space and place as sonic concepts explored in the discourses and practice of electronic music.
Particularly, through the survey, the paper posits that the spatial thinking in electronic music may have been borne, more than anything else, out of the so-called ‘Studio’, and that a set of peculiar attitudes toward listening to, creating, and performing sounds in the Studio, which I have termed ‘Studio Aesthetics’ elsewhere, should be teased out for analysis. The Studio Aesthetics is a set of compositional aesthetics and/or a particular set of attitude toward composing that has been established in, and enhanced by, a studio and furthermore in a concert hall where we spatialise or diffuse the work, the place where we practice the bracketing of our body, and the practice of constructing or engineering sensibility toward sublime spaces.

Furthermore, by surveying the space-place relations in the history of electronic music, the paper aims to discuss the tension or uneasiness ‘place’ as a sonic context often brings about in the discourse of electronic music, focusing not only on the mechanisms based on which continuous attempts are made to subsume place within the normative spatial thinking, but on the resilience of place that persists to offer alternatives.

Biography

As an electroacoustic composer and sound artist, Suk-Jun Kim has been examining the sense of place through his compositions and sound installations. His research themes include imaginal listening, phenomenological approaches to listening and composition, new approaches to sound and place, slowness and boredom as artistic practice, and slow soundwalks and humming. Kim has been awarded first prizes by the Bourges Competition, Metamorphoses, and CIMESEP for his compositions and was a resident composer of the DAAD Artists-in-Berlin Program in 2009. Kim is a lecturer in Electroacoustic Music and Sound Art and programme director of MMus in Sonic Arts at the University of Aberdeen.

Frances Morgan (frances.morgan@network.rca.ac.uk)
The problem with pioneers: how media narratives of exceptional women distort the history of female involvement in electronic music

Since the publication of Tara Rodgers’s Pink Noises: Women On Electronic Music And Sound (Rodgers, 2010), which situated female practitioners within a history of electronic music that had hitherto excluded or minimised their contributions, a growing number of articles, studies, recordings, museum exhibits and initiatives have addressed the issue of women’s involvement in electronic music and sound.

While some of these interventions are welcome attempts to redress an historical imbalance and forefront the work of notable figures, the trope of the female “pioneer” can be reductive as well as inaccurate, dominating discourse at the expense of more complex narratives. The female pioneer narrative can downplay queer and trans perspectives and histories, while its promotion through online and print media and the independent music industry commodifies visual archival material to the point of objectifying female practitioners. In a presentation whose starting point was a talk given at the Fawcett Society’s Sound Synthesis and the Female Musician event in 2014, I will draw on the work of Rodgers and others to survey alternative approaches including the writing of counter-histories and practice-focused studies that ask, for example, what constitutes a feminist process when working with sound.

In a recent article, “Tinkering with Cultural Memory: Gender and the Politics of Synthesizer Historiography” (Rodgers, 2015), Rodgers addresses the portrayal of female electronic musicians as “isolated exceptions to the norm”. She presents a study of female synthesiser enthusiasts of the 1950s as a community of interest that shaped the development of synthesizer technology, rather than examining the achievement of an individual innovator. I will consider other counter-narratives, such as that of Carol Parkinson, the director of New York’s Harvestworks, who in the 1970s founded the Public Access Synthesiser Studio.

I will consider how women’s electronic music-making has been both aligned with and separated from issues of sexuality by re-examining Martha Mockus’s Sounding Out: Pauline Oliveros and Lesbian Musality (Mockus, 2007), which proposes a “shared space of musical innovation and lesbian domesticity, and the dynamic relationship between them”, with regard to Oliveros’s early tape pieces. How and why have such concerns been pushed to the background in more recent reappraisals of her work? I will propose – with reference to my work at The Wire – that one way in which a queer narrative of women’s electronic music has been reduced is through the more commodification of the archive to sell magazines or reissued recordings. This tendency often elides instrument/studio design and the musicians using the equipment, resulting in objectification of female artists for a presumed male, heterosexual audience. I will consider how the media might approach feminist and other alternative histories of electronic music differently, when media platforms are increasingly based around visual content.

I will conclude by citing a recent blog hosted by activist group Female Pressure, Visibility, to which female electronic musicians submit photographs of themselves at work, in order to show how plentiful they are. With reference to Eve
Kosofsky Sedgwick’s *The Epistemology of the Closet* (Sedgwick 1990), I will consider how visibility in this context comes to stand for progress, an idea which has been central to the recent reclamation of female histories of electronic music, but which prompts the question: to whom must women become visible to, in order for their histories to be considered significant, and what is discarded or forgotten in order to effect such visibility?

Biography

Frances Morgan is a first-year research student at the Royal College of Art, London, currently undertaking a Collaborative Doctoral Award with the RCA’s Critical Writing in Art and Design programme and the Science Museum on the history of Peter Zinovieff’s Electronic Music Studios. The former deputy editor and current contributing editor of *The Wire* magazine, for which she has written major articles on Stockholm’s Elektronmusikstudion (EMS) and the composer and music technologist Laurie Spiegel, Frances has combined a career as an editor and journalist with academic research. She was awarded an MA with Distinction in Contemporary Music Studies from Goldsmiths College, London, with a dissertation on the history of University of East Anglia’s electroacoustic studio during the 1970s and early 1980s.

Daniel Wilson (ashfordaisyak@googlemail.com)
Failed Histories of Electronic Music

The author, in his self-published 2015 study *The Magnetic Music of the Spiritual World: Electricity and Sound on the Victorian Stage* provides a detailed and hitherto unexplored pre-history of electronic music, from the electrical ‘rappings’ of spiritualist devices, culminating with the wireless radio oscillation outrages of the 1920s. A precis of the final two chapters of this work is given. His research brings to light figures that are bizarrely absent from contemporary discourse, such as ‘electric musician’ Johann Baptist Schalkenbach, John Parsons and the inventor of the first electronic instrument to be performed live (in 1895), Alfred Graham. Why, despite these characters enjoying popularity in their day, have they fallen under the radars of subsequent researchers? The answer lies in the academicisation of electronic music itself, and the perpetuation of deficient narratives.

It is argued here that the absence of such figures from ‘official’ histories owes much to established power structures within literary elites and academia. Cronyism, nepotism and corruption thrived in these power structures, but they also persist to this day within the media and the PhD racket, exemplified by numerous first- and second-hand case studies presented here, including the irony that the very research conducted here by the author was necessarily self-published in the face of wider indifference, funded entirely by Jobseeker's Allowance (alarmingly, it is now in the process of being absorbed and rehashed by paid/funded academics). The author’s research methods are outlined; the work emerging from his previous activities on the peripheries of the antiquarian book trade and from frequenting auction-houses, constituting a ‘hands-on’ mode of research quite distinct from that of academia, yielding hitherto unrecorded source materials and archives. In connection with this, an overview of the rise of the ‘composer-researcher’ is given (that is, the composer who is compelled to academicise his/her practices in the hope of securing academic jobs), signalling a shift in research practices as the composer-researcher - unavoidably - brings variously modulated self-identifying sympathies into his/her investigations into the artists, engineers and inventors that occupied the hinterlands of yesterday’s acoustical art.

Biography

Daniel Wilson is author of *The Magnetic Music of the Spiritual World* and is currently Sound and Music’s 2015 Embedded composer-in-residence at London’s Resonance 104.4FM where he is engaged in his Radionics Radio project that pays homage to the unchampioned originators of long-duration electronic sound experiments in the UK in the late 1940s, Delawarr Laboratories. Studying under Hugh Davies at Middlesex, he has a Distinguished Master’s in Sonic Art. He is a member of electroacoustic music quartet Oscillatorial Binnage and records solo as Meadow House (his 2015 album Attempts & Results is on Beautiful Music CDs).
Keynote 5: How can and should we write alternative histories of electronic musics? New thoughts on time, history, and electronic musics.

Georgina Born
(georgina.born@music.ox.ac.uk)

What is it to write electronic music history? That is the challenge posed, at base, by this conference. Judging by the titles and abstracts, it has been interpreted differently by those offering papers. Some have understood ‘alternative histories’ in the orthodox terms of bringing to attention and valorizing what have been marginalized or unrecognized composers/inventors, schools or practices; others in the more sociological terms of excavating neglected national traditions (eg Finland, Russia), or key institutions, ideologies, or influential paradigms (eg cybernetics); yet others—informing by materialist or posthumanist stances—of rescuing forgotten machines, technologies, media or practices. Some have focused enticingly on ‘failed’ histories, on the systematic absenting from the standard histories of the innovations stemming from popular music and popular media (radio, film), the obscuring of women’s contributions, or the positive potential contributions of perspectives from, say, Science and Technology Studies. Much of this is welcome. Together it etches out a more adequate kind of historiography: beyond the aesthetic blinkers, the Anglo-Americanism, the gender blindness, the elitism, and the liberal-humanist reductionism of previous histories.

At the same time, noticeable is a certain shying away from the need to address what kinds of history—what conceptualization of historical process and historical explanation—might reinvigorate the future historiography of electronic music. In this paper I attempt to set out new thinking on these issues: how might we conceptualize anew time and temporalities in relation to the analysis of electronic music-historical processes? How can we learn from the new materialisms and complexity theorists and write less teleological and less subject-centred histories, while attempting not so much to describe developments in these now-fashionable ways but to deliver better historical explanation? I develop these ideas with reference to principles informing several case studies in the ‘history of the present’ of electronic and digital musics: from the invention of new Kenyan hip hop genres, to the active assembling and contestation of electronic music histories associated with microsound, to the hyper-reflexive play with time evident in a spate of recent ‘nostalgia’ genres. The aim is to seed new approaches to the analysis of histories—whether of electronic music, or of music per se.

Biography

Conference Venue and Accommodation

The conference will be held at the Science Museum's Dana Research Centre. The address is as follows:

Dana Research Centre and Library
165 Queen's Gate,
Kensington,
London
SW7 5HD

The Dana Research Centre is well served by the London Underground, being roughly 8 minutes walk from either South Kensington or Gloucester Road underground stations (which are on the Circle, District, and Piccadilly lines).

The conference meal will be held at the Millennium Gloucester hotel:

4-18 Harrington Gardens
London
SW7 4LH

It is 2 minutes walk from Gloucester Road underground station, 10 minutes walk from South Kensington underground station, and 8 minutes walk from the conference venue.
Thematic Issue of *Organised Sound*

Delegates interested in publication may wish to consider developing their conference presentation into a full-length paper and submitting it to our call for papers for a special thematic issue of the international, peer-reviewed journal *Organised Sound*. Full details are given below, and can also be found at: http://journals.cambridge.org/action/displaySpecialPage?pageId=7504

The story of the genesis and development of electroacoustic music is often told in the same familiar way. Experiments in *musique concrète* in Paris and *elektronische Musik* in Cologne played a central role in European developments, while activities in New York such as those of the Columbia-Princeton Electronic Music Center, John Cage and his Music for Tape-Recorders group, and Louis and Bebe Barron are frequently proffered as the most prominent American contributions. These activities were significant, of course; but they were not the only progenitors of modern-day electronic music. There are many, many other ways in which the story of electronic music’s history and development could be told. (For the purposes of this call, the term ‘electroacoustic music’ is to all intents and purposes synonymous with ‘electronic music’, referring broadly to music in which electronic apparatus is used to produce and/or transform sound.)

There are many ways in which an ‘alternative’ history could be framed. For example the English musician and musicologist Hugh Davies, in the late 1960s, produced a comprehensive inventory of electronic music compositions, entitled *International Electronic Music Catalog* (1968), in which he documented the output of 560 studios in 39 countries. This challenged the hegemony of the Paris, Cologne, and New York schools, whose activities dominated the literature of the 1950s and 60s, and as such provided what was arguably the first alternative history of electronic music.

There are many other possibilities for alternative histories, and the purpose of this thematic issue of *Organised Sound* is to present some of them. For example: what does electronic music look like if we focus on the contributions of individuals whose work is less widely known; less widely recognised? What happens if we step away from the Western European and North American institutions that are normally figured as central to the genesis and development of electroacoustic music? Or, what happens if we question, or explore the mechanisms of, their authority? What happens if we change our object(s) of study; if we look at artefacts and objects rather than composers and works, for instance? Are there tools, techniques, instruments that played an important role in shaping electroacoustic music that remain under-recognised or misunderstood? What about when we listen to the marginalised voices; what versions of electroacoustic music’s history do they tell? Or, what happens if we change our methods of study, so as to highlight aspects that hitherto went unnoticed, such as underlying social, political, or economic dimensions? How does current music draw on the origins of the form?

Possible areas of interest include:

- Pathways from electroacoustic music’s past to electroacoustic music’s present that are ‘a little bit different’ from what one might expect.
- Individuals, institutions, inventions, or perspectives that have been neglected or under-represented up to now.
- Alternative methodological and/or theoretical perspectives; studies that encourage us to look at the history of electronic music in a different way.
- Ethnographic, anthropological, and/or interdisciplinary approaches; implementation of methods native to science and technology studies (STS); other methodological approaches that are apt to reveal ‘alternative histories’.
- Alternative narratives; studies that compel us to attend to, or listen to, different things as we navigate electronic music's history.
- Marginalised voices; stories of electronic music’s history and development that have been side-lined, for whatever reasons.
- Non-Western European, Non-North American developments, and/or activities that happened outside those typically considered in electronic music histories.
- Unconventional or DIY approaches; work that has flouted the norms and expectations of its epoch.
- Developments that have shaped or changed the direction of electronic music, but which remain as yet under- or un-recognised.
- Notions of genre/style/idiom as a lens for alternative histories.
- Studies that might be thought of as continuing the work that Hugh Davies started with his *International Electronic Music Catalog*, for example by focusing on the electronic music of under-represented nations, and/or the use of electronic sound techniques in disciplines outside the immediate sphere of avant-garde art music.
- Tools, techniques, instruments (etc.) that played an important role in shaping electronic music, but which remain under-recognised or misunderstood.
- Interrogating the (perhaps invisible) driving forces behind institutions of cultural production, so as to reveal why certain models of electronic music dominate, or appear to dominate.
- Historic perspectives on relationships between electronic music and other musical/cultural practices.

Submissions are welcomed from all disciplines, but particularly from electroacoustic music studies, science and technology studies, history/philosophy of science/technology, and sound studies. As always, submissions related to the theme are encouraged; however, those that fall outside the scope of this theme are always welcome.

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**Issue Co-ordinators**

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**Submission Deadline:** 15 September 2016
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Helen Barker (University of Leeds, Administrative Support)

Invited Speakers
Simon Emmerson
Georgina Born
Leigh Landy
Sarah Angliss
Trevor Pinch

In addition thanks to all our session chairs, presenters, and non-presenting attendees.