

MUSIC & HACKING INTERNATIONAL CONFERENCE

INSTRUMENTS, COMMUNITIES, VALUES

MUSIQUE & HACKING
INSTRUMENTS, COMMUNAUTÉS, ÉTHIQUES

Paris, Wednesday 8 - Thursday 9 November 2017

Musée du quai Branly - Jacques Chirac, salle de cinéma

<http://hacking2017.ircam.fr>

*MUSÉE DU QUAI BRANLY
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November 2017

Organized by IRCAM-STMS (Analysis of Musical Practices Research Group) and the musée du quai Branly - Jacques Chirac, with the support of LabEx CAP (Laboratoire d'excellence *Création Arts Patrimoines*), the "Music & Hacking: Instruments, Communities, Values" conference brings together musicians and researchers interested in musical hacking activities.

Since the turn of the last century, computer coding and digital instruments continue to transform the aesthetic, ergonomic, communicational, and ethical dimensions of musical practices. These shifts are taking place in part under the banner of hacking, a notion which is primarily associated with the IT world. However, it has progressively infiltrated and structured a number of other fields, such as that of artistic creation. Hacker values include re-appropriation of mass-produced technical products and a focus on freely accessible communal know-how, as well as the pleasure of serendipity, subversion, and manipulation. In sum, hacking is the foundation of a disparate, discreet form of social protest: a reaction to a normalized, globalized commercial and industrial culture.

The present conference will focus on three general themes: the material dimensions of musical hacking, the creation and federation of musical communities through hacking, and the influence of hacker ethics on musical practices.

ORGANISING COMMITTEE

- Baptiste Bacot - EHESS/IRCAM-STMS
- Clément Canonne - CNRS/IRCAM-STMS
- Anna Gianotti Laban - Musée du Quai Branly - Jacques Chirac
- Frédéric Keck - Musée du Quai Branly - Jacques Chirac
- Guillaume Pellerin - IRCAM-STMS

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- Sébastien Broca - CEMTI/Université Paris 8
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- Michel Lallement - LISE/CNAM
- Paul Lamere - Spotify
- Camille Paloque-Bergès - HT2S/CNAM
- Norbert Schnell - IRCAM-STMS

WEDNESDAY 8 NOVEMBER

9:30 - 10:00

Registration - Coffee

10:00 - 10:30

Plenary Welcome

10:30 - 12:30

Communities and Networks

Chair: **Guillaume Pellerin**

Eamonn Bell

Hacking Music, Matter, and Mind in Jeff Minter's Virtual Light Machine

Kurt Werner

All About That Bass (Drum): The TR-808 & the Past/Future of Analog Bass Drum Circuitry

Peter Sinclair

Locus Stream Open Microphone Project

Marilou Polymeropoulou

Knowledge of Limitations: Hacking Practices in Chip Music

12:30 - 14:00 Lunch

14:00 - 16:00

Listening and sonification

Chair: **Nicolas Donin**

David Christoffel

Qu'est-ce qu'une play-liste pirate?

Emmanuel Ferrand and Harold Schellinx

unPublic: Theory and Practice of Musical, Cultural and Social Hacking Outside the Manufactured Normalcy Field

J no.e Parker

Composing [De]Composition: Hacking Compost for a Better Sounding Tomorrow

Alejandra Perez

Hacking Antarctica

16:00 - 16:30 Coffee break

16:30 - 18:30

Round-table discussion

Contemporary Practices of Hacking

Chair: **François Ribac**

With **Laurence Allard, Yves Citton, Nicolas Nova and Rayna Stamboliyska**

THURSDAY 9 NOVEMBER

10:00 - 11:15

Keynote Address

Nicolas Collins

What to Ware? A Guide to Today's Technological Wardrobe

11:15 - 11:45 Coffee break

11:45 - 12:45

Critique and Ethic

Chair: **Alexandre Robert**

Guillaume Loizillon

Lofi et subversion: de la construction des systèmes audio comme formes critiques

Romuald Jamet

DIY, accommodement et dilemmes éthico-pratiques des musiciens des scènes contre-culturelles contemporaines parisiennes et berlinoises face aux technologies musicales

12:45 - 14:30 Lunch

14:30 - 16:00

Making and DIY (i)

Chair: **Christine Guillebaud**

Clément Canonne

Valeurs du hacking et pratiques de l'improvisation libre. De quelques improvisateurs-luthiers

Sarah Benhaïm

Détourner, créer et personnaliser son dispositif de jeu dans la musique noise au travers du hacking et du DIY

Baptiste Bacot

Soft hacking. Créations et appropriations organologiques dans les pratiques de la musique électronique

16:00 - 16:30 Coffee break

16:30 - 17:30

Making and DIY (ii)

Chair: **Nicolas Collins**

Andrew Watts

A Dialogue, In Absentia - Composition Applications of Bluetooth Implanted Trombones

Patricia Alessandrini

Parlour Sounds: Transforming Household Devices into Electronic Instruments

17:30 - 18:30

Round-table discussion

Siestes électroniques in the Museum

Chair: **Baptiste Bacot**

With **Samuel Aubert, Renaud Brizard, Low Jack and Sam Tiba**

18:30 - 20:30 Wine reception

Communities and Networks

Hacking Music, Matter, and Mind in Jeff Minter's Virtual Light Machine

Eamonn Bell (Columbia University)

The *Virtual Light Machine* (VLM) was an audio visualizer that shipped in 1995 bundled with the Atari Jaguar CD, a compact-disc playing add-on for Atari's moderately successful Jaguar games console. Programmed in part by the virtuosic independent game designer Jeff Minter, it used an implementation of the Fast Fourier Transform (FFT) to drive a suite of on-screen animations, which changed dynamically in response to the input signal. The VLM adumbrated many of the same visualization strategies that would appear in visualizer plugins for more commercially successful software media players, such as Winamp and iTunes. In March 1996, Minter (alias YaK) posted "YaK's Quick Intro to VLM Hacking" to the rec.games.video.atari newsgroup, describing a "backdoor [...] which allows the user to get at the edit mode that was used to create the banks of VLM effects." By showing users how to access a hidden graphical user interface, Minter equipped users with a way to temporarily customize the VLM presets in order to create their own, personalized bank of visualizations and invited illicit creative play with his creation, hacking together intricate multimedia musical experiences using off-the shelf software.

In this presentation, I begin with a technical overview of this digital artifact—the VLM code—and work outwards from there to consider increasingly more general aspects of its historical context. Here I follow Matthew Kirschenbaum in his 2008 monograph *Mechanisms*, who, resisting a tendency to consider electronically stored data as intangible and ephemeral, believes that the reward of a forensic attitude toward digital artifacts is a more detailed account of their circulation and reception. I detail how the VLM and the subsequent revelation of the "VLM hack" was received by the users of the rec.games.video.atari group, and how this knowledge circulated amongst Jaguar fans in mailing lists and user group publications. Then, by situating the VLM in the continuity provided by a family of related music visualizers that Minter developed before and after the release of the Jaguar CD, I explain how the VLM fulfills Minter's enduring aspirations to design a music visualization that valorizes active listening by centering interactivity, not only on the part of end users but also by those Jaguar aficionados who had learned about this concealed software feature. Finally, I tease out the implications of the broadest conditions of possibility for the VLM, juxtaposing early applications of real-time FFT algorithms in Cold War seismological research against Minter's (enduring) stature as a figurehead of a psychedelic video-game counter-culture. This context to the creation and reception of the VLM (the "backdoor" included) suggests that the creation and use of the VLM itself might also be profitably considered a "hack": the playful appropriation of high technology to enrich the video-game player's experience of art, a goal consistent with the subversive aspect of the hacker ethos.

Eamonn Bell is a Ph.D. candidate in Music Theory at Columbia University. His doctoral dissertation will chronicle and contextualize early computer use by music researchers and composers. His interests include computational and mathematical music theory, the methodology of music analysis, and computer applications in music studies.

All About That Bass (Drum): The TR-808 & the Past/ Future of Analog Bass Drum Circuitry

**Kurt James Werner (Sonic Arts Research Centre,
Queen's University Belfast)**

This paper traces the conceptual antecedents and legacy of the Bass Drum voice circuit from an analog drum machine of immense importance: the Roland TR-808 Rhythm Composer. By drawing out precursors to the circuitry of “the 808,” situating the instrument as an important element of hacking and circuit-bending traditions, and examining its musical and cultural footprint, I explain the intent behind its design and frame it within a history of sonic mimicry—how the instrument imitates earlier acoustic percussion and has been imitated in turn by other electronic drum machines and mathematical models. Throughout, I highlight the under-recognized contributions of amateur and DIY electronics periodicals, audio circuit hackers (and circuit benders), and circuit theorists, all of whom greatly added to the rich story of analog bass drums.

Since its release in 1980, the TR-808 has been crucial in the development of rap, hip hop, techno, and electronic dance music. Today its sound is ubiquitous across many genres. As the gold standard of analog drum synthesis, the 808 proved to be the culmination of all drum machines that came before it, just as all analog drum machines since have been measured against it. The 808's Bass Drum in particular defines its sound, its iconic punch so immediately recognizable that the name of the instrument has itself become a frequent subject of rap lyrics: “Just a snare and an 808,” “We got the beat, that 808, that boom boom in your town,” “Do I make your heart beat like an 808 drum?” etc.

The TR-808 and other analog drum machines produce sounds (including bass drums), through the operation of analog electronic circuits (its “voice circuits”). Although the 808 and other iconic music technologies are often viewed through the lens of their positive reception history and in relation to the musicians who made them famous (in the case of the 808: Afrika Bambaataa and the Soulsonic Force, Marvin Gaye, the Beastie Boys, etc.), I argue that the voice circuits themselves are the key to recovering a holistic history of analog drum synthesis.

While some aspects of the TR-808's voice circuits are unremarkable, others are utterly novel and betray fascinating histories. Technical aspects of the TR-808's design can be seen in the engineering literature as early as the 1930s; the development of the sonic philosophies and modes of listening embodied in its circuits are much older and take often convoluted paths through musical instrument design in the 20th century. Differentiating these characteristics highlights the true value of certain conceptual and technical developments. Moreover, the popular story of the 808's provenance erases the contributions of key players and musical communities from the narrative. Here we reclaim these lost contributions, with a specific focus on 1970s synthesizer amateur and do-it-yourself communities, earlier developments in “citizen scientist” magazines, publications in the world of academic electrical engineering, and the ancestors and descendants of the 808 in other commercial and homemade drum machines.

Dr. Kurt James Werner is a Lecturer in Audio at the Sonic Arts Research Centre (SARC) of Queen's University Belfast, where he joined the faculty of Arts, Humanities and Social Sciences in early 2017. As a researcher, he studies theoretical aspects of Wave Digital Filters and other virtual analog topics, computer modeling of circuit-bent instruments, and the history of music technology. As part of his Ph.D. in Computer-Based Music Theory and Acoustics from Stanford University's Center for Computer Research in Music and Acoustics (CCRMA), he wrote a doctoral dissertation entitled "Virtual Analog Modeling of Audio Circuitry Using Wave Digital Filters." This proposed a number of new techniques for modeling audio circuitry, greatly expanding the class of circuits that can be modeled using the Wave Digital Filter approach to include circuits with complicated topologies and multiple nonlinear electrical elements. As a composer of electro-acoustic/acousmatic music, his music references elements of chiptunes, musique concrète, circuit bending, algorithmic/generative

Locus Stream Open Microphone Project

Peter Sinclair (École supérieure d'art d'Aix-en-Provence,
Locus Sonus Research Unity)

Locus Sonus is a research unity specialized in audio Art and whose main research area is the study of « new auditoriums » or ways of sharing audio spaces through emerging technologies with the aim of investigating and developing the artistic potential they offer. Locus Stream open mike project is one of the units longest running creative research initiatives. It consists of a worldwide network of open microphones, installed and maintained by volunteers that permanently stream local soundscapes via a dedicated server.

The initial aim was to provide the research group with a resource for research into remote listening and interconnected sound spaces. However when it was opened to other users it rapidly evolved into an open-source, shared and international project used by many musicians, artists and researchers for a variety of projects. Today, more than a decade later these include, installations, concerts, performances, web radios but also ecological studies and bioacoustics.

The Locus Stream project gives new meaning to Murray Schafer's idiom "schizophonia" as the permanence and ubiquity of these audio fluxes open up different forms of audio awareness and compositional practice through media.

Perhaps the best-known manifestation of the project is the *LocusStream Soundmap* (<http://locusonus.org/soundmap/051/>), online since 2006 and which, to our knowledge is the first initiative of its kind. It offers a simple interface (Google map) to access the available open microphones and opens the possibility for users to invent their own listening practices. Other initiatives developed by Locus Sonus include Locustream Promenade and Locustream Tuner.

I will describe the evolution of the project focusing in particular on its collective organology, the articulation and interdependency between the evolution of the project and the different musical and artistic uses that have been made of it over the years.

After discussing more general issues concerning some of the theoretical ideas as well as the practical functionality of this kind of open-ended project, I will describe some of the specific devices, programs and other features that we have developed to nourish the venture. These include custom developed OS for mini computers, binaural, microphones, pre-amplifiers and web interfaces as well as geo-located Apps for smart phones, all designed to enable users to participate easily in the project.

I will present some interesting projects developed by composers and artists including: *SoundCamp Reveil* (initiated by London based artists Grant Smith and Maria Papadomanolaki) - an annual twenty four hour event that follows the sunrise around the globe (now in its fourth edition) mixing the sound of the dawn choruses from the microphones closest to the latitude where day is breaking; *Droniphonia* networked performance by recently deceased American composer Pauline Oliveros, *Sourced Cities* by Belfast composer Robin Renwick; *Blank Memory & Live Akousma* by DJ and improviser ErikM; *World Soundscape project* with Eric Leonardson and others...

Finally, I will describe some of the perspectives as our network of streamers continues to evolve including shared research projects with Cyber Forest: department of Natural Environmental studies, University of Tokyo and SABIOD bioacoustics analysis (University of Toulon).

Peter Sinclair is a Sound Artist and Researcher. He is director of *Locus Sonus* a creative research unit specialized in audio art, maintained by the art academy of Aix-En-Provence and the French Ministry for Culture. He started his career as a builder of autonomous musical machines and sound installations presented both in performances and exhibitions. Beyond his individual work he has continually collaborated with other artists and musicians in various collective projects. His work today focuses on the sonification of real time data, mobile audio and the artistic development of new auditoria. He has exhibited and performed frequently in Europe and the USA in such venues Exploratorium San Francisco, MAC de Lyon (Musiques en scène), Postmasters Gallery New York, Festival Interférences Belfort, Eyebeam - Beta Launch - New York, Festival de Cinéma et de Nouveaux Media Split, ISEA Nagoya, STEIM Amsterdam, La Gaîté Lyrique Paris, etc.

Knowledge of Limitations:

Hacking practices in Chipmusic

Marilou Polymeropoulou (University of Oxford,
e-Research Centre)

This paper examines hacking practices in chipmusic, a kind of electronic music characteristic of 1980s computer sound aesthetics. Chipmusic is related to the demoscene, the hobbyist computer subculture of the 1980s; certain demosceners centred on the musical aspect of demos and this practice is often considered to be the predecessor of chipmusic-

making. Chipmusic has been originally composed on 1980s computers and videogame consoles such as the Atari ST, Commodore 64, and the Nintendo Game Boy, among others. These platforms were repurposed to function as music-making devices that the composer could then use to create chiptunes. Repurposing occurred by means of a) physical hacking, also called 'modding', using various techniques including, but not limited to, circuit-bending, and b) re-appropriation, transforming, for example, a handheld gaming console to a portable musical instrument by developing appropriate software that allowed this. The core of chipmusic sound is the soundchip of the original platforms that was responsible for what is commonly called in the chipscene 'bleepy' timbre.

The focus of the proposed paper is the people - chipmusicians - and their online and transnational network, the chipscene. The aim is to demonstrate what knowledge one gains from the chipscene network with regards to limitations. Limitations are central in chipmusic: firstly, one of the reasons for composing chiptunes is to manipulate technological constraints. Secondly, the chipscene is not geographically limited, but it is spread over a global network of more than 50 countries. Thirdly, performances are both staged and screened, meaning they can be events organised in specific places but also online events where participants are not within the proximity of the performer. My presentation looks at the knowledge of limitations and will also discuss certain outputs, as for example, the various discourses of creative ideologies on chipmusic-making as shaped by technological constraints as well as copyright implications that have emerged in the chipscene.

The knowledge of limitations in the chipscene is produced by employing a mixed methods approach that combines ethnography and social network analysis. I examine the relational nature of the chipscene network to yield an anthropological understanding of chipmusic.

Marilou Polymeropoulou completed a doctorate entitled 'Networked Creativity: Ethnographic Perspectives on Chipmusic and the Chipscene' at the University of Oxford in which she examined the concept of creativity in the realms of the chipscene. She is currently a tutor and a postdoctoral researcher, teaching anthropology modules at the University of Oxford and anthropology and epistemology at secondary schools, and conducting research related to design ethnography. In addition, she composes music as 'Christabel Etheriel' and writes anecdotes from the daily lives of 'dead things', that is street rubbish that has been left behind, abandoned, or lost.

Listening and Sonification

Qu'est-ce qu'une playlist pirate ?

David Christoffel (Radio Télévision Suisse)

Une radio est définie comme « pirate » quand elle émet sur une longueur d'onde qui ne lui a pas été attribuée (Lesueur, 2011). Une autre acception désigne comme « pirate » une radio-amateur qui diffuse d'autres éléments que son immatriculation, sa position géographique ou toute information concernant la qualité de la transmission (cf. Union internationale des télécommunications). Sur la base de la variable de contenu dans la définition du piratage en matière radiophonique, notre intervention cherchera à viser comment la mise en playlist de tel ou tel répertoire musical peut se trouver variablement « pirate » selon les modalités de diffusion que lui donne un programme radiophonique sur Internet. En tentant d'établir une typologie des webradios musicales « de playlist » à partir de la production actuelle (de Radio Mozart à Phaune Radio en passant par Radio Michel ou les webradios musicales de Radio France), nous relèverons par leur comparaison, la force de performativité éditoriale des partis pris de diffusion. Puis, à partir des définitions du hacking données par McKenzie Wark dans *Un manifeste hacker*, nous entrerons en dialogue avec les acteurs de la plateforme PI-node, pour chercher à baliser comment la production de playlists pour le web peut faire intervenir la notion de « piratage » à des niveaux différents, de la confection du contenu (éditorialisation) aux stratégies de mise en ligne (diffusion). Nous pourrions ainsi détailler comment un contenu musical neutre peut devenir pirate et, réciproquement, dans quelle mesure un flux audio hacker peut se résoudre à des modes propriétaires (ou des logiques de marque).

David Christoffel est compositeur d'opéras parlés qui peuvent prendre la forme de mélodrames mixtes, comme la pièce *La Voix de Foucault* créée à l'Ircam en 2014. En évoluant entre musique et poésie, ses publications sont aussi bien des disques (telle la série d'albums *Radio Toutlemonde*) que des livres de poésie (avec la réédition cette année du recueil *Argus du cannibalisme*). Docteur en musicologie de l'EHESS, il a publié en 2017, *Ouvrez la tête (ma thèse sur Satie)* aux éditions MF. Auteur de nombreuses créations radiophoniques pour France Musique, France Culture, Espace 2, ainsi que des radios associatives, il prolonge son travail sur la parole avec des institutions d'enseignement supérieur comme le CNSMDP, le CNAM et différentes universités (Tours, Nantes, Paris-7, Bordeaux, Nice).

***unPublic* - Theory and Practice of Musical, Cultural & Social Hacking Outside the Manufactured Normalcy Field**

Emmanuel Ferrand (UPMC, La Générale)
and Harold Schellinx (IESEA Studio)

'*unPublic*' is the name of an on-going series of documented non-concerts that serendipitously found its origin in a performance without audience on October 18th 2013 on the occasion of the simultaneous passage in Paris of Vietnamese composer and producer Doan Tri Minh and Japanese pianist and improviser Yoko Miura, in a small pottery in Paris.

The series, which at the time of this writing counts 42 editions, has since brought together, in small factions of differing sizes, a total of 98 artists, non-artists, virtuoso, other and non-musicians, from 25 different countries, always in a unique combination at a time and in a place determined by nothing but the on-the-go seizing of an opportunity to gather and un-publicly perform then and there: in and around Paris, in Brussels, in Belgrade, in Berlin, on the beach of the South-Korean island of Daebu, next to a cowshed in the Swiss alps, in Montreal, in Kaohsiung, in an independent sound art studio in Tainan City, in the cellar of a small alternative record store in Taipei, in a near to abandoned village in the Macedonian mountains...

The documentary digital live audio recordings subsequently were published, in a sometimes more, sometimes less or not at all edited form, and are all available as freely downloadable digital albums (<http://unpublic.bandcamp.net>). Besides being a more than merely tongue-in-cheek critique of the idea of 'the concert', which in many of the musical/artistic practices that we are interested and involved in to a large extent is based on a myth, over the past few years the *unPublic* series has given us the means to draw and investigate the open-ended topography of the vast and continuously expanding *terrain vague* that connects - in equally *vague* terms - on the one side the worlds of academic and institutional culture, on the other those of mainstream commercial and pop(ular) culture, a wasteland claimed and occupied since the mid-1960s by a network of varying geometry knit by a worldwide anarchic community of artists choosing to work, part-time or full-time, within what in an earlier paper we identified as being basically a DIY tradition of folkloristic appropriation of ideas, methods and achievements of post-WWII avant-garde art and (academic, experimental, electronic) music.

It is a community and network that over the past half century has continued to grow and flourish without support or recognition from the established cultural institutions and without any but incidental ad hoc financial funding.

Generalized collage and h[ij]acking, boosted by the advent of digitalization and the internet, are this tradition's core and beating heart. It has given birth to of a large number of derivative techniques and their various combinations, in cut-up, noise, instrument building and design, circuit bending, turntablism, sampling, glitch, frippertronics (live-looping)... , all unthinkable without the continuous appropriation, de-construction and *détournement* (in a Lettrist and Situationist sense) of works and tools of culture and technology (new as well as obsolete), as an end in itself as well as in their subsequent re-construction for other than their intended usage.

We will present a history and overview of the *unPublic* series and explain by means of a detailed analysis of a number of audio-examples how a great many of the above techniques of *h[ij]acking* in varying combinations were applied by artists in their *unPublic* encounters with instrumentalists in a more traditional sense.

Emmanuel Ferrand is an engineer and mathematician with a deep interest in the interface of arts and science. He has been active in the global alternative music and arts scene since 1998. Practices include the sharing of ideas, methods and projects in circuit bending (musical hacking of everyday life consumer electronics), analogue circuitry instrument building workshops, currently in the context of La Générale (2007-2017), an independent art space in Paris, which has hosted the sound art exhibitions of the 5 last editions of the Sonic Protest Festival, all featuring divers hacking techniques applied to musical instruments (Sarah Kenchington, Lucas Abela, Nicolas Collins, Testsuya Umeda, Jean-François Laporte, Thierry Madiot, ...)

Harold Schellinx was one of the initiators of the Dutch ULTRA movement, which provided a common denominator as well as an infrastructure (closely linked to the Amsterdam squatting scene) for the large group of artists and musician that together formed the Dutch brand of experimental post-punk pop music in the late 1970s and early 1980s, and a long time promoter of the world-wide DIY music and cassette culture scene. He studied formal music and computer-aided composition at the Utrecht Institute of Sonology, and mathematics at the University of Amsterdam. His more recent endeavours include dada-ist music/art iPhone-apps produced under the monikers of Studio and ookoi, the Found Tapes Exhibition (exploring and mapping magnetic audio tape litter found in the streets since 2002) and a large number speculative ('experimental') improvised music collaborations, often involving obsolete and/or vintage technologies. He has been living and working in Paris since 1991.

Composing [De]Composition: Hacking Compost for a Better Sounding Tomorrow

J no.e Parker (University of California Riverside's Outpost Foundry Studios, Semi-Permanent Autonomous Zone Collective, San Francisco Bay Area USA)

"The instrumentalization of science and technology for economic gain and military needs has to be met to with creative and imaginative uses... that answer the urgent needs of society [at-large]" Media artist/theorist Armin Medosch (2014)

At an environmentally crucial point in time, abstraction of the concept of "climate" and size of the problem of global warming enables people to disengage personally from forming sustainable solutions. To date, many media artists choose to address climate change and its causes in

their artworks. One example is Thomas Köner, who uses low frequency ranged sonic materials and field recordings to produce soundscape compositions described as “an exhortation on the dangers of global warming”² for his *Novaya Zemlya* (2012) - bringing greater attention to a Russian Arctic island (of the same name) that was a nuclear test site between 1954-1990. This paper discusses *Composing [De]Composition*, a data sonification project that addresses Medosch’s above call and the idea of sustainable sonic arts by reframing household compost as a rich site for expression and exploration while introducing maker ethics into galleries, museums, concert halls and schools.

Hacking into compost to collect and sonify its temperature data expresses ethics rooted in DIY/making, as well as my role in the public sphere as an artist/educator/global citizen living in an age of dwindling natural resources. My discussion of *C[DJ]C* begins by briefly defining key concepts. The driving force behind *C[DJ]C* is the living material of compost. The main parameter driving *C[DJ]C* is *incalescence*—the increasing heat generated by the decomposing biota. The incalcent nature of decomposition is a process simultaneously supporting a myriad of organisms consuming the rotting vegetable matter—also enabling the bioavailability of macronutrients to the soil. This “heating up” is actually diverting CO₂ from the atmosphere and returning stable carbon to the earth. Sonification using custom-designed tools to transform and translate the microbial-generated heat into real-time soundscapes and standalone musical works brings this inaudible activity into the range of human hearing—enabling listeners to better perceive the complex ecology of the heterogeneous biota.

The term *data sonification* is used as a container for the various techniques and processes of generating sound from data. In the context of this talk, *sonification* also refers to the translation and playback of an entire dataset into digital audio; *audification* refers to real time data rendered directly into sound; while *musification* deals with the process of quantizing and adapting a dataset so it can be interpreted using acoustic instruments. *C[DJ]C* adapts each of these approaches to present sonification in different settings. In gallery/museum, a custom built interface called a *data audio display* senses, reads and audifies the biota’s real-time temperature data *in situ*. The pile’s temperature profile is measured (in °F) by 4-8 sensors depending on its size. Each sensor’s data is directly translated into Hertz and amplified by the audio display via its own dedicated speaker. The resulting soundscape is a dynamic, low-frequency, sub-rhythmic, visceral, and immersive live experience.

Sonification of an entire dataset affords perception of it as a time-based entity. *C[DJ]C* sonifies datasets using a microtonal MIDI instrument parameter mapping and time compression, condensing an extended real-time study (ranging 4-30 days) into a spatialized exploration of the data in one *Data Listening Session*. In a *DLS*, listeners hear how a single dataset renders strikingly different results with different parameter mappings (i.e., frequency versus MIDI note number) and/or instrumental arrangements. Moreover, a *DLS* transforms the visitor experience by challenging listeners to engage with and react to what they hear via talkback sessions - giving the audience a freedom not usually encountered with already codified musical forms.

Data musification brings environmental sustainability into the concert hall. Visualization, analysis, quantization and physical transcription of the numerically-based dataset produces traditional scores that can be performed on acoustic instruments. In an ensemble setting, performers are challenged to incorporate their own expressivity in portraying the organically-derived pitch and rhythmic materials. Finally, workshops in K-12 schools excite youth about learning and exploring their world. Hands-on experience delving into

the science of sound introduces students to: composting and personal environmental sustainability; the nuts and bolts of translating radiant energy to the mechanical energy; the physics of sound; interactive interfaces; and manipulating sound into music.

Dj, improviser and gamelan musician holding a PhD in Digital Music Composition and MFA in Digital Art/New Media, **J no.e Parker**'s work explores pathways emerging from intersections between visual art, sound, music, data, science, and technology. As a member of the global community, no.e's work addresses issues of pollution and environmental sustainability from a local viewpoint. Re-contextualizing phenomena usually taken for granted, Parker often exposes new and mutated realities for her audiences—creating multimodal experiences of materials and places. Parker's PhD abstract on *C[D] C* was top ranked by *Leonardo Journal* in 2017. Her research is published in *International Conference of Audio Display & Acoustic Space Journal* (16). Exhibitions include: *Qianyang Bamboo Museum* (Fujian Province, China), *National Museum of the Brazilian Republic*, *Danish Museum of Modern Art*, *UCR Culver Arts Center* (Riverside USA), *DNA Lounge* (San Francisco USA), *Ubud Readers and Writers Festival* (ID), *Yogyakarta International Media Art Festival* (ID).

Hacking Antarctica

Alejandra Pérez Núñez (Media Art and Design,
University of Westminster)

This presentation, part of an ongoing Ph.D., is focused on the subject of imperceptibility in the Antarctic and the development of a methodology of inquiry based on the practice of hacking. The presentation attempts to demonstrate a practice of "hacking Antarctica" through the creation of site-specific forays designed to provoke responses that are autonomous from the dominant representation of the Antarctic, that of the 'sublime'.

The implementation of hacking as a practice of autonomy is described through: the study of electromagnetic frequencies using Free Libre Open Source (FLOSS) technologies using a phenomenological approach; the transformation of such frequencies by means of onto-phenomenological combinations; displacement in agency from the human to the non-human; and ultimately, the questioning of the very foundations of the problem of imperceptibility as situated in philosophical inquiry, drawing specifically on the philosophy of Jacques Rancière. This latter point also interrogates the hierarchies implied in any such process of discovery.

The research has been conducted using FLOSS technologies including the GNU/Linux software Pure Data and ImageMagick; a wireless sensor unit designed by artist-engineer Martin Hug, and a digital Theremin sensor designed by artist-engineer, Andrey Smirnov.

Initially, the study of the phenomena of imperceptibility took the form of field recordings of Very Low Frequencies (VLF) and Ultra Violet (UV) radiation in Antarctica and sub-polar areas. The next phase was a response to the problem of the conception of space as a unitary phenomena in Antarctica and embodied the use of biological cultures as sensors -

through the use of high contrast photography of bio cultures, visual patterns were exposed and have been assumed to correspond to the environmental differences and conditions exposed. These visual patterns have been translated into sound from image data using ImageMagick and Pure Data with the resultant transcodings manifested in the form of rhythmic patterns. Subsequently, other modes of knowing have been added to combine non-human agencies with digital technologies, such as in the case of the digital Theremin sensor used to sonically render live fermentation in yeast cultures.

These practices have all led to the need to explore the problem of imperceptibility in Antarctica at an ontological level, and this has included research into the geopolitical agents behind the Antarctic Treaty System.

Research here has taken the form of the spatialization of sounds and interactive objects in order to establish a relation of similitude between the work of art and the geopolitical ontologies. While the work of art is made of bodies of sound in movement, the geopolitical ontologies move as they withdraw from visibility. However this approach relies on assumptions that distribute knowledge in a hierarchical ordering. In other words, while some things are visible, others are hidden, some things are made evident some others are kept secret, some things are perceptible, while others are sublime. This organizational hierarchy is reproduced while searching for the imperceptible. However, spatialization of ontologies made into sound art installations, controlling arrays with oscillators in PD, and providing interactivity through the use of a digital Theremin sensor, has taken me to reflect about the production of Antarctica outside a model of truth and to recognize this dismantlement as the ultimate hack.

Alejandra Pérez Núñez is a South American Free Libre Open Source media artist, active in live noise performance, environmental detection and electromagnetism. Her artistic research is currently focused on the study of the imperceptible in Antarctica. Her areas of work have ranged from art to education with practice in streaming, collaborative writing and hardware hacking. She is now based in London where she is a PhD candidate at the faculty of Media Arts and Design, University of Westminster.

Keynote Address

What to Wear? A Guide to Today's Technological Wardrobe

Nicolas Collins (School of the Art Institute of Chicago)

Why does 'Computer Music' sound different from 'Electronic Music'? Nicolas Collins examines several traits that distinguish hardware from software in terms of their application in music composition and performance. He discusses the often subtle influence of these differences on various aspects of the creative process, and presents a number of inferences as to the 'intrinsic' suitability of hardware and software for different musical tasks. His observations are based on several decades of experience as a composer and performer, and in close engagement with the music of his mentors and peers.

New York born and raised, **Nicolas Collins** spent most of the 1990s in Europe, where he was Visiting Artistic Director of Stichting STEIM (Amsterdam), and a DAAD composer-in-residence in Berlin. An early adopter of microcomputers for live performance, Collins also makes use of homemade electronic circuitry and conventional acoustic instruments. He is editor-in-chief of the *Leonardo Music Journal*, and a Professor in the Department of Sound at the School of the Art Institute of Chicago. His book, *Handmade Electronic Music - The Art of Hardware Hacking* (Routledge), has influenced emerging electronic music worldwide.

Critique and Ethic

Lofi et subversion : de la construction des systèmes audio comme formes critiques.

Guillaume Loizillon (Musidanse - Université Paris 8)

Lofi est une expression que l'on trouve initialement chez Murray Shafer dans son ouvrage des années soixante-dix : *Le paysage sonore*. Elle sert à qualifier l'environnement sonore moderne envahit par les bruits mécaniques et électriques du monde en transformation. Elle sert à définir essentiellement le paysage sonore urbain. Dans ce cadre, *Lofi* s'oppose à *hifi* qui pour sa part désigne une haute qualité sonore environnementale. Celle-ci se trouve dans les campagnes où se déploient des activités humaines non prolongées par la machine mécanique et l'électricité. *Hifi* qualifie également bien entendu, les sons de la nature, de sa faune et de l'ensemble des phénomènes sonores qui la peuple.

Hifi désigne aussi, sur un plan plus global, tout dispositif technique qui procure un rendu sonore transparent et fidèle en regard d'une source supposée pure. *Hifi* est une norme de l'industrie électrique appliquée aux appareils de reproduction sonore. Dans ce contexte et par opposition, la *lofi* concerne toutes les pratiques qui usent de systèmes réputés de basse qualité audio et qui instancient ce rendu sonore comme valeur esthétique. Il va de soi qu'il ne s'agit pas d'une mesure définie par l'industrie, mais d'une modalité théorique et pratique de critique et de subversion de celle-ci. Nous sommes ici dans un domaine unifié aux questions du son sale, de la distorsion ou de la saturation et des esthétiques qui ouvertement se mettent en opposition avec l'aseptisation supposée du son de l'industrie musicale.

La *lofi* trouve aussi des prolongements dans des questions d'économie de production et d'appareils audio. De ce fait, elle permet de construire une esthétique de la subversion qui passe par la construction des dispositifs plus que dans la composition du son lui-même. Souvent une pratique usant de systèmes *lofi* se conjugue avec l'idée de récupération ou de recyclage du matériel ainsi que d'un emploi du son non normé, mais pas systématiquement sali ou abîmé. L'évolution des supports, leur démultiplication et les questions liées à la compression des données audio est également à prendre en considération. Ces éléments instrumentalisent la discussion complexe sur la qualité audio, entre son évaluation quantitative et sa pragmatique, comme par exemple le mp3 l'illustre avec son usage généralisé par de très nombreux consommateurs. À cet égard, ce son compressé constitue un cas transversal entre une norme conçue par l'industrie et un usage du son émancipé des considérations d'auteurs et de droit.

L'objectif de cette présentation est ainsi de se recentrer la question sur les systèmes audio et leur conception dans les dispositifs des arts sonores. Il s'agit d'envisager l'usage de dispositifs *lofi* dans ce cadre de création où elle est souvent une condition d'existence même des œuvres. Ici, la notion même de subversion est constitutive du système, au cœur de l'usage des appareils qui le constitue. Cette présentation sera ponctuée par des exemples de dispositifs sonores variés, dont ceux utilisés par l'auteur à l'occasion de différentes installations ou performances.

Guillaume Loizillon est maître de conférence au département musique de l'université Paris 8. Compositeur et musicien il est toujours attiré vers des expériences, et des terrains artistiques étendus : musiques électroniques, improvisation, poésie sonore, installations sonores et rencontres interdisciplinaires. Outre son travail personnel, il

a collaboré entre autres avec: Merce Cunningham, Barney Wilen, Joel Hubaut, Hektor Zazou, Jacques Donguy, Valère Novarina... Il est cofondateur de label indépendant *TRACE Label* spécialisé dans les musiques électroacoustiques, la poésie sonore et l'improvisation.

Un pas en avant, deux pas en arrière : DIY, accommodement et dilemmes éthico-pratiques des musiciens des scènes contre-culturelles contemporaines parisiennes et berlinoises face aux technologies musicales.

Romuald Jamet (Centre Urbanisation Culture Société,
INRS, Canada)

Les pratiques DIY ont fortement marqué la musique dès les années 1960 alors que le mouvement hippie récupérait, recyclait et transformait les déchets de la société de la société de consommation pour rendre à ces rebuts une utilité sociale, culturelle et artistique (S. Brandt, 1971) et que les premiers « garage band » s'essayaient à améliorer et personnaliser leurs premières guitares et amplis usinés (Jamet, 2015). D'un autre côté, le DIY fut particulièrement mis en avant par le mouvement punk comme contestation éthique et politique de la société de consommation par l'autogestion, l'autoproduction et l'explosion des cadres stylistiques en revendiquant la capacité de tout à chacun de faire de la musique comme il l'entendait (F. Hein, 2012). Ainsi, avec l'apparition des différentes scènes musicales à portée contre-culturelle (Hippie, Punk, Electro, etc.), le cadre éthico-pratique du DIY participa significativement des dynamiques subjectives, sociales, politiques et pratiques émancipatrices. Chacune de ces scènes ont ainsi été historiquement marquée par les technologies qui leur étaient contemporaines, que cela soit en les détournant ou en y résistant (Joe Bill, 2012).

C'est ainsi en étudiant les musiciens amateurs (punk, ska, hip-hop, jazz, chanson, etc.) des scènes contre-culturelles parisiennes et berlinoises contemporaines qu'il devient possible de saisir les différentes conséquences sociales du DIY quant à l'usage social et les considérations éthiques quant aux technologies musicales. En effet, alors que les *home studio*, la MAO, la diffusion des musiques sur des plateformes en lignes (*facebook*, *bandcamp*, *youtube* etc.) ou encore les licences « libres » (*Creative Commons*, *Copyleft*, *LAL*) sont devenus des technologies régulièrement utilisées par les musiciens, ces derniers semblent pour autant résister à nombre d'autres technologies. En effet, revendiquant le fait qu'ils peuvent et doivent faire la musique par eux-mêmes, beaucoup des musiciens avancent que, de la composition à l'enregistrement en passant la diffusion, il est nécessaire de contrôler l'ensemble du processus musical afin que leurs musiques ne puissent être récupérées (F. Hein 2011).

Quels sont ainsi les régimes de justifications et les points de rupture dans l'argumentation des musiciens quant à l'usage des différentes technologies ? Comment l'éthique DIY est-elle convoquée pour justifier tour à tour de l'usage et du refus des différentes technologies disponibles ?

À partir d'une recherche socio-ethnographique dans le cadre de ma thèse (2009-2016) portant notamment sur l'éthique de ces musiciens, j'essaierai dans un premier temps de présenter quelques lignes de force éthiques et pratiques de l'usage du DIY au cœur de ces scènes parisiennes et berlinoises. Dans un second temps, j'essaierai de montrer à partir de différentes observations et entretiens menés dans le cadre de cette recherche que, si la notion de DIY sert à légitimer l'usage social des technologies « personnalisées », ce même principe sert à justifier le refus des technologies qui pourraient transformer et modifier les dynamiques sociales et compositionnelles de la musique. C'est à partir de ce double constat qu'il sera possible de saisir le DIY non plus comme une seule injonction au détournement et à l'appropriation des technologies à des fins émancipatoires, mais aussi comme une éthique sociale potentiellement technophobe.

Romuald Jamet est docteur en sociologie de l'université Paris-Descartes (2016) et post-doctorant à l'INRS (Chaire Fernand-Dumont sur la culture, NENIC Lab) depuis février 2017. Ses recherches doctorales ont notamment porté sur les théories critiques de la culture, la musique et les contre-cultures, plus précisément sur les subjectivités des musiciens amateurs des scènes contre-culturelles parisiennes et berlinoises. Depuis 2017 et dans la même veine, Romuald Jamet s'intéresse plus particulièrement aux cultures numériques ainsi qu'aux plateformes de musique en ligne et aux expériences.

Making and DIY

Valeurs du hacking et pratiques de l'improvisation libre. De quelques improvisateurs-luthiers Clément Canonne (CNRS - IRCAM-STMS)

L'improvisation étant une forme de création spécifiquement instrumentale (l'improvisateur crée de la musique à son instrument, avec son instrument, par son instrument, pour son instrument, parfois même contre son instrument, mais rarement *sans* son instrument), il n'est guère étonnant que l'exploration de l'instrument constitue un des centres spécifiques de l'activité créative des improvisateurs, exploration comprise tantôt comme recherche d'un son, ou d'une sonorité singularisante, tantôt comme extension du vocabulaire instrumental, et par là même, élargissement de la palette timbrale de l'instrument, voire dépassement des limites et contraintes organologiques dont il est porteur. En particulier, le monde des musiques librement improvisées apparaît comme largement traversé par une tendance au bricolage instrumental, allant de l'assemblage d'objets ou d'instruments plus ou moins altérés en un set d'improvisation singulier jusqu'à la confection complète d'instruments autonomes.

C'est précisément ce passage de l'improvisation libre comprise comme invention à l'instrument à l'improvisation libre comprise comme invention *de* l'instrument que je souhaiterais interroger dans la présente communication, à partir d'un ensemble d'enquêtes ethnographiques et d'entretiens réalisés auprès de cinq improvisateurs s'exprimant à la croisée des musiques improvisées, des musiques expérimentales et de l'art sonore : Pascal Battus, Thierry Madiot, Anton Mobin, Jérôme Noetinger et Arnaud Rivière. Je m'attacherai à montrer comment, dans le travail de ces musiciens, les logiques d'exploration organologique se retrouvent hybridées à des postures et à des pratiques plus spécifiquement issues du monde *hacking*, que ce soit dans la conception de l'instrument comme objet technique ouvert, dans le primat accordé à la fabrication artisanale et au recyclage, ou encore par la charge subversive ou émancipatrice accordée à ces activités de lutherie ainsi qu'aux formes de diffusion et de mise en jeu auxquelles elles s'articulent.

Clément Canonne est chargé de recherche au CNRS, rattaché à l'équipe Analyse des pratiques musicales au sein de l'UMR 9912 « Sciences et technologies de la musique et du son » (IRCAM-CNRS-UPMC). Ses recherches portent principalement sur la question de l'improvisation, envisagée à la fois comme pratique et comme paradigme. Son travail récent a fait l'objet de publications dans plusieurs revues internationales (*Cognition, Revue de Musicologie, Psychology of Music, Journal of New Music Research*, etc.). Il s'intéresse également à la philosophie de la musique : il a dirigé un ouvrage collectif consacré aux *Perspectives philosophiques sur les musiques actuelles* (Delatour, 2017) et a traduit et introduit, en collaboration avec Pierre Saint-Germier, une sélection des *Essais de Philosophie de la Musique* de Jerrold Levinson (Vrin, 2015).

Détourner, créer et personnaliser son dispositif de jeu dans la musique noise au travers du hacking et du DIY. Vers une autre façon d'appréhender l'action musicienne

Sarah Benhaïm (CRAL - EHESS)

Depuis la genèse du genre à la fin des années 1970, la musique noise se caractérise par des pratiques instrumentales étroitement liées à une culture d'expérimentation alternative. Des lecteurs cassettes détournés au circuit-bending, de la guitare préparée aux micro-contacts, des éléments percussifs bricolés au synthétiseur homemade, le dispositif de jeu résulte de nombreuses pratiques qui témoignent d'un rapport décomplexé aux sources sonores. Dès lors que l'on s'attache aux spécificités de ces pratiques, le hacking comme le DIY apparaissent prédominants en caractérisant certaines manières de composer le dispositif et en déterminant pour une grande part les rapports d'apprentissage et de transmission qui structurent éthiquement et économiquement le genre. Pour rendre compte de la manière dont intervient le principe du hacking dans la noise, la présentation explorera à partir d'exemples issus de mon matériau d'enquête (entretiens, observation de terrain, fanzines) les divers gestes qui œuvrent à disposer les éléments de jeu, depuis la mise en circulation « libérée » du bruit et l'importance de la connectique, au détournement d'objets signant une appétence au bricolage et à l'ingéniosité, ou encore à la construction électronique DIY entreprise par les amateurs de manière autodidacte, de façon à montrer comment ils participent à reconfigurer la figure du musicien en déplaçant la compétence instrumentale conventionnelle vers le bricolage et l'ingénierie. Il sera également question de mettre en lien ces pratiques avec leurs lieux et leurs sources d'apprentissage qui véhiculent une approche anti-consumériste de l'instrumentation, qu'il s'agisse d'ateliers et de workshops ancrés localement ou plus généralement d'Internet comme lieu majeur de mutualisation des ressources. En tant qu'il est intrinsèquement associé à l'impératif catégorique du DIY qui structure l'éthos noise - dont la démocratisation des pratiques s'effectue parallèlement par le jeu d'improvisation libre, le rejet de la technique, l'horizontalité du monde de l'art et la porosité des scènes - le hacking fédère en effet une communauté globale qui revendique l'autonomie des pratiques et l'accessibilité du savoir, au-delà des contraintes et des intérêts industriels. Dans le cadre de la noise, nous verrons que la libération du code prônée par les hackers dans le monde informatique s'apparente en quelque sorte à une libération de la pratique musicale par la valorisation de la créativité individuelle et par la démocratisation du jeu musical, sollicitant ainsi des éléments de jeu et des manières de jouer alternatives à rebours des conventions.

Doctorante en musique et sciences sociales à l'EHESS/CRAL, **Sarah Benhaïm** mène une recherche sur les musiques noise et expérimentales contemporaines ainsi que sur les valeurs et les représentations culturelles associées à leur contexte underground. Secrétaire de rédaction de la revue *Transposition, musique et sciences sociales* et membre du groupe de recherche ANR Musimorphose(s), elle a enseigné la théorie et l'histoire de l'art puis le graphisme alternatif à l'ESAD d'Orléans. Elle pratique parallèlement la musique électronique improvisée au sein du trio DMZ.

Soft hacking: créations et appropriations organologiques dans les pratiques de la musique électronique

Baptiste Bacot (EHESS / IRCAM-STMS)

Contrairement aux pratiques acoustiques de la musique - dans lesquels les gestes entretiennent un rapport de causalité physique direct avec la production du son -, celles de la musique électronique requièrent, pour bon nombre de musiciens, de construire des configurations instrumentales, souvent hybrides, qui correspondent à la finalité de leurs projets musicaux et dans lesquels le *mapping* entre geste et son est un critère primordial. Deux options se présentent alors: soit les musiciens créent interfaces et logiciels afin d'obtenir un contrôle gestuel optimal sur la matière sonore, soit ils assemblent des éléments préexistants (machines et logiciels produits en série) et les paramètrent pour que les configurations instrumentales répondent à leurs besoins. Dans les deux cas, ces dernières se stabilisent au terme d'un processus de travail individuel ou collaboratif que nous proposons de qualifier de « *soft hacking* », c'est-à-dire d'une forme de création et d'appropriation au long cours, dont chaque étape apporte des modifications apparemment mineures mais essentielles. La différence principale entre *soft hacking* et création musicale électronique « classique », réside dans la dimension collaborative de la création organologique ou bien dans la démarche expérimentale qui y préside. Ce sont ces approches des instruments électroniques, bien souvent négligées, que nous entendons questionner.

Reposant sur une enquête ethnographique documentant les pratiques de musiciens électroniques issus d'horizons esthétiques variés, cette communication analysera, documents multimédias à l'appui, les processus de création et d'appropriation organologiques des trois musiciens suivants. Pierre Jodlowski est compositeur, concepteur d'installations et *performer* français. Sa configuration instrumentale singulière, qui le suit depuis dix ans, a vu le jour au cours du travail sur une pièce mêlant danse et musique. Jesper Nordin est un compositeur suédois et « inventeur » autoproclamé. Nous avons suivi pendant plusieurs mois le travail de production de *Sculpting the Air*, une œuvre électroacoustique dont les parties électroniques sont régies par les gestes du chef d'orchestre, créée durant le festival ManiFeste de l'IRCAM, le 13 juin 2015. Enfin, Robert Henke, de nationalité allemande, est *performer*, ingénieur et fer de lance de la techno minimale. Deux exécutions de *Lumière*, une de ses performances multimédia, seront comparées sur le plan technologique, en accordant une large place à la dimension organologique de la pièce. Nous nous appliquerons, dans ces trois cas, à mettre au jour les mécanismes de création, de collaboration et d'appropriation instrumentale - qui dépassent largement la simple description technique - en analysant tout à la fois la dimension gestuelle des interfaces, les choix de *mapping* faits par les musiciens et l'analyse des discours sur leurs propres configurations instrumentales.

Baptiste Bacot est doctorant à l'EHESS (CAMS) et détaché dans l'équipe APM (IRCAM-STMS). Il travaille sur la musique électronique selon une approche ethnographique visant à circonscrire les rapports entre les corps musiciens, les instruments électroniques et l'impact de la technologie sur les manières de produire, de concevoir et d'exécuter la musique. L'analyse située du processus de création musicale dans des esthétiques variées (musique populaire de danse, musique électroacoustique, performance audiovisuelle), reliées entre elles par le partage des mêmes outils technologiques, permet de poser les fondations d'une organologie gestuelle des instruments électroniques.

A Dialogue, In Absentia - Composition Applications of Bluetooth Implanted Trombones

Andrew A. Watts (Stanford University)

Written in 2016 for Rage Thormbones (Weston Olencki and Matt Barbier), *A Dialogue, In Absentia* explores the means of shaping Bluetooth audio playback in real-time through utilizing the acoustics of the trombone. This work is a continuation of my research into the compositional applications of *linguicide* or “language death”, focusing on the ability to convey meaning through the voice even when syntax is lost, fragmented, or otherwise unintelligible. The premise is two giants of existentialist philosophy, Søren Kierkegaard and Friedrich Nietzsche, are conjured to debate on the topic of solitude (embodied by the trombone duo). After a number of excerpts from each philosopher, Kierkegaard and Nietzsche, on solitude have been selected, the prose is processed through different text-to-speech synthesizers. In the score, this text will be treated with a fragmentation procedure using the International Phonetic Alphabet (IPA), initiating the transformation from “faceless” soloists into the purity of unattainable language. The goal is to strip the distance these intensely humanistic texts from natural expression, so that the duo can “hack” the playback and bring in added nuance and human expression.

Expression is achieved in modifying the playback by fitting a wireless Bluetooth speaker (a “BLKBOX POP360 Hands Free Bluetooth Speaker) with cork affixed to the exterior firmly in the bell of the trombone. An electronic playback device, such as a smart phone, that can transmit a .WAV audio file via Bluetooth. Preferably, the audio software also clearly displays the time during playback. From an acoustic standpoint, “sealed” by the encapsulation with a mute, the audio sounds from the bell are directed back through the instrument, eventually becoming audible when at the other end, the mouthpiece. The sound is modulated in real-time before reaching the mouthpiece by the soloist adjusting the length of the tubes via the trombone slide. Once the sound exits the instrument through the mouthpiece it can be linguistically articulated by each soloist, respectively, using the space in the oral cavity to shape the vowels (i.e. changing the formants using the space within the mouth).

Both parts start out almost entirely disconnected from the means of traditional tone production on the trombone. The soloists modulate reverberated white and brown noise playback. Then playback sounds, now the existentialist text-to-speech audio, are filtered by the performer’s mouth shapes (i.e. the resonant spaces the oral cavity makes when formed in various un-voiced open vowels). The effect here is akin to an electric guitar “talk box”. For the Kierkegaard part, as the piece slowly progresses the unvoiced vowels become voiced, with the performer audibly pronouncing these text fragments in the same position as before, with the playback from the mouthpiece positioned to resonate in the oral cavity. On the other hand, the Nietzsche part is continuous outbursts rather than a subtle evolution. The finale shows the Nietzsche sound stretch into an elongated tone. The soloist creates beating with the interference of pitches, sung and electronically produced, both inhabiting the acoustic chamber of the trombone.

Andrew Watts’ works, from chamber and symphonic music to multimedia and electro-acoustic, are actively performed throughout the US and Europe. His compositions have been premiered at world-renowned venues such as Ravinia, the MFA Boston, Jordan

Hall, and the Holywell Music Room. In the past few years He has written for top musicians and ensembles including Distractfold Ensemble, RAGE Thormbones, Splinter Reeds, Quince, Line Upon Line Percussion, Tony Arnold, Séverine Ballon, and the LA Percussion Quartet. Mr. Watts is currently a doctoral candidate at Stanford studying with Brian Ferneyhough and working towards a D.M.A. in Composition. He has been a featured composer at the Cheltenham Music Festival, the 48th International Summer Course for New Music at Darmstadt, the Composit Festival, the Biennial Ostrava Days Institute, the highSCORE Festival, the Wellesley Composers Conference, the Etchings Festival, Fresh Inc. Festival, New Music on the Point, and the Atlantic Music Festival.

Parlour Sounds: Transforming Household Devices into Electronic Instruments

Patricia Alessandrini (Goldsmiths, University of London)
and Jack Armitage (Queen Mary, University of London)

This session will introduce and demo two instruments using the Bela platform, an embedded low-latency audio and sensor processing system based on the BeagleBone Black developed by the Augmented Instruments Laboratory of Queen Mary University. These instruments consist of a re-purposed vintage radio and vintage iron respectively. Equipped with on-board sensors and speaker components, they are employed as complete, self-diffusing instruments. Both were developed for the *Parlour Sounds* project in 2017.

Parlour Sounds [<http://patriciaalessandrini.com/parloursounds>] is a multimedia theatrical performance for soprano and ten instruments employing custom electronic instruments made from household objects, ranging from appliances to home hi-fi in a vintage aesthetic evoking a 1960's British home. Making these objects into instruments both subverts the objects from their usual function and contributes to expanding the definition of what constitutes an instrument. The placement of experimentation and creation in a 'parlour' is subversive and ironic: by highlighting the subjectivity and isolation of the protagonist, it posits an 'outsider' approach, not tied to institutions such as recording studios and laboratories. It also allows the soprano and the other musicians of the ensemble to experiment with the use of electronic sound in new ways, playfully exploring it as they perform both scored and semi-improvised sections. The soprano herself, Peyee Chen, went as far as to learn to make some of the electronics used in the performance herself, from scratch from electronic components, in a workshop with Nicolas Collins. After the first performance, the audience members were able to try out some of the electronic instruments themselves, as they required no previous musical or technical experience to be played. *Parlour Sounds* was commissioned by Sound and Music UK, with support from Sound-Aberdeen, Diaphonique, fonds pour la musique contemporaine, Creative Scotland, the French consulate of Edinburgh, and the CNSM de Paris, and premièreed by the Red Note Ensemble at the Edinburgh International Science Festival.

While the radio is free-standing and fairly straightforward in its use, the iron presented some interesting user problematics, which we hope to further explore through exchanges during this demo session. This instrument is intended to be used as it was in *Parlour Sounds*, i.e., more or less just as an iron is used in the act of pressing clothes. It contains two transducers, which adhere magnetically to the body of the appliance. The lower surface of the iron was removed to leave an open cavity, such that placing the iron flat onto a surface transmits the vibrations of its body to that surface, and lifting the iron off and onto the surface produces a filtering effect; this latter effect is somewhat vocal in quality. The instrument is equipped with an accelerometer so that one may shape its sound through typical ironing gestures, and stop the sound by posing it in its upright resting position. It is also equipped with a microphone hidden in its steam hole, so that one may influence the frequency content of its synthesis by singing into it.

Patricia Alessandrini is a composer and sound artist creating mostly multimedia and interactive work. She studied composition and electronics at the Conservatorio di Bologna, the Conservatoire de Strasbourg, and at IRCAM, and holds two PhDs, from Princeton University, and the Sonic Arts Research Centre (SARC) respectively. Her compositions and installations have been programmed in over 15 European countries, including festivals such as Agora, Archipel, Darmstadt, Donaueschinger Musiktage, Heidelberger Frühling, Huddersfield Contemporary Music Festival, Mostly Mozart, Musica Strasbourg, and Salzburg Biennale. She was in residency with the Ensemble InterContemporain at the Gaîté Lyrique for the Sound Kitchen series in 2015-6. She has taught Computer-Assisted Composition at the Accademia Musicale Pescarese, Composition with Technology at Bangor University, and is currently a Lecturer in Sonic Arts at Goldsmiths, University of London, where she heads the Unit for Sound Practice Research. Her works are available from Babelscores, and may be consulted at patriciaalessandrini.com

Jack Armitage is a PhD student in the Augmented Instruments Laboratory, part of the Centre for Digital Music at Queen Mary University of London, supervised by Andrew McPherson. He holds a BSc in Music, Multimedia & Electronics from the University of Leeds. His research is currently focused on understanding and supporting craft processes in the context of digital musical instrument design. He has three years experience as a research engineer at ROLI and FXpansion leading the development of multi-modal and tangible musical interfaces, and three years live coding experience featuring performances at SXSW in Texas, Berghain in Berlin and Create on Hollywood Blvd.

ORGANISING INSTITUTIONS

IRCAM

Institut de recherche et coordination acoustique/musique

IRCAM, the Institute for Research and Coordination in Acoustics/Music directed by Frank Madlener, is one of the world's largest public research centers dedicated to both musical expression and scientific research. This unique location where artistic sensibilities collide with scientific and technological innovation brings together over 160 collaborators.

IRCAM's three principal activities – creation, research, transmission – are visible in IRCAM's Parisian concert season, in productions throughout France and abroad, in a yearly rendez-vous, ManiFeste, that combines an international festival with a multidisciplinary academy. Founded by Pierre Boulez, IRCAM is associated with the Centre Pompidou, under the tutelage of the French Ministry of Culture and Communication. The mixed STMS research lab (Sciences and Technologies for Music and Sound), housed by IRCAM, also benefits from the support of the CNRS and the University Pierre and Marie Curie.

MUSÉE DU QUAI BRANLY - JACQUES CHIRAC

A venir

PARTNER

Laboratoire d'excellence *Création, Arts, Patrimoines*

The Laboratoire d'Excellence *Création, Arts et Patrimoines* (Labex CAP) is a joint initiative of 17 universities (EHESS, EPHE, CNAM, ENC, ENSCI, ENSAPLV, INHA, INP, IRCAM, LCPI ParisTech, Université Paris 1 Panthéon-Sorbonne) and 9 museums and libraries (BnF, Centre Pompidou, Cité de l'architecture et du patrimoine, musée Les Arts décoratifs, musée des Arts et Métiers, musée du Louvre, musée du quai Branly, musée Picasso, Sèvres-Cité de la céramique). It has been funded since 2010 with the aim of supporting and increasing the role and the international recognition of the best French research laboratories.

Both an observatory and an experimental laboratory, the Labex CAP studies arts, creation and heritage, as a reference point to understand and to accompany economic changes of contemporary society, connected with economic life, cultures and means of communication in our globalised world. The Labex CAP gather scholars in the areas of aesthetic theories, art philosophy, art, architecture and heritage history, musicology, poetics, cultural anthropology, sociology of art, history of technologies, as well as communication and information technologies, design, conservation and restoration. The conjunction between Labex CAP, major institutions concerned with heritage, and organisations connected with the area of culture, communication and information technologies, is one of the strengths of the project. One of its ambitions is to allow innovative and successful collaboration between organisations that fall under the French Ministry of Higher Education and Research and others that are not affiliated. By opening up beyond the academy, the Labex CAP provides an interdisciplinary view of questions, practices and research procedures. It aims to remove obstacles between the different approaches to art, creation and heritage, as well as the skills and professions related to those areas.