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Contents

Letter from the Guest Editors

by Patricia Alessandrini & Shelly Knotts

This issue of ICMA Array focusses on practice-based perspectives in electronic and computer music through the lens of intersectional feminism and a generally inclusive outlook. It features artists from six continents, as well as work which is not generally considered as the mainstream in academic computer music – such as electronica and DIY approaches – alongside some of the leading voices in the field.

In order to ensure the issue reflected current concerns among female computer musicians and other under-represented groups in the field, we sought to gather perspectives from those around us working on these issues in the UK prior in addition to distributing an international call. This involved attending events such as Sonic Cyberfeminisms in Lincoln [1] and participating in the organisation of Women in Sound/Women on Sound (WISWOS) – London [2] events at Goldsmiths and the Activating Inclusive Sound Spaces (AISS) symposium at Huddersfield [3]. We also ran a one-day symposium entitled Taking Space: Women in Electronic at Durham University bringing together a cross-section of female sound artists based in the north of the UK to discuss their work, practice and perspectives on the field. Instrumental in the direction of the issue was the roundtable discussion which took place at this event, where we discussed going beyond individual 'female role models' and 'pioneers' and considered structural changes needed to develop a gender-balanced field where the work of women is considered on equal standing to the work of men. We discussed how – as well as involving more women in organisational and managerial capacities – this may include expanding definitions and broadening the type of work which is accepted as the mainstream of computer music. Part of our approach here has been to directly address this, by seeking to represent the diversity of approaches to music-making explored by women, which may currently be underrepresented in the field.

In addressing the breadth of practice in the field we include writing in a number of formats. Nine artist statements emerged from the open call that we publicised internationally. Through this open call, we intended to highlight work created by women and gender non-binary artists, and work which addresses power relationships and gender-related oppression both within the field and in society at large. These statements address individual approaches to computer music and include live coding, electronica, radio transmission, installation work, and other genres. We also included three conversation transcripts using a non-hierarchical approach to interrogate diverse perspectives on working practices, in addition to features and reviews. The first of these is a tribute to Pauline Oliveros, to whom this issue of Array is dedicated, from two artists who worked closely with her, Maria Chavez and Seth Cluett.

At a point in time where the importance of inclusiveness in computer music is gradually being acknowledged, we hope this issue shines a light on the underrepresented voices; beyond this goal, we set out to challenge the field to progress in accepting more diverse perspectives on what it means to make music with digital technology. We set out a vision of the future of computer music, which as well as moving forwards, also expands outwards to people and practices at the fringes of the field, and re-centres and renews itself around and through these practices.

Patricia Alessandrini is a composer/sound artist creating compositions, installations, and performance situations which are for the most part multimedia and interactive. Through these works, she engages with questions of representation, interpretation, perception and memory. She performs research on embodied interaction, including instrument design for inclusive performance. She was recently appointed Associate Professor at Stanford University / the Center for Computer Research in Music and Acoustics (CCRMA).

Shelly Knotts explores interaction with and through algorithms through projects involving live coding, computer networks and data sonification. Her work often has political motivations, exploring the shifting dynamics of collaboration when mediated by layers of computer technology and algorithmic process. In early 2017 she was Leverhulme Artist-in-Residence at Newcastle University, School of Chemistry, and she is currently a Research Fellow at Monash University, Melbourne, working on the project 'Improvisational Interfaces'. Her music is available from Fractal Meat and Chordpunch labels.

[1] Sonic Cyberfeminisms was convened by Dr Marie Thompson, University Lincoln, & Annie Goh.

[2] WISWOS was founded by Dr Linda O'Keefe. Its London branch was coordinated by Dr Lisa Busby, 2015-17.

[3] The AISS symposium team was led by Dr Elizabeth Dobson, who is also the founder of the Yorkshire Sound Women Network

Not All Ideas Are The Same: Challenging dominant discourses and re-imaging computer music research

by Patricia Alessandrini

At the time I am writing this, it has been just over a month since the infamous 'Google manifesto' leaked [1], so the first reactions to it are still fresh in my mind. The leaking of this 'bizarre and offensive' [2] memo served as a cruel example of workplace harassment, posing the risk of discouraging recruitment of women and other underrepresented groups in tech fields and further undermining these efforts by shifting the discourse from how to achieve equity to, literally, whether humans are even equal. Fortunately, however, the memo was poorly written and its research was transparently cherry-picked, the authors' academic credentials were falsified [3], and his links to the extreme-right were confirmed as he fell into their welcoming embrace: this was not a formidable foe, and he and his arguments were already discredited, or so it seemed in those first hours. In my own social media 'bubble', colleagues recounted their experiences of workplace harassment, while socially and politically committed researchers and creatives such as Luke DuBois massively shared take-downs of it, including an excellent piece by Yonatan Zunger, himself a former senior Googler.

That night, I went to bed hopeful that the memo might serve as a means of bringing the problem of workplace discrimination and harassment to the fore - as unfortunate as it was that Google employees needed to experience it in order for that conversation to happen - and maybe even lead to questioning widely-held misconceptions about coding, its history and its requisite skills, just as Zunger and others were doing. 'Not all ideas are the same, and not all conversations about ideas even have basic legitimacy', Zunger wrote: surely, I thought, a society with 'innovation' and 'thinking outside the box' as watchwords would not allow itself to be trolled into ignoring the widely-known social and political causes of inequality in favour of viewing it through the tiny, bizarre, largely discredited thought-box of 19th Century evolutionary psychology.

Nevertheless, much as with 'The Case for Colonialism' [4], a text full of inaccuracies, not fulfilling academic standards for research, whose central arguments are widely rejected by experts in the field, received widespread consideration in mainstream discourse. This dissemination of prejudice and misinformation profited cultural hegemony by shifting the discourse rightward, comfortably away from the consideration of means to achieve political and social justice, such as reparations or fundamental redistribution of institutional roles in the cases of post-colonial relations and discriminatory hiring and workplace practices respectively. This example of the formation of hegemonic discourse provides a cautionary example for our own technological field of how discourses contributing to discrimination are re-produced – consciously or unconsciously – in institutions, ultimately determining not only who performs research, but what research is performed. The careful re-consideration of discourse and rejection of received notions will provide the basis to critique insufficient strategies for achieving equality and equity in favour of a radical and intersectional approach. This will frame an attempt - central to this edition - to envision what an inclusive field might look like if computer music research were more successful in resisting dominant discourses contributing to exclusion and effecting structural change.

Within a week of the leak, David Brooks opined in the New York Times [5] that Google's CEO should resign, not because he failed to significantly implement diversity measures [6], but because he had fired the memo's author for 'championing scientific research'. Critics were on the defensive, charged with the obligation to 'wrestle' with its content, thereby necessitating a wave of articles setting the record straight, by reaffirming the cultural causes [7], recounting women's historical place in coding [8] and the shift from female to male labour [9] parallel to gains in renumeration and status [10], and debunking the memo's pseudo-science [11]. It was arguably useful to have these social and historical points re-affirmed - although none of this was new information - but I found this last point exhausting: the memo was 'an exercise not in rational argument but in rhetorical point scoring' [12], yet mainstream discourse clamoured for engagement with it as 'science', and researchers felt compelled to answer.

As I obsessively combed through these responses, I read a de-bunking of Simon Baron-Cohen's study of newborns – widely cited for its pure, 'pre-socialisation' status by psychological evolutionists – and realised that I had already read about both the study and its debunking almost exactly seven years ago, in reviews of Cordelia Fine's Delusions of Gender [13]. To spare you this head-desk moment - which I treated myself to not once, but twice - suffice to say that the study could only have been credible if a robotic arm had held the newborn, gently cradling its

head while allowing it to incisively direct its gaze (as newborns are wont to do), and other robotic arms had been used to manipulate an object and an adult human respectively, with said adult human having no clue as to the baby's gender, and/or just rendered completely unconscious to avert any risk of attracting the newborn's attention. Furthermore, it is only relevant for anyone who thinks glancing at a dangling mobile at one day old is more or less the equivalent of a PhD; 'The Essential Difference', no matter what happens after. 'It's Science', titled an enthusiastic op-ed response to the memo, as if all scientific studies are necessarily objective and true.

What was missing was a critical investigation of science as a subjective human endeavour, subject to institutional pressure and ideological bias, determined by political imperatives and dominant narratives: the kind of analysis provided by Fine's theories of neurosexism or Judy Wajcman's feminist critiques of technology [14]. This literature is part of larger political context: letting alt-right Google guy frame the conversation allowed transphobic, heteronormative definitions of gender as a birth-determined binary and narrow, ableist notions of innate ability to form the basis of its discourse, a set-back from both the growing acceptance of gender fluidity and increasing awareness of the failure of standardised testing to detect potential in the absence of recognition of social factors [15]. The valuable questions raised by the memo were not scientific, but about the sociology of technological and scientific research: how did the male supremacy theories of the Men's Rights Activist movement (MRA) take root among programmers and gamers; how might neurosexism have led to a plethora of bizarre and discredited studies such as Baron-Cohen's, or others which use the placement of the urethra as an indicator of intellectual ability [16]; and how might this research be different if the relevant fields were more inclusive in terms of gender and race? These questions can be usefully applied to computer-music research as well: to what degree do ideologies of male supremacy and neurosexism influence our institutions, and how would the research we produce be transformed by achieving greater inclusivity: is there research - including practice-based – which might be more fully explored if those conducting it were not marginalised?

While we clearly have fundamental problems with white cis male hegemony, it is fair to say that the kind of MRA propaganda found in the Google memo is not given mainstream support by our institutions. I would place our discourse problem elsewhere, and to make that distinction, I will adopt by analogy categories developed by author and historian Dr Ibram Kendi in his efforts to define patterns of racism in the US in relation to eugenics, evolutionary psychology's uncomfortable cousin. Kendi draws a distinction between 'segregationist' racism, based on eugenicist beliefs of biological inequality, and the racism of 'assimilationist' scholars, who rejected notions of biological inequality but maintained other biased views about culture and behaviour, which still placed much of the onus of societal change on Black communities [17]. Kendi defines racism 'as any idea that suggests a racial group is inferior or superior to another racial group in any way' [18], and challenges the fundamental racism of received notions: 'Black neighborhoods are not more dangerous than white neighborhoods and neither are black people' [19].

Applying this theory to the questions of gender raised by the Google memo, we can find examples of the shifting of sexist ideology from notions of biological superiority to behavioural and other bias, and challenge the received notions which are defensively recycled in order to explain the tech gender gap. The 'faux feminism' of 'Lean in' [20] culture contributes to sexist ideology, as it implies that exclusion does not exist, but rather that key roles for women are ready for the taking, if only we are 'willing'. It also validates modes of behaviour associated with male hegemony as preferable to female-assigned behavioural traits in ways that reproduce the hierarchisation of 'innate' traits found in the Google memo, such as the devaluation of 'empathy' in the tech workplace. Another common problem in discourse on equality is the 'lack of candidates' argument, which shifts the problem of exclusion from institutions and hiring practices to women's own self-selection: there isn't much we can do, this argument claims, until we increase the numbers of women and other underrepresented groups getting a tech education, and socialisation prevents us from doing this. This is, of course, not entirely false, but its perniciousness is nonetheless apparent, as it becomes an excuse to displace institutional responsibility to achieve equality. It erases the reality of institutional hostility and exclusion by failing to acknowledge the circularity of rejection and self-selection. It is also, for the most part, patently false: in most cases, recruitment does not match the candidate base, due to unconscious bias, discriminatory practices, and/or failure to reach out to potential candidates. This is illustrated by Google's own recruitment: despite their supposed 'diversity' efforts, they disproportionally hire men relative to the number of qualified female candidates; according to statistical evidence [21], the memo's author was most likely hired in the place of a better-qualified female candidate, thanks to institutional sexism. No wonder he spent his evenings contributing to its

greater glory: as a man with questionable qualifications, his very survival in the field relies upon it.

Here we begin to touch on modes of discourse which are all too common in our field, in particular the 'We contacted someone but she couldn't come, that's why we only have white male keynotes/panelists/interviewers etc.' This phrase perfectly illustrates a framework of displacement, as institutional sexism and racism are eclipsed by the self-elimination of one person and the supposed dearth of candidates, both distant problems outside of the reach of responsibility and remedy. While simple math would indicate that members of under-represented groups in a field would need to do more of this work proportionally in order for equal representation to be achieved, the critical mass of fully calling upon under-represented members of the community is far from being reached; and even if it were, the necessary time component could be provided by a re-distribution of labour, such as a radical re-adjustment of teaching and research duties in academia to reverse the current status quo to favour the research activities of the under-represented rather than that of dominant groups. A radical re-evaluation of categories and criteria is another solution: for instance, if one holds a conference in the UK and the main criterium for a keynote speaker is a professorship, this choice reproduces - consciously or not - the institutional racism and sexism of academia, as there are only 95 professors who identify as Black in the UK, and only 17 among them as female [22], [23]. Thus, criteria that may seem 'objective' are tainted, and adjustments must be made in recognition of this fact. Discrimination may also be re-produced by selection methodologies, such as the use of recommendation letters, a classic means of hardening institutional influence and fostering the biases and abuses - such as sexual harassment – endemic to them.

We therefore need to be vigilant in eliminating exclusionary practices which arise through the reproduction of structures of discrimination not directly in our remit. Entry fees, 'pay to play', or even free events that do not make provisions for expenses - travel, food, accommodation, childcare or personal assistant arrangements – reproduce economic inequality, which also falls along lines of gender and race. These economic disincentives are particularly discriminative against researchers and practitioners outside of academia, but they also reinforce inequalities among academics: in the UK, the academic gender pay gap stands at 12%, and would take 40 years to close at the current yearly improvement rate [25]. This latter detail is a reminder of the need for radical institutional change that does not index itself alongside incrementally-improving societal factors, such as the narrowing of the gender gap in education. The decline of racism, sexism and other forms of oppression in the societies in which we live and work has not necessarily progressed linearly; waiting for this change is therefore once again both a displacement of institutional responsibility and a denial of social and political realities.

In addition to equality in visible leadership positions and access to opportunities, re-distribution and re-valorisation of roles is key. Individuals marginalised by racism, sexism, and other forms of discrimination tend to cluster in de-valorised roles, as part of a circular process: a combination of exclusion from the more valorised roles and the de-valorisation of roles which are female and/or minority-ethnic identified. Giving a voice to practice-based research and valorising the contributions artists make to the development of software and other technology are therefore steps towards envisioning a more inclusive field.

In terms of the challenges set out in this introductory text, our community is failing, and this edition also fails in several ways: we fall short of giving sufficient voice to contributions from the global South, to give just one example. We are all, in fact, constantly failing, and can only claim relative success in the push-back against dominant modes of discourse and societal hegemonies. But that doesn't mean we can't imagine the kind of work we would make in a better, less hierarchical, more inclusive community. The practice-based research we are presenting here is, for the most part, hardly marginal, but by putting it together in one place, in a rare simultaneity of predominantly female authors, with significant contributions from under-represented identifications within the field and a modest attempt, at least, at geographical diversity, we can catch a glimpse of what the field could be. Themes such as embodiment, collaboration, and experimentation seem to consistently re-emerge, but perhaps it is best to let the contributions speak for themselves, and for you as reader to draw your own conclusions about the vision of computer-music research this edition proposes.

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Pauline Oliveros at ICMC Re-Visited
Technology and the Self

by Maria Chavez & Seth Cluett

In her 2010 keynote address to the International Computer Music Conference at Stony Brook University [1], Pauline Oliveros presented a talk entitled "Sex as we don't know it: Computer Music Futures." In typical form, balancing humor with deep observation, Pauline raised a number of salient questions and offered profound insight into the nature of our relationship with the computer as a tool for expressing audible creativity. Maria Chavez and I, having both known and worked with Pauline for twenty years, extracted comments and questions from her keynote to have a dialog with her ideas.

PO: Do you love the music you make or that others make? --OR-- Do you love how you make the music you make or that others make? Where do we locate that love?

Seth: At the outset, Pauline has put her finger on one of the key questions that the ICMA has grappled with regularly: where is technology situated vis-à-vis music making. In my own practice, when I've let the tools lead, the ear has followed and the work feels cold or detached from myself. When the idea leads, when the musical need leads, the technology is often more impactful. The way she evokes love is important: it hints towards a warning that raw infatuation with new things creates an overdetermination that can cloud creative output. I have always admired her ability to approach new techniques, technologies, and process with unbiased openness and critical reflection in equal parts, a true love that accepts both features and flaws.

Maria: Absolutely. I really admired how much she embodied technology in her work. There's something really touching about that fact that even though she's gone, she is still walking around in 2nd Life. And I remember when she got a midi controller for her electronic accordion so that she could add sounds to it, she was really excited about using it as an addition to her performance practice. It made me think about my strict rule of not adding technology to my practice, in favour of allowing the moment to have space to show itself. She still honored that simplicity within the framework of creating, but saw value in some versions of added technology. I took that to heart when I was gifted my first double-headed needle and then my hand-held needle. I normally would have turned down using these gifts for my shows but after hearing Pauline adapt and utilize additional technologies I decided to give it a shot, and as a result my practice has grown by leaps and bounds.

That experience taught me how to love the sound pieces that I created, but more so, it helped me rekindle my love of the HOW in making my work. Loving the HOW in Pauline's performance practice as well.

PO: Listening takes place not in the ear but in the brain-body after the ears gather and transduce sound waves and deliver them to the auditory cortex. So listening is already inside of the body and not out in the world even though we perceive sound outside of us...for most people, hearing occurs all of the time, listening occurs most of the time and remains mysterious in its process... listening remains a private matter for each of us.

Maria: I'm always fascinated by individual perspective within the confines of the senses. I use the word 'confines' because of past experiences where individuals only allowed their senses to experience particular triggers that they deemed suitable enough as cultivated by society. My favorite example to explain this form of one confining themselves to their senses happened this past May when I created a large-scale sound installation called String Room. 400 feet of piano wire was strung up from floor to ceiling and along the cement pillars of Co-Lab Projects, an art space in Austin, Texas. The point of the piece was to give the city an instrument that visitors could interact with, first by me providing the participants with custom made guitar picks to strum around the space while also encouraging people to provide their own implements to instigate a new sonic relationship with the gallery.

The reviews for the installation were, pardon my pun, tone-deaf. The main complaint was that the strumming of the piece simply wasn't "loud enough". People felt it didn't work simply based on volume, the lack of which rendered the installation useless. I began to think about individual perspectives of listening in the 21st Century, where humans are surrounded by powered amplification, whether it be through small earbuds to hear music or when one is in a car listening to the radio or amplified speakers in stores. The tone-deaf argument that the reviewers were unknowingly posing was the question of "in the 21st Century, does volume determine the legitimacy of a sound piece? And if so, what does that mean for acoustic sounds that are not amplified? Is silence obsolete? If a sound is not sharp, up front, attention-grabbing due to powered volume, does that make the piece a failure? How does one determine legitimacy of sound installations if they don't consider all volume levels?"

This was one of many times that I wish Pauline was still around. I wish I could ask

her opinions about it. But in a way, I already know her answer: all sound is legitimate, it's the individual's ear that gets trained by society. But it's a private matter when it comes to how the ear is trained for each person. Hence the use of the word 'confined' for some. One day, a young man came into the installation with a plastic cup that had a lot of condensation on the outside of it. The young man ran his fingers up and down one of the strings which made a large, echoing warm tone, à la Ellen Fullman.

This change of sonic direction only proved to me that the piece did in fact work. If anything, it worked beautifully. I was simply the facilitator, offering one implement to play the piece. The CITY decided how it wanted to hear the piece simply by this young gentleman experimenting with the water on the wire. His individual perspective was not as confined as the reviewers were because he was willing to experience through experimentation. Which was what the piece was made for, to encourage the participants to interact with the piece in order to expand their own experience within it.

Just like Pauline says, some hear all the time, but the act of listening remains mysterious, private and unknown.

Seth: For my practice, what resonates with me in the statement from Pauline is the sense of the inescapable situatedness of a body that, left unconsidered, risks being limited by the senses. I always ask myself, if we understand the world through the senses we have, how much more world is there to understand with senses we don't have, cannot access, or which require translation between the sense modalities. The element of personal listening, of each listener's unique filtering of the sounds of the world (and the sounds of our work as sound makers) are often the last element to be considered – a sort of 'guarding against the listener' – that I have tried to front-load to the beginning of my process as I make work.

Somewhere between the listener, the composer/performer/artist, and the work there is a dynamic and shifting dialog happening, a coming to understanding of the stuff of sound that is in constant flux. This perceptual malleability is a rich resource; by building resiliency into the work, the program, the installation/concert condition, and the score this can be harnessed to create some really magical moments where everyone becomes involved in the production of the work whether they realize it or not.

PO: So what happens to us when we continue to merge with our technology?

Seth: I think there are two sides to this question: one, a dangerous distraction or illusion that technology is the only solution to problems; the other, an immediacy and fluency that allows for much greater expression and communication. The key here, I think, is to be aware of oneself and be open to solutions outside of computation, especially engaging implicit computational thinking even when leaving explicit hardware and software out of the creative process. On the other side, one can constantly revisit the pain-points that cause friction in the system created and allow that to refine and clarify the work.

Maria: I definitely think that being aware of the options outside of technology can only help in expanding one's practice. I curated a sound series ages ago called "What if we threw some dirt on the ground" where I invited six electronic musicians to a gallery space and asked them to present a piece that didn't use electricity, unlike their usual practice. The title for the series was my personal response to that question, as I have a soft spot for dirt and rocks. Everyone involved had a tough time adapting but the performance results were fascinating. Some people played acoustic instruments, one guy lit up trick candles on a birthday cake and performed with balloons…it was all very inspiring.

I do think that merging with technology is inevitable yet short-sighted and hope that Pauline's and others' writing will remind and encourage people of the risk of getting too attached to technology. Taking a step back to remind yourself of what drew you towards being an artist to begin with, your own personal artistry outside of the tools available, can be one of the most important things when it comes to honoring your creativity.

PO: Regarding Manet's cataracts and getting them corrected: "when he looked at his paintings without the yellowing color that occurs when you have cataracts, he didn't recognize his paintings so he made his doctor put a gel over his glasses so he could see his paintings as he did when he still had cataracts."

Maria: I really love this story, it makes me think about the romantic yet sad history of Impressionism, to paint the light not the object, only for the impressionist masters to develop eye diseases like cataracts. Monet adapted the cataracts, saying that it made the paintings better because he could no longer see the object.

Manet adapted in a different way, after correcting his ailment he decided he still wanted to see what he saw before, sweeping through all the sight possibilities and going back to his hindered sight. This kind of adapting is key in improvisation practice and one that I learned from Pauline. She adapted to the future, saw what it had to offer and chose wisely as a means to enhance her artistic process. I only hope that I can be so open to do the same.

Seth: I think the parallel you draw to improvisation here is spot on. When I was younger, when I began studying

and improvising with Pauline, I was predisposed to think of improvisation as a dialog (often a kinetic one) where improvising occurred against the sounds produced by the other. Working with Pauline taught me very concretely that when improvising solo, duo, or with others, there is always already a dialog but it is between the sounds and not the people – it is between the elements placed on the canvas. In other words, this posits an approach to sound-making that is about listening to what is happening in the space between people, the meaning-making that occurs because people are connecting across music… not speaking to respond, but listening and speaking to further what is made possible by interaction. Awareness of perceptual biases, an acknowledgement of everything – as it is – draws the actions of Manet and Pauline and of technology and music together.

PO: (PO has the last word): We need to be careful of what we build upon. Post-human citizenry is a distinct possibility with old and new political, social, educational, philosophical, and music problems to solve. For me the time is right to investigate the possibility of becoming a post-human citizen. I want to be a transformed musician who listens, creates, collaborates, performs new music, and remains thoughtful and concerned about others no matter who they are or what their origin may be. Technology is taking us on a wild sexy ride into the future. If we are mindful of our purposes, creations, designs, models, and simulations we could open up new and thrilling musical territory as we don't know it.

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Seth Cluett is an American artist and composer who creates work ranging from photography and drawing to video, sound installation, concert music, and virtual and augmented reality that addresses the intersection of acoustics, attention, memory, and geography. He is Assistant Professor of Music & Technology at the Stevens Institute of Technology, and currently Artist-in-Residence at Nokia Bell Labs. http://www.onelonelypixel.org

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Notating Electronics

by Cat Hope

This paper will outline and examine the techniques I have used in my compositions that include electronics. Using graphic notation presented to performers as a moving, animated score, I have notated electronic parts in over fifteen works, mostly within acoustic settings. The works themselves attempt to activate the agency of the electronics performer with a chamber music ensemble. The notations cover a range of roles for electronics within the works that include the illustration of pre-prepared backing tracks, instructions for programmers, live sampling, playback and manipulation, electronic effects for acoustic instruments, spatialisation, feedback control, as well as the representation of electronic instruments such as the Theremin, synthesisers and radio static.

Introduction

The Decibel new music ensemble was formed in 2009 as 'a group of Western Australian musicians, composers, improvisers and sound artists devoted to the realisation of music where acoustic and electronic instruments are represented' [1]. The ensemble is made up of musicians that are also composers and computer programmers facilitating different approaches to writing and reading music. The Decibel ScorePlayer, an iPad application enabling coordinated reading of graphic notations [2], was devised from within the ensemble and has facilitated my composition practice by providing a platform for coordinated performances of graphic notations, such as my own. The application runs a play head over an image coordinating the musicians who read it, removing the need for coordinated clock reading and enabling the smooth, unpulsed coordination of the performers [3]. The score image is converted into a file format (.dsz) that makes it readable in the ScorePlayer [4]. I also create hard copies of all my scores, as landscape, A3 concertina paper copies.

Why Notate?

Live electronic music performance practice is a largely improvised one, and notations for electronic music have remained largely in the realm of representation, that is – after the performance [5]. What about notation for electronic music performance where the same results or processes are to be replicated each time? I was fascinated with the creative capacity of the electronic musician, that I will call an 'electronics performer.'

Notations for electronic components in chamber settings are used to depict a variety of functions such as playback, interactive electronics, electronic instruments or live sampling. Interactive

program components are rarely scored – rather they accompany the notated score as a 'patch' or other software file that renders the electronics in performance. This creates issues for longevity of these works, where operating systems and software programs are constantly being updated, and older versions being discarded. This was of great concern to me – what of all those pieces for instruments and electronics? Who will maintain the electronics parts? A number of compositions require one to 'contact the composer' or pay a fee to access a piece of software that is out of date and doesn't work. My pieces for electronics performers require the performsers to create their own software solutions to realise the score. Today, they may use Abelton, Pure Data or Max, in thirty years it is likely to be something else. The result is what is written in the score, yet the process of creating that result is up to the electronics performer.

Most of my scores have a few key tenants in common. Pitch is not specified, yet performers must listen to each other so that they may make decisions about a pitch they choose in relation to those around them. The scores are proportional, so for example, if a part is above another part, it should be proportionally higher, and if below a part on the score, lower. Whilst this is not always completely possible, it is an important guiding principle for the works. The acoustic instruments in my electronic/acoustic instrument combinations are never amplified, and any electronic sound should sit within the acoustic chamber setting.

Pure electronic music scores

I don't notate all the music I create, but I do notate works for other electronics performers to play. This has included duos, quartets and orchestras of electronic instruments.

The first of my notated works was *Kingdom Come* (2008) for two electronic performers, inspired by a decade of attending laptop performances. Finding out exactly what individual laptop performers do in performance fascinated me - do they play a pre-recorded track, apply filters or prepare complex interactive programs? *Kingdom Come* provides a range of parameters for the performers, indicated in a greyscale graphic score that includes symbols for 'sound blocks', samples, the movement of pitch, glitch sections, static, ring modulation, delay and dynamics. The score can be seen as a "shell" or action guideline that musicians use to shape their own and live sampled sounds, and interact with them in live performance. As such, the score is not so much about creating sound, but ways to treat it through time [6].

Other works for electronics only include Chrome Arrow (2014), for any four electronic performers and *Bravo Compound* (2015, Figure 1a) for laptop orchestra. *Chrome Arrow* uses a combination of ongoing sounds, increasing and decreasing 'density', glissandi and pizzicato indicators to be interpreted by any electronic group. The premiere of the work in October 2014 was performed on a VCS3, a mobile phone software app, Little Bits and a modular synthesizer. *Bravo Compound* was a much more abstract exploration, restricted to sounds below 200Hz at a constant volume. Opacity was used to signal a different sound textures (dense to thin), hashed designs represented 'noise', and triangles as volume or pitch. The reading of circles are 'realised with a subtle increase in volume, loudest at the full 'height' of the circle, softest at the edge. Sonically, they should represent a kind of 'blossoming' of sound texture, not just volume' [7]. These works are provide the 'shell' described in the instructions of *Kingdom Come*. They provide prompts for electronic artists, but do not dictate pitch or any starting content for the sound, but navigate the performer through the sounds they choose.

Writing for programming

Electronics performers also feature in works for mixed ensembles. The combination of score and instructions enable a programming approach – a patch, sequence, audio file – to be prepared before the performance, and the artist follows the score in the performance alongside the other musicians, to trigger or manipulate prepared material. Most of the works involve some combination of sampling, playback and manipulation.

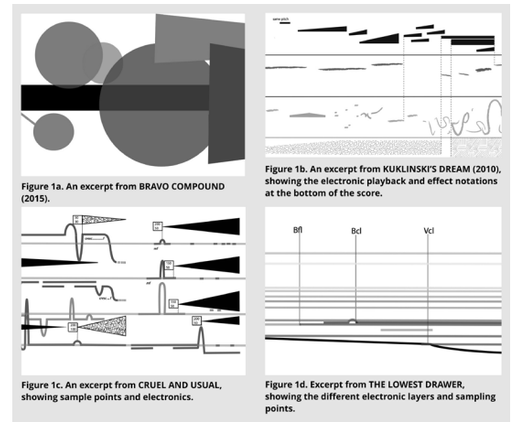

Figure 1. a-d: Notation for *Bravo Compound*, *Kuklinski's Dream, Cruel and Usual,* and *Lowest Drawer*.

The first of these type of scores was *Kuklinski's Dream* (2010) for bass clarinet, cello, viola, carving knives and electronics. The electronics performer has three tasks – record the instruments playing, play back the recording, then playback with effects, where indicated. Long hashed rectangles run under the instrumental parts (Figure 1b), and are shaped for dynamics. In this way, the electronics can be triggered and manipulated in real time. A more detailed preparation is required in *Cruel and Usual* (2011) for string quartet and four bass amplifiers. In this piece, the score indicates a sample moment for each instrument. The sample is given a range in Hertz between which a playback pitch – as sine tone - should be chosen, and played back through a bass amplifier behind a performer, either clean or distorted according to the notation used (Figure 1c). Here, the electronics performer must prepare a system that can sample and playback in real-time, within parameters, for

a certain length, effect and dynamic range. It can be triggered live, or be linked to the digital score playback. The electronics performer makes a pre-programmed or live decision to which amplifier the samples will play back through.

This live sampling approach is also used two other works from 2013, *Sogno 102* for bass flute, bass clarinet, cello, viola, piano and electronics, and *The Lowest Drawer* for bass flute, bass clarinet, cello and electronics. *The Lowest Drawer* instructs the same, realtime sampling of instruments as in *Cruel and Usual*, but the tone plays on through the piece and a 'stack' of tones pile up (Figure 1d). Here, the electronics are notated in colour, and the instruments in shades of grey. In *Sogno 102*, the sampling also occurs, but the tones slowly ascend or descend in pitch. Here, the electronics are notated in the same colour of the instruments, but opaque. Again, these can be manipulated or sampled in real time, or preset as a 'run' program. To date, to my knowledge, the electronics for both these pieces have been preset in Max. But in the future, there may be other program option.

The Theremin has been an important inspiration for my thinking around the notation of electronics, and I undertook a detailed study of the notation for Percy Grainger's *Free Music* Theremin works [8]. I have two works with a notated Theremin part that draws heavily on Grainger's notation – *Empire* (2009) and *Wall Drawings* (2014, Figure 2b). *Kaps Freed* (2017) is a work that uses electronics to create a Theremin sound from the piano. Pitches are sampled from the piano and continued in a Theremin like way. As in *Sogno 102*, the electronics are notated in an opaque version of the colours of the notation for the piano.

A notation for room feedback features in *Majority of One* (2016) and my opera, *Speechless* (2017). In both cases this is notated with a grey sideways triangle, to be read as an increase in volume of the resonant frequency of the room during performance, as in *Sogno 102* (Figure 2a) or after instruments have played, as in *Speechless*.

The only piece I have written for an actual computer program is *Great White* (2016), for two instruments and quintet.net, a program developed by Georg Hajdu [9] In this work, small excerpts of famous historical pieces of music are reproduced in the score – serving not as notation, but rather as a trigger for the midi files of the works, provided to the quintet.net performers to assign sounds to.

The use of pre-recorded material provided as an extra file with the piece is an important part of *Lupara Bianca* (2014) for singing viola performer and electronics. Two files are provided: a recorded gunshot slowed down, and the same slowed down file rendered backwards. The electronics performer decides how to use this material in the piece – all that is provided in the score is the when the sound is played, and the dynamic shape playback it should take. The electronic part for *Wall Drawing* uses a similar notation, but any material can be used (Figure 2b).

In *Erst* (2015), a work for four musicians, synthesiser and electronics, four microphones are placed near performers in the space. An opaque block of colour matching the colour used to score the instruments indicates when the microphone should be switched on and off, diffused immediately after recording (Figure 2c), with an indication in the instructions to 'build up the clouds of sampled sounds over duration of the piece' [10]. Unlike *Kuklinski's Dream*, there is no scored playback instruction.

Some scores simply instruct performers to apply effects to their sound. *Liminum* (2011) for any number of instruments with effects, has a distortion/octaver guitar pedal combination between a microphone on the instrument and a small amplifier next to the performer. Only the effected sound comes through the amplifier, thanks to an on off switch before the other pedals in the effects chain. The effect is written under the instrument part, in a different colour, as a kind of 'underline'. In *Juanita Nielsen* (2012) the amplifier has a simple on and off marking.

Super Scores and beyond

Simon Emmerson uses the term 'super score' to refer to a score that engages the ear and eye together [11]. The Decibel ScorePlayer enables audio to be embedded in the digital score, realising Emmerson's 'super score'. This enables the liver performance to be very accurately linked to the playback. The feature is useful for reading historic works for instrument and tape – the score can pass at the rate that matches the audio file that was once tracked using a clock.

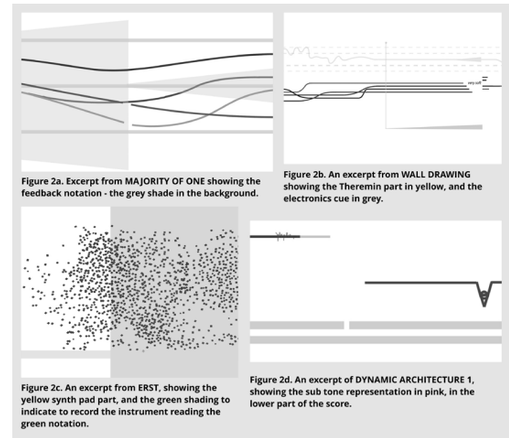

Figure 2a. Excerpt from MAJORITY OF ONE showing the feedback notation - the grey shade in the background.

Figure 2b. An excerpt from WALL DRAWING showing the Theremin part in yellow, and the electronics cue in grey.

Figure 2c. An excerpt from ERST, showing the yellow synth pad part, and the green shading to indicate to record the instrument reading the green notation.

Figure 2d. An excerpt of DYNAMIC ARCHITECTURE 1, showing the sub tone representation in pink, in the lower part of the score.

Figure 2. a-d: Notation for *Majority of One*, *Wall Drawing*, *Erst*, and *Dynamic Architecture*

Signals Drectorate (2014) for any instrument and playback was the first piece to use this feature. Playback is notated on the score as a guide for the performers reference. Audio plays via the mini jack port on the

iPad, and the guide assists in providing coordination between the player/s and the audio. An abstracted screenshot of the audio file as it appeared in the Digital Audio Workstation (DAW) is used to represent the audio – as it gives the clearest 'shape' for the performers reference.
I have a series of works that use very low sine tones embedded in the score. The pitches are presented as long rectangles, arranged proportionally according to pitch as a guide for the performer. Again, these are screen shot from the DAW session used to make the audio file, but abstracted into a light pink shade. This approach is featured in *Dynamic Architecture 1* (2015) for double bass and transducer, with the audio playing through the transducer attached to the double bass (Figure 2d). *Shadow* (2016) for two strings and sub tone, *Pure* (2014 rev 2016) for string orchestra, percussion and sub tone, and *Tone Being* (2016) for tam tam and sub tone all have the embedded audio playing out through a subwoofer speaker.

AM radio static have appeared in several works of mine, notated differently each time. In *Miss Fortune X* (2012), the visual noise on an old photocopy is performed by a.m. radio static, whereas in *Broken Approach* (2014) and *Fourth Estate* (2014) the radio static is indicated by a straight line. In each case, a hand held a.m. radio with a built in speaker is required, and the only instructions refer to volume control and on/off.

Chunk (2011) is a work for Disklavier and a performer on grand piano. This virtuosic piece has two parts to the score – one for the performer, one for the Disklavier. A MaxMSP patch 'reads' the greyscale score for the Disklavier in a man meets machine challenge. Whilst a Max patch was developed for this work, anyone could replicate it – the score for the Disklavier is a score to be programmed.

Conclusion

This article has outlined a rationale and some examples of an approach to notation for electronic instruments in chamber music settings where acoustic instruments are featured. The notation is designed to provide electronics performers with the autonomy to control their instrument in the fashion best suited to them, but also to retain a life for pieces that lasts beyond the life of any operating system or software that may be used to realise the notated electronic contributions.

Biography

Cat Hope is an Australian composer, musician and researcher. She is currently Professor of Music at Sir Zelman Cowen School of Music at Monash University, Melbourne.

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Conversation I

Sound & Performance as Protest: A Conversation with Muyassar Kurdi and Verónica Mota

by Marlo DeLara

"Against the backdrop of a corporate style arts sector, the decision to explore new forms or simply make work that intervenes in the existing system can be a radical political act."

– Chris Garrard, 'Creating Resistance: Art, Music, and Activism' [1]

Introduction

As a sound performance art practitioner, academic, and activist, I am continually looking for the ways for my different roles to nourish one another directly. In the past several years, the conversation in feminist electronic experimental sound/music/arts circles evolved into a well networked community of an academics and practitioners investigating ways to intervene in institutional gender barriers. Embracing inclusivity, the multiplicity of voices and situated knowledges are welcomed. The enthusiastic participation of women continues. Self-naming one's self as a feminist thinker, artist, and/or musicians allowed for a more holistic presence embracing multiple aspects simultaneously. In other words, the personal and political realms for women in sound are being enunciated and reverberating internationally. In the recent past and in less conscious music spaces in the present, overt expression of subjectivity put one's work at risk of public interrogation; a devaluing of one's project/works by an association with the words 'woman', 'feminist' and recognition of one's own racial/ethnic naming. In this article, I will introduce the work of sound performance artists Verónica Mota and Muyassar Kurdi. The dialogue surrounds each artist's creative practices, how they perceive their work as acts of resistance, and how their individual lives influence their creative works.

In light of the popularity of conservative parties throughout the world aiming to derail social justice agendas, the representation of the multiplicity of voices and narratives becomes critically important. It is not enough to say one disagrees with the politics of Trump and Brexit but rather to see this public mass roar of dissent as assembled from diverse and separate individuals. In other words, this merging of the lived experiences and the iteration of political beliefs from the marginalized have become more consistently co-represented. This space of resistance is of utmost importance in that it embraces intersubjective investigations, valuing both social and personal experience. In 1984, Audre Lorde outlined the importance of recognizing difference in solidarity actions:

> Within the interdependence of mutual (nondominant) differences lies that security which enables us to descend into the chaos of knowledge and return with true visions of our future along with the concomitant power to effect those changes which can bring that future into being. Difference is that raw and powerful connection from which our personal power is forged [2].

Lorde asks us to interrogate our own intersubjective positioning because it is within our individual psyche and our own hidden social prejudices, such as homophobia and racism, the real political work can begin. This psychoanalytical inward searching can be assisted by the creation and exhibition of art and music. Narratives in creative forms demand attention from those who enter the space. Through contact with a cultural text, one is challenged to think with outside their current worldview in attempts to understand and approach the art object. Through art, 'we can learn about our individual prejudices not only to expunge them, but to illuminate them." [3]

Non-white women sound artists experimental performers sociohistorically lack representation and are differentially (em)powered. In Sharmi Basu's groundbreaking work on decolonizing sound, she states that otherness is integral to avant-garde and that an application decolonizing methods of deconstruction for musical culture is necessary. This must not be noted without the evident, that the socioeconomic challenges that

> marginalize and capitalize upon the female body, the idea of the feminine, the colored person, the other, and that body's desire for social equity result in devastating gendered oppression that systematically erases women from history and represses women into submission. [4]

Basu asserts that 'creative music is a means towards liberation' and with political unrest and social injustices, communal suffering ensues instigating a revolt led by artistic creations.

In addition to enriching and complicating narratives, this artist conversation is to be read as a part of an uprising in which the making of sound art is recognized for its potency and usefulness in acts of resistance.

The Conversation

"Sounds are points of departure to realms of personal history, cultural memory, and political struggle."
– Tara Rodgers, Pink Noises [5]

I chose sound performance artists Muyassar Kurdi and Verónica Mota due to the various arenas and dual/multiple cultural consciousness in which they work. I had met Muyassar Kurdi while she was on tour and we performed on the same bill. Her work was highly stylized in contrast to the noise lineups I had grown accustomed to. Verónica Mota became known to me through her organization Urban Arts Berlin which made open calls for submissions for compilations embracing women musicians. I submitted to one of her compilations and began to observe Urban Arts Berlin's woman centered curatorial projects abroad. I forged cyberfriendships through our mutual interests and a sharing of personal stories through social media.

While both are comfortably situated within the international DIY underground noise music, both are open to using artist residencies and funding bodies in order to continue to create. Though some of these attempts have been unsuccessful due to institutional preferential treatment of White practitioners and/or the unfeasibility of living wages during residencies, any economic options must be pursued. Simultaneously aware of the importance of self-management and self-promotion, neither hesitate to be vocal about their feminist beliefs and displeasure with mainstream misogynist world views and the capitalist structures working against artists. Their words acknowledge their navigation through the constant whiteness and male power paradigms embedded in social relations. Their artist online presence(s) embrace personal and intimate thoughts as well as editorial commentary on the arts and music scenes. Statements regarding combatting the patriarchy and questioning authority are commonly placed at the forefront of communications. In our conversation, there were no overt discussions about race barriers but more so that living in a gendered and racialized world is a reality that keeps neither from continuing to create art.

While the electronic sound processes and technology used in both Kurdi and Mota's work is often associated with the 'noise' music genre, I think it is useful to see their experimental electronically processed work beyond the scope of genre. The term 'experimental' is being used to contrast it from the mainstream art and music. I agree with Joanna Demer's definition of experimental 'as anything that has departed significantly from norms of the time, but with the understanding that something experimental in 1985 could have inspired what was conventional by 1990'. [6] Pushing that further, these experimental works aim to transgress language that restricts interpretation and perhaps distances performer from the audience. While both have impressive discographies and continue to record, Muyassar Kurdi and Verónica Mota see live performance as having a different valence that lends itself to immediacy and protest. Kurdi embraces the use of both recorded works such as film and improvised performance as integral to her overall creative processes and personal growth. As politically aware women, they harness their creative acts for 'those moments when the flow of activism emerges in a tangible form, are inherently performative.' [1]

Choosing a messaging platform to connect, I began by asking both New York based Muyassar Kurdi and Berlin based Verónica Mota to introduce themselves. My goal was to create a casual atmosphere in which they could speak honestly and unfiltered about their work and experiences with sound technology and its relationship to acts of resistance. This was to be an intimate conversational space where one could speak honestly about passions and individual expressions. I merely wanted to create an atmosphere to recognize them as they chose to represent themselves, their personal narratives relayed as they saw fit. For example, how did being a single mother effect Verónica Mota's work? Or how did Muyassar Kurdi see touring solo as a woman? For the sake of brevity, it is unfortunate not to be able to learn more of their personal lives. Yet there is a dynamic nature to the sharing of narratives and I feel I am more familiar of the dissonance and harmony of their lives.

Broaching the line between private and public, a crossing of intimate goals and social change was present throughout the exchange. While both artists teach workshops that are socially transformative, often empowering women to shed hindering societal programming and channel one's creativity from within, their personal spiritual transformation was of major concern. Calling back to Lorde, these choices to care for one's self is by nature political and an act of resistance. [7] Extending this further, being open to growth is a form of self-care.

I present both women as artists, colleagues, and sisters in troubled times and encourage readers to go beyond these brief synopses.

Verónica Mota: Technological Activism and Spiritual Openness

As [a] humanist I do not only talk about my personal journey…I don't like much to be ambivalent and meaningless. I like to reach people through communication and intellectual contents.
– Verónica Mota

Verónica Mota's sound and performance art tends to be 'storytelling oriented'. Her pieces are not to always be seen as total abstraction but to 'send a clear message across' that can be critical of the politics of the day. In live performance, Mota pushes past her audience's comfort zone by examining power dynamics. She describes effective performances as

'leaving a mark in my path…They have confront[ed] me with something and/or show me possibilities of being.' Her praise of direct action and clarity in execution and structure in artistic works is a mainstay of her aesthetic.

As organizer and founder of Urban Arts Berlin, 'a nonprofit organization promoting noncommercial works from all over the world', under which her online label and radio shows operate, Mota further takes direct action to shift programming and refocalize the role of women in music production. For Mota, networking and community, particularly amongst other women and the 'gay community', have been integral to managing these difficulties. Her professional roles are immediate methods to adjust gender attitudes in experimental music culture and technology.

While describing her workshops, Verónica Mota used the term 'technological activism'. To the artist, the phrase is a concrete strategy to subvert the dominant gender imbalance in music technology. Her approach to technological activism is derived from her own university experience in Mexico City where she studied philosophy and various social sciences. Her negative views are based on the elitism and class barriers obscuring knowledge within the academic institution. This led her to further develop technological workshops as an approach to educational social justice:

> …I distrust the academia because often academics ended in their middle-class circles talking about the important themes completely disconnected of reality. I dislike that. I think we have a responsibility towards people. Particularly when education is a privilege not everyone can access. I left the academia in order to learn from real people & their personal stories, among other things such as political events, etc…

While Mota did not originally work with women primarily, her sound technology workshops focus on 'female identified' [1] populations and those with less comfort with, as well as limited access to, technology. For example, Mota spoke of an upcoming event in which she is instructing refugee women on DJ software and hardware.

> I focus on giving [in] depth but also on encouraging women to be creative and use the skills to express themselves, their stories, ideas, dreams and fears. I do also focus on helping women to work on their self-esteem. My pedagogical concept is complex. It is not only about how to plu[g] cables, connect interfaces and/or operate a machine. It goes far beyond that. It is about helping women to be present, to have a voice and to probe we can manage technology.

In short, for Verónica Mota, technology is a method of democratizing the arts and creative works beyond social institutional barriers.

> … technology is a key element for creative expression, social interaction and political activism. Machinery, software and Internet are very valuable skills for resistance... If you combine both art & pedagogical practice we contribute to a new level of human rights & better relationships.

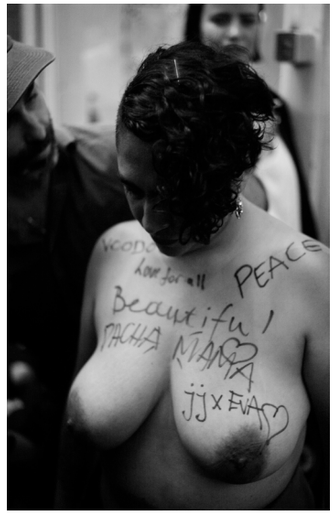

Figure 1: Verónica Mota

Mota describes her performances as ritualistic art. This due to her own personal transformation culled from various spiritual practices to learn more about herself and others, encouraging a more open world view.

> I am Mexican with a strong Inigena and Afro heritage. When I was living and staying in Mexico I was completely rationalist. Interested only on Philosophy, Ethics, Politics, Economics and Sociology, to mention some areas. Once I moved to Germany, after a couple of years, a German introduced to me Mexican Shamanism. I was very skeptical after growing up under Catholicism. Metaphysic and the occult were not for me at that time. Today, thanks to my open mind and international meetings and research I found there are different areas of interpretation and understanding towards Shamanism… [in creative work] somehow, I have manage[d] to open some doors where magic appears and people are able to connect with me and others. Some kind of 'Let's kill the Ego' with noise and be fucking real. Let's open the Pandora box and organize a bit those feelings of pain and frustration. Yes, it hurts. Very, very much. But you are not the only one.

The cathartic effect of her noise performances serves to destabilize the ego and decrease the separateness felt in daily life. Mota describes a critical moment in which her ethnic associations were destabilized. As a migrant from Mexico, the colonial technology of Spain, Catholicism has deleted native religions. This is similar to my own story where the Philippines, a former colony of Spain as

well, has become the largest Christian nation in Asia. To combat my own inherited colonized mindset, I abandoned my Catholic roots. In Mota's spiritual journey, she has redefined, reclaimed, and enriched her understandings of her own motherland. These moments can be read as a personal form of decolonization. As Sharmi Basu explains, "decolonization (the process of restoring Indigenous identity) can be very personal." [8]

Muyassar Kurdi: Healing Community and Working though the Body

An act of resistance for me is learning to live and be in my body and dance has been a very healing force. Patriarchy is really eating me alive. – Muyassar Kurdi

Muyassar Kurdi is an Arab American sound and performance artist, based in New York city. Contrasting from the often-saturated electronic processing in abstract noise/sound art, her work is self-aware and attentive to silence and present moment. Kurdi openly addresses timeless existential dilemmas and questions her own methodology in her pieces. When asked about the sound technologies used in her work, Kurdi responded

> I am interested in technology and the body and how these two worlds overlap and inform each other. The devices create many textures and layers of atonal and microtonal sounds reacting to light and movement. One may ask: what comes first the sound or the movement? And there is this in-between place of tension in my live performances in regard to the form. There is form like parameters with room for improvisation.

For Kurdi, the improvisational method is a way to be fully engaged with the performance and to contain the space. Her performances rely on non-linear explorations of her affective and bodily minds:

> [T]o be present in the environment and I need it like I need the form which holds a focus, a contour which binds it together. I am an interdisciplinary artist; I use different modalities so form is important for seeing how to present them together. I am interested in the cinematic experience, a full expression using the body and voice which explores space, interacts, loves, challenges. Multi-modality is very important to my work; it is my vision to embody. It couldn't be any other way for me. I am interested in so much, and at the same time my work is very minimal. Maximal in the minimal, at that.

While being respected for her homemade electronics and electroacoustic compositions, Kurdi experiments with her own creative and bodily comfort zones. These experiments further gestate until born anew.

Figure 2: Muyassar Kurdi

> Recently during my tour in Europe, I mostly sang unplugged with my electronics. I am interested in stripping down to the minimal. It challenges me to use my body in different ways, raise my sensitivity and awareness, and to think of light, architecture, and interaction with the audience. And of course, through improvisation comes form. I created pieces from improvised sessions that perhaps get reworked over and over again until they are far from the origin. Sometimes the sound just comes out and that's that; the piece is made in a moment. It is easy if you are open to it then everything just comes naturally and I prefer to work with intuition. In one of my collaborations, I am performing and recording with a cellist, Nicholas Jozwiak. We perform movement, voice, cello, and bass. We rehearse often and work heavily with form. At the same time, there is room for improvisation in almost everything we do. What is important is that we stay connected with each other and listen deeply. Then we are never lost. In one of my collaborations, I am performing and recording with a cellist, Nicholas Jozwiak. We perform movement, voice, cello, and bass. We rehearse often and work heavily with form. At the same time, there is room for improvisation in almost everything we do. What is important is that we stay connected with each other and listen deeply. Then we are never lost.

It is this language about interconnectedness and mutual struggle that characterizes Muyassar Kurdi's work. While being very deeply located within her body experience, boundaries must stay permeable in order to expose a vulnerability central to her creative act. The boundaries that define her as a woman, as a human, as a performer, as a collaborator, as a co-occupier of mutual space and time – all are variables that Kurdi manages in performance. By recalling associations intending to create an agendered performer experience, or rather a body that pushes against the gender body assumptions, the audience must acknowledge their conceptual limitations. All the while, a live performance is immediately within an audience member's senses.

> In my artistic process as an interdisciplinary artist, I tend to break down the walls between performer

and audience member as well as the borders that define gender and art disciplines. In my current performances, there is nothing 'concrete' in what I am doing - for example, I hardly use words in my singing, but my movement and vocalizations are very feminine and charged. So it is an act of protest and both men and women audience members are moved by my work, but it always sticks out to me when women approach me especially when traveling abroad because it never occurred to them that this kind of freedom existed for a woman…

Furthermore, this vulnerability serves not only her work but as a way to address the boundaries that disregard the violence and traumas endured living in contemporary society. By allowing the audience community to internally process the performance, Kurdi's work becomes emancipatory to the viewer. By being present, one is central to the performance and yet marginal in intentional activity.

> It's always difficult doing something where you remain open and vulnerable but then get rejected. I just keep going, the act of perseverance, and a reminder of why I'm doing this at all. It's a spiritual journey, and now I'm clear that it is one of healing the community too because I want to be 'free' but how am I free unless my neighbors are also free…

Postscript

I had my own political agenda in framing the conversation. As a non-white woman making sound art, inspired by Sharmi Basu's work, I had hoped the discussion would encourage a sense of solidarity within me, being among my sisters. While I have found solace in feminist collectives, women of color are generally a minority within noise music and sound art. Yet every time inequalities and invisibilites are recognized, there is hope that the sense of being othered will feel less uncomfortable and more natural.

The conversation did achieve that but not in the way I had foreseen; rather, listening to both sonic artists articulate their own stories and creative processes catalyzed a need to frame this piece as a community action. The 'artist struggle' is well known but put within the context of current political unrest and sociohistorical gender barriers, the work of making art is more critical than ever to the individual and the social body. It nourishes our emotionally exhausted souls by allowing another method to exist and create. The sharing and talking about surviving these tumultuous times feeds the community of individually suffering marginalized peoples. In this way, it is a revolutionary act and a survival method. We must live through this. We must create. We must commune with others and extend our self-care to the larger community. I will leave this with Sarah Ahmed's call to action:

> In directing our care towards ourselves we are redirecting care away from its proper objects, we are not caring for those we are supposed to care for; we are not caring for the bodies deemed worth caring about. And that is why in queer, feminist and anti-racist work self-care is about the creation of community, fragile communities, assembled out of the experiences of being shattered. We reassemble ourselves through the ordinary, everyday and often painstaking work of looking after ourselves; looking after each other. This is why when we have to insist, I matter, we matter, we are transforming what matters. [9]

Biography

Marlo De Lara is a sound performance artist and experimental filmmaker currently pursuing a PhD in Cultural Studies at the University of Leeds. Her research addresses subjects relating to feminism, representation of marginalized populations, and creative work as political action. As curator and organizer of the Ladyz in Noyz (LIN) international compilation series/collective, ashe continues to promote emerging artists and musicians who are women.

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Artist Statements I

Al-Hadra: A Live Electronic Music Improvisation within a Sufi Worship Ritual

by Nour Mohamed Mahmoud Emam

Al-Hadra is a practice-based ethnographic research project that culminated in a live performance during a Sufi worship ritual. Al-Hadra is a continuation of a previous research project I had conducted in 2015, titled '21st Century Islam: Towards an Integration of Electronic Music with Sufi Worship Rituals'. Past findings led me to speculate as to whether the integration of an electronics musician within the Sufi worship situation would enhance worshippers' spiritual and religious experience. The exploration aided in gathering information regarding traditions and rules in Islam concerning music and worship. It resulted in three sound pieces, which I called 'studies', that explored the possibilities of integrating electronic music with recordings I had made of excerpts of Sufi rituals.

In August 2016, I was granted permission by one group of Sufis following the Rifayyia tariqa - a specific Sufi order - to perform an improvisatory live set during their weekly hadra ritual in Cairo, Egypt. This essay will briefly recap previous research as well as cover updated findings regarding cultural and religious information concerning music in Islamic practice prior to focusing on the methodology and the implementation of this performance piece.

In my paper '21st Century Islam: Towards an integration of Electronic music with Sufi worship rituals', I had discussed the importance of sound and music, whether instrumental or vocal, in Islam. This is a religion that depends solely on 'vocal transmission, recitation, cantillation and audition' [1]. It is known to us, however, that Islam is also a religion whose somewhat rigid rules have deprived practicing Muslims of innovation within their worship obligations and rituals. Although this orthodoxy has pushed Muslims to seek more mystical means of connecting with their belief, the room for out-of-the box approaches in such 'mystical' practices is practically unheard of.

In discussing this project, it is important to start with a clear definition of Sufism: Sufism is the mystical part of Islam, and although it is often understood as a sect in Islam, Sufism and Sufis are not part of a sect, as Sufism is supplemental to Sunnite and Shīʿite Sects. Sufis seek closeness to God and purification of the soul through worship [2]. There are different turuq (Sufi orders) who have different sheikhs (i.e. spiritual guides/mentors) and must complete additional worship duties, such as private recitation of certain names of the Islamic God, and a weekly gathering of the followers for dhikr, a remembrance ritual [2][3][4].

There are different approaches to Sufi rituals depending on which tariqa (Sufi order) is practicing. In Turkey, there are schools of whirling dervishes, who are accompanied by a band and a vocalist. In Egypt, some Sufi orders rely on percussive instruments and clapping during their rituals, while others only use their voices and breath. Some orders are more melodic and musical in their recitations, while others are less so. Sufis use music in their ritual, in the belief that it helps them connect to God and enter an ecstatic state of love through reciting God's name and singing songs of praise [5].

Although music for worship is not bound to a certain style as long as it represents divine love, Sufi worship music still adapts to the culture it is created in [6]. Therefore, Sufi worship music is commonly associated with Middle Eastern music and is hardly ever found to have Western musical qualities. This is mainly due to the fact that Qur'anic recitation and songs praising God and the Prophet Muhammad must follow certain rules of recitation, corresponding to Arabic music scales and melodic modes. It is forbidden for Muslims to 'improvise' with their Qur'anic recitations, as such attempts are perceived as disrespectful to the sacred nature of the text.

There is a growing interest in spirituality in both Middle Eastern cultures and Western cultures, particularly in seeking a spiritual life away from the constraints of strict religious adherence [7]. Semas, which literally means listening, is based on listening to music in order to 'attain divine contact, trance or illumination' [4]. It is not based on collective vocal or musical participation, but consists of a music ensemble that does not take part in the worship ritual and the worshippers who experience the Sema. In Turkey, some rites with music involving whirling dervishes are open to tourists to see and hear. But how does this affect the ritual? Has it become merely a show?

Although many tariqas do not permit recording, whether audio or video, many others encourage it as a means to make it known to the world. However, caution must be taken with making such materials available to the public, as it may be incorrectly used. For instance, people who are not aware of the religious and sacred significance of such materials could sample such records for their own productions. 'Oriental Sufi Music' is now found in clubs and discos, because it is being used by people who do not

necessarily have knowledge of its meaning [6].

During the research phase of this project, I came across many artists - typically from Middle Eastern/Muslim countries - producing what they call 'Electronic Sufi Music'. Dhafer Yousef's album 'Electric Sufi', a cross-over between oriental oud music and oriental jazz, is one example: signs of electronically-produced sound are audible throughout the album. Another example is a band called Egyptian Project, in particular their song 'Soufi'. This song, sung in Arabic and featuring Middle Eastern instruments, has quite a modern sound and beat, as opposed to traditional praise songs. Additionally, the musician Mercan Dede uses a lot of sema' music and electronic beats in his works, although they are still quite restricted to the oriental sounds one is expecting to hear when listening to 'Sufi music'.

I have yet to come across attempts to merge Western musical styles with the content of Sufi worship rituals, even though the sema' is not bound by a certain style of music genre. As long as it evokes spiritual, ascetic emotions for worshippers, then one can create sounds and music for dhikr and sema' in any way or form [8], bearing in mind that the musical element in religious rituals should always be kept under control, as the listener and performer should not neglect the sacred meaning of the ritual for musical enjoyment [9].

The word 'hadra' literally means 'presence'. Worshippers believe that when they perform the hadra, God, the angels and saints are present during the ritual. It is also expected of each participant to be fully 'present' in themselves and present with God during the ritual. Within the hadra there is a section called the dhikr (pronounced: zikr), in which worshippers recite certain names of Allah in a certain order and tempo, accelerating according to the leader's command [4].

As a researcher in this project, I have come to understand how crucial it is to take the time in getting to know your subjects, and in my case, to get to know the ritual that is of interest to me. I have been participating in the hadra of the Rifayyia tariqa for almost three years, and I believe this project would not have been possible had it not been for this long observation/participation time. When the researcher is not part of the group or has not given him/herself enough time to gain acceptance within the group, the ethnographer may produce work that is not close and accurate to his/her subjects [10]. By taking my time in participating in the weekly hadra, I was able to develop an understanding of and sensitivity to the structure of the ritual and the slight variations in group emotion and states of mind from week to week.

The hadra took place in a flat in suburban Maadi, Cairo. I used two stereo pairs of speakers, which I rotated to face the walls and had them tilted slightly upwards,

thus diffusing the sound more and avoiding a specific directionality that could possibly distract the participants during the ritual. I performed live using pre-recorded material in an Ableton Live set. I was particularly inspired throughout this process by Eliane Radigue's slowly evolving and in my opinion, highly emotional and spiritually moving 1998 album, 'Trilogie de la Mort'. Furthermore,'The Talking Drum' by Bill Viola, Terry Riley's piece 'Shri Camel' as well as the inspiring and highly underrated Halim El- Dabh's 1944 'Wire Recorder Piece', were all works I listened to frequently during the music writing process.

In addition to sampling notes from my analogue synthesiser, I recorded people of both genders, aged 8-50, reciting the divine name 'Hu', which translates to 'He' and is regarded in Sufism as the ultimate name of Allah [1]. I then stretched these recordings into audio files that were 30-40 minutes each and mixed them during the performance either separately or together, which resulted in a choir-like drone sound. The hadra lasted approximately one hour; the participants that day were four males and two females all aged 45 to 75 (see Appendix A for Ritual timeline and breakdown) [11].

The feedback I received from the group was entirely positive. They agreed that the music helped them enter the focused state of mind of the ritual quicker than usual, and some men reported having 'seen' things through the sounds they were hearing. They felt the lower frequency sounds resonated in their chests and the higher frequency drones gave them a sense of floating. One man told me that he felt that he was flying when he heard the softer drones at the end of the session, and experienced an enhanced sense of release when the music stopped between each divine name during the dhikr. Moreover, I noticed the participants trying to sing in key with the sounds I was playing. The Rifayyia Tariqa's hadra is usually not very melodic, but I observed a shift in their tone such that they were leaning more towards singing rather than speaking. It was also interesting to see how their emotions were affected by the music: when I played softer sounds, their voices would grow softer, and their facial expressions would soften as well.

The performance was a unique experience for me, as I was not a participant in the hadra for the first time in my life, but rather an observer. I had concerns in the weeks leading up to the performance, because I did not feel like I was in the spiritual or emotional place I was in when I first started researching for this project. I was worried that the music I was going to play would not be genuine and that this would reflect on my performance. During the performance, I

was not connecting to the ritual spiritually, but instead was completely immersed in the improvisation. It was also particularly difficult because this was not like any other performance: I felt responsible for making the participants enter and enjoy their ritual and was burdened by the possibility of distracting them with my music instead.

I found it particularly interesting to see how the presence of sound and music had a substantial effect on the participants. This was also confirmed by them after the session, when they reported feeling more 'in-tune' with the ritual and felt their emotions heightened. The question that remains unanswered for me, however, is how to move forward with this project, and whether this is something that can be developed further and presented to the public.

Timeline & Breakdown of "Al-Hadra" Performance for Project 3

00:00 until 07:00 minutes: I am silent as the participants recite excerpts of the Holy Qur'an as no music may be played during this time.

07:00 until 14:30 minutes: Participants transition into prayers and verses of praise for the Prophet Muhammad. During this time, I am able to start introducing sounds to the ritual.

14:50 to 28:30 minutes: The worshippers sing a poem of praise for the Prophet Muhammad.

30:20 to 56:05 minutes: The dhikr begins straight afterwards. The dhikr is a dynamic part of the ritual, where worshippers recite different names of Allah, which translate to different attributes of God. Some attributes are stronger and more 'aggressive' than others, which can also be observed in the recording with the participants' change of tone, tempo and emotion. I tried to mirror these aspects in my music as well.

56:30 until 62:30 minutes: Participants read out prayers to their loved ones and the saints and prophets and end the hadra by singing a short song of praise for the Prophet Muhammad.

Sisters Akousmatica Agoradios for Little-Heard Voices

by Sisters Akousmatica

Sisters Akousmatica work on the premise of this:

The act of listening is a magnetic force and unfolding creative attraction that expands our imagination with radical potential. And does so through live broadcast and transmission, recordings and ephemeral performance.

The beauty of radiophonic technology is that it is accessible for just about anyone, anywhere [12]. Radio exists not only in the commercial market, but in nature, in regional and remote places, in industry, in communities, and is the potential site for radical action or, simply, communication between people. The radio, as a physical object, can be a musical instrument or a transmission vessel for uncensored content to occupy public space. Radio provides an invisible spectrum of possibilities to invade visible territories. In this context, as a constellar mode of collaborative performance, Phillipa Stafford and Julia Drouhin created Sisters Akousmatica, a collective radiophonic project to carry the voices of women and non-binary people into the public realm as a form of agoradio, and as a space to gather, or to open discussion.

The use of digital technology is embedded in our collaborative projects as well as in our individual practices. Using field recording, handmade electroacoustic musical instruments, audio editing software and hardware in our experimentation, we use digital technologies to share local and ephemeral events and extend them worldwide.

Concerning Sisters Akousmatica, the live performances are shared not only by terrestrial broadcast but also through digital broadcast which allows listeners who are not physically present to witness it. It reaches more audience: in their cars, home and workplaces.

On May 8th, 2016 at 11am, Radio Queens, Julia Drouhin and Phillipa Stafford, left Signal, a youth arts venue at Northbank, Melbourne, armed with twenty-eight radios, to begin a slow walking journey of transmission around the urban Yarra River. Simultaneously, 3CR, a community radio station, be-gan a live seven hour street broadcast featuring sound artists with diverse practices, programmed content highlighting the historical and on-going contribution of women to the station, and pre-recorded messages from the Radio Queens. A project developed for Melbourne-based experimental arts or-ganisation Next Wave and mentor organisation, Liquid Architecture, Sisters Akousmatica took place during 2016 Next Wave Festival and also Mother's Day in Australia.

Sisters Akousmatica created an acousmonia or city-scale radio orchestra and invited eves (NZ/VIC), Angie Garrick (NSW), Kate Geck (VIC), Rosalind Hall (VIC), Shani Mohini-Holmes (with Georgie Darvidis, VIC), radio cegeste (NZ/TAS) and Ela Stiles (NSW) to explore the concept of akousma, the idea of sound removed from its source. Each performer, cloistered within Signal performance space and broadcasting to the city, created a new, improvised sound work and were encouraged to use the sound of the previous performance as their inspiration, creating an audio exquisite corpse. Each transmitting their presence into the flux of the cityscape:

a voice that we can see, then a voice without body, and just the sound of that voice mixed with daily noises. Relaying the sound, an instrumentarium of radios played with the texture of the city and looped from one radio to another, each radio playing the same broadcast but with its own texture, flavour, and signal strength.

This ecology, created from the visible (radios, performers, a specifically designed radio cart) and the invisible (the web of broadcast transmission, which included both live performance, live programmed interviews and pre-recorded content, specifically for the project) gave audiences and performers a layered experience which subverted notions of sources and copies through radio broadcast and this 'diffused network of social interaction' [13].

We also provided the audience with a riso-printed map, as well as a paper printed amulet. This amulet was made by one of the performing artists, Kate Geck, who developed her artwork as a AR code with the app LAYAR. Any participant on the walk could scan the amulet with a smartphone and see the location of the walk and link to the Sisters Akousmatica website for more information, augmented with visual and animated details.

Investigating the possibilities of performance through the building of temporary networks, made up of transmitters and receiver modules to activate new ethereal territories [14], the project is not so much site-specific as site-responsive and this acousmonia, can be set up in any space in a multiplicity of broad-cast/performer/sound configurations. The digital aspect of the broadcast offers the possibility to expand invisible territories in private space.

The aim for the acousmonia was to conjure a mysterious and ritualistic experience of sound, drawing on a non-hierarchical understanding of art intervention in situ. Using radio and instruments as both sculptural form and tools for performance, it established a layered relationship between form and con-tent, representing chaotic, rhizomic systems that loop and feedback [15].

Our presence as costumed "Radio Queens", while an aspect that exists in friction with the concept of akousma, turned them into literal broadcast nodes (the costumes are, in fact, working radios) and is also used as a demarcation of the performance space. "The body itself, as you know, is an electrical device" [16].

Slipping between performer, radio and host, we, as Radio Queens led the audience gently through a radiophonic journey. Moving slowly through public space as a disruption, walking à la flâneur, we car-ried a heavy vessel full of receiving radios that broadcast live radioscapes at specific geophonic points.

> The movements of the Sisters in diffusing the sound were subtle, not overly performative, creating a shifting awareness of the space as radios were moved around me, and ritualising the transmission in a way that took the radio experience out of casual listening and into focused performance listening. It was a powerful experience for me in hearing a series of female musicians being broadcast throughout the city over such a duration [17]

Through this process recordings were generated and gathered for a collective installation at Signal after the seven hour live broadcast. This installation was a sound experiment in which twenty-eight radios were tuned to seven competing frequencies, transmitting the recorded performance, inside the gallery/performance space. This was an opportunity to play and be playful with electromagnetic fre-quencies, bodies, distance and the concept of the radio orchestra. The custom radio cart was trans-formed into a central mono speaker and seven transmitters were connected to four radios each, reconfiguring seven radiophonic floating islands, symbols of the performers. None of the recorded live performances were synchronised with each other so the composition never repeated: the resulting audio was an unpredictable, layered acousmonia, interwoven with the ambient sound of the gallery space. This ambient gallery sound, with the recordings looping and layering, was also transmitted along Signal's 18-speaker outdoor sound walk on Les Erdi Plaza daily for two weeks, carrying voices a bit further, a bit longer.

Not only a radio transmission project, Sisters Akousmatica focuses on giving voice and visibility to social-cultural and gender minorities in the field of experimental sound art and in this spirit our part-nership with 3CR was not just of technological advantage but one of mutual understandings: community radio, unlike its male-dominated commercial counterpart is a space in which women are trained in production and management [18].

This project, which started as an finite curatorial premise for Next Wave Festival 2016, has expanded and continued as an umbrella for curatorial, artistic, written and performance projects, under the scope of "radio art". Through positioning electromagnetic frequencies in a network of active and pas-sive participants we create a collective ecology of sound.

Sisters Akousmatica is interested in the male-dominated coded language used in radio communica-tion and aim to twist it; invading and appropriating them in conceptual and material ways.

In 2017 Sisters Akousmatica, with the assistance of governmental funding body, Arts Tasmania, developed a Sound Camp

Camp for women and non-binary sound artists, which took place across two venues in Tasmania - the University of Tasmania's Mt Pleasant Radio Observatory and Lisdillon, a property on the east coast of the island. The retreat was designed to do two things: one, take artists out of their everyday lives and pressures, in order to have space to think and dream about their art practices; and, two, to create the beginnings of a new community of sound and radio artists. In the organic tradition of in-jokes, the unofficial slogan of Sound Camp became 'no one left behind' - a statement that grew from situation where one of the artists became stranded near a coastal blowhole in an (un)lucky near-miss. However, this statement echoes a sentiment that characterises our collective feeling and understanding of what we wish for our practice as community builders.

Sound art industries tend to be a male-dominated fields and while there are many female and gender-diverse artists, curators and theorists who are doing much to upset this status quo, many artists are still working within communities in which their presence is as a minority. Writing around sound and radio art is still dominated by the male names that contribute to the canon and understandings of the form. Women's histories and contribution are all too often squeezed out and left in the fringes. The act of simply being women in public space, in radio/broadcast space, in performance space, in the world can be a radical one - but we do not wish to leave it at that. The aim of Sisters Akousmatica is to pro-vide opportunities for women and gender-diverse artists to work together: share ideas, tools, contexts, skills and knowledge in spaces that are 'heterogeneous, polymorphous, uncentered and rhizomatic' [19].

By inviting practitioners to consider exchanges around tools, distribution, publication, workshop, re-treat, performance, walks, installation and broadcast experimentation, Sisters Akousmatica aims to cultivate a community of skills and resources sharing, forms and audible transmissions.

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We would like to acknowledge the traditional owners of the land, Wurundjeri people of the Kulin Nation, on which the first Sisters Akousmatica was performed and broadcast, and the Muwinina people, the traditional owners of the land on which we live and work.

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Sisters Akousmatica are Phillipa Stafford and Julia Drouhin. They create international curatorial and written projects concerning radio art, auditory-spatial exploration and the intersection of gender and emergent art forms. Through their projects they aim to support, promote and cultivate women and gender diverse voices in public space. Focusing on the concept of akousma – sound removed from its source – their projects provide a space to examine the possibilities of invisible and ephemeral radiophonic networks. Sisters Akousma-tica artistic and curatorial project umbrellas their collective radio practices which includes a live radio duo Super Occult Cosmophon, publications, workshops, public live art and community building activi-ties. http://www.sistersakousmatica.org/

Time, Autonomy & Self-expression in Sound

by Emah Fox

I came to production as a singer–my instrument was my voice. I had a whole universe of sonic ideas in my head, but no way to communicate their complexity to musicians and producers. I was painfully aware too, that there was a well-worn trajectory for a young 'girl singer': be discovered and championed by an older, male producer / A&R rep. I felt fiercely ambitious, creatively. But I was also fiercely independent and terrified of control being wrested away from me. I chose to study audio engineering, so I could walk into any recording studio and know exactly what all those machines did, understand signal paths and mic techniques, and faders and EQ and effects. Initially, it was a defence mechanism–arming myself with knowledge against the assumption that I had nothing beyond my face and voice to offer. But, I fell madly in love with both the technical and creative aspects of production, and I realised that I was, essentially, a Producer. It was both gradual and revelatory, the way that finding one's identity often is.

Nothing changed my world like a laptop and a DAW. Everything opened up from there: MIDI programming soft synths to hardware modular synthesis, sampling, full arrangements and production of songs, sound design, mixes. Computer music offers such incredible freedom, and in a world where our autonomy still needs to be fought for, it's a natural fit for women to be drawn to electronica: it offers freedom to play, to explore, to test out ideas and push them in

every conceivable direction. To have a kernel of an idea, and see it through multiple incarnations until it is its own living, breathing thing. The beauty of electronica is that I can try anything, and the freedom to try is so incredibly important. Particularly when it comes to song production, it's important to be able to frame the raw and personal (lyrical and vocal expression) within a context that gives it power. Strong production demands respect–it's the bone and muscle and skin of a song. I see music production as akin to athletic skill–at its best, it is both artistic and muscular. A beautifully produced piece of electronica could be delicate and porous as easily as it could be dense and brutal. There are endless choices to be made, myriad possibilities of where a track might wander. Remaining open to the unexpected, listening to a piece for what needs pruning for the rest of it to thrive, what elements need reimagining to bring the whole into focus– this is the artistry, the open connection to the intuitive. The muscularity comes with the confidence and ability to act on that intuition, and translate it with some accuracy.

Time. Autonomy. Self-expression. Having the space to try something that doesn't work. But that not-working might lead to something strange and wonderful, a dance down an unfamiliar path.

There can be an obtuseness to the way those in the synthesis world talk about music production: a kind of one-upmanship display of knowledge and gear collection, a race to prove the seriousness of one's skill and investment (in the gear, in the scene). I work against this in myself–that pressure to justify my presence and my work as 'legit'–because as women our legitimacy in tech spaces is called into question and scrutinized more, alongside insinuations (or outright accusations) of cruising on the 'novelty' of having a female body. Who produced your track, who did your beats, who bankrolls you, what are you wearing, what are you selling, gender/sexuality as a distraction, a ruse, a commodification. But autonomy and self-expression can also be explicitly about gender and sexuality. For those of us making our way in the world with these bodies and experiences, why the hell shouldn't we want to make work that explores that? When your gender is continually pointed to as an anomaly, whether as an aberration, a distraction or a nifty diversity point-score, it becomes something that is central to your experience. The autonomy to create and express freely that computer music offers should not be subverted by self-censorship or subscription to the idea that to be a serious producer you have to downplay your gendered experience.

In the synth workshops I run at Melbourne Electronic Sound Studio Ltd (MESS), one of the things I try to emphasise most strongly (above and beyond the breakdown of sound-physics and signal-paths) is the importance of knowing and internalising that You Do Not Have To Earn The Right To Explore. This I think is honestly the single most impactful thing people take away from the workshops. Inhabiting a non-male body means that you have learned early on you cannot take for granted that body's presence will be welcomed or even safe when you walk into a space that is dominated, statistically and energetically, by men. This is even more true for transwomen or non-binary people. As a cis-woman, I can speak to my own experience and say that as young girls we are generally not encouraged to pick up a piece of technical equipment and 'have a go', and we are, more often than not, actively discouraged. If we don't clearly know what we are doing, we can be met with not only ridicule, but outright hostility. And yes, of course, the toughest and most passionately determined of us persist and succeed. But this is something I try to drive home when teaching: My dream is not just to see more exceptional women reach the top of their field. We have the right to be just as mediocre as the most average of men. Don't enter into music production thinking you can only justify your presence through excellence. Take on that crazy-looking Buchla 200 system and see what sounds it makes under your hands. You don't need to know what you are doing to experiment.

The truth is that not knowing what the hell you are doing can be the most exhilarating moment. This is one of the things I value most about working with hardware synths, and having access to the vast MESS collection means there is always a new beast to keep the unfamiliarity fresh. The level of control and precision available in a DAW like Protools, Logic, Ableton, is incredible, but personally I find that I benefit from balancing it against the unpredictability and play of figuring out something new and less controllable. The lack of control is almost more important to me than the mastery of technology. There is joy in mastery, but there is also joy in apprenticeship. In that sense, I have no interest really in becoming the expert or the master of any one particular machine or technique. For me, the interest and excitement comes from the immediate engagement with 'trying'. Trying gets a bad rep -'Nice try' has overtones of sarcasm, 'Nice try, love' adds a gendered humiliation cherry to the cake. But trying is the best part!

There is absolutely pressure on women working in tech fields to be invulnerably proficient, if they want to even attempt to explore. To begin, you have to prove you are serious. To present work, you have to be able to back it up in the language the community understands. This is unnecessarily alienating and frankly elitist. Basically, electronica is FUN. Playing with

a synthesiser, whether it's a Moog 55 or a second-hand microkorg, is play. Letting it be play is so important. Chopping up beats, layering pads, pitch-shifting field recordings, creating bass-lines and melodies, sampling the shit out of everything in your house and turning that into a piece of music–all this is fun. And there is no right way to do it.

I don't have a background in music theory or technique. When dipping toes into jazz or classical waters I have never understood why rules were so rigidly adhered to, or why my instinctive approach was always, always 'wrong'. I've always been attracted to the strange and the experimental. Warping, stretching, sampling, layering harsh against lush, cross-rhythms, dis-chords, shifting tempos and time signatures–the electronic field allows for so much play, and so much complexity. Electronica is built on experimentation, so to me, it's intrinsically a perfect feminist medium. The relative youth of electronica means that it doesn't carry the weight of centuries of white, male institutional regulation–so the non-male body, the non-binary body, the non-white body–so we cannot be silenced by accusations of perverting the traditional order of things. There is no traditional order. All is experimentation, all is play, all is in flux. That's not to say that all is equal–it isn't. But the access to autonomy is much, much simpler. I cannot imagine feeling anywhere near as empowered by another genre.

I speak a lot about autonomy and independence. Should we have to do everything ourselves to be seen as having credibility? No. But with independence comes complete control–that's something that is important for women. We can own our work. Financially, creatively, legally, and in the eyes of the world. Having a medium that offers me that choice, has been crucial. I've been the girl whose work was attributed to the dude on the periphery of a project. I've been the girl who has had production and management deals fall through because I would not make myself sexually available to the men who wanted me. I've been the girl whose voice has been buried in the mix because it's grittier and less 'pop' (how embarrassing that would be) for the vocals to sound like an afterthought. I've been the girl who has been told to be sexier, or less sexy, if I want to be taken seriously. My story isn't exactly unusual. The desire for autonomy and independence is born from experience.

I try to be transparent about how and why I produce. It's important to me that there is a lit and open pathway visible to anyone who is interested in production. It involves sharing resources and opportunities and skill-sharing, creating communities and online and offline spaces to geek out, learn, rant and play. I am often approached by men seeking to to create more diverse line-ups or playlists, asking for recommendations–who should I be listening to, who should I be programming? My response is generally: here is a list of women and non-binary producers and performers. Add them to a spreadsheet. For every one of them you approach ask them for another list of names to seek out. Watch it grow. Don't just ask the best-known and the most established. Give opportunities to people who have never played a show before, the way you would with an enthusiastic guy. Eventually you won't need to come to us to do this labour for you, you will have your own diverse network. And, if you have a collective or a community that is male-dominated and you want to shift this but don't know how–try some targeted paid marketing. Actively outreach to women's groups and queer groups and ask them what would make them more likely to get involved. Listen to their answers.

Diversity can be performative, and 'female producer' is a hashtag for the current zeitgeist. It's amazing to see it celebrated so widely, but we're not unicorns and I don't want to be seen as one. I don't want to succeed in isolation, or to be the wizard behind a curtain. I want to be able to be transparent about my journey and my process and show others that they have just as much right to take that path as I do. I want to hear others' ideas and see them grow and morph and inspire. Suzanne Ciani said 'we need to create a critical mass of women' [20]. Change can happen and is happening, but it absolutely needs to be nurtured and strategised and fed.

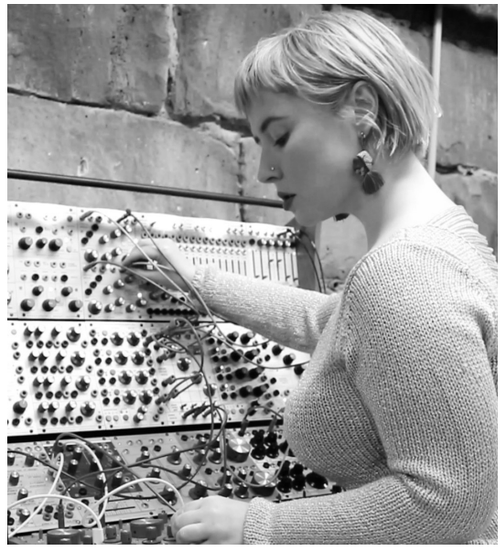

Figure 1. Emah Fox at Melbourne Electronic Sound Studios working on a Buchla 200 System.

Emah Fox is a musician and producer based in Melbourne, Australia, creating synth-pop, abstract electronica, and Green Room Award nominated sound designs for theatre. A passionate feminist, she spoke on the 2016 LISTEN conference panel 'Gender Diversity in Experimental Arts', and is the developer and facilitator of Melbourne Electronic Sound Studio's Synth 101 workshops for femme and non-binary people

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Conversation II

Rebecca Fiebrink and Laetitia Sonami

by Patricia Alessandrini

Note from the editor: I provided some questions as a basis for this conversation between Laetitia Sonami and Rebecca Fiebrink, who have been working together for several years in developing their own practices in electronic instrumental design, machine-learning software, and the intersection between the two. Some of this work has been developed in Laetitia's family home in Normandy, where I had the chance to observe their collaborative process.

PA: What were your expectations in working together, what were your goals, and how did those goals drive your research?

LS: There were no expectations actually, which has been interesting: we didn't have any plans of research. Rebecca was already involved in her research, I became acquainted with the work she was doing and was really fascinated. It was a very organic process: she showed me what she was working on and I started thinking about it and thinking about designing a new instrument that would take advantage of the work she was doing. But even in terms of the instrument, I had no idea initially. We didn't have any grants, we didn't have any support, so was just more meeting and discussing. I think it has been about three years now...

RF: ...more than that, because I was still living in New Jersey

LS: I think that process was very luxurious in a way because there was no deadline, there was no funding, it was more through a friendship, for me, really enjoying her approach and her ideas and enjoying being with her, that led to this organic friendship. I think that it was also, because I really didn't know what I was going to do it, the fact of working with someone who was not only curious but somehow trusting that there was something there. I had experiences of trying ideas with other people and they would say, 'well that's not going to work', whereas Rebecca would say 'maybe, I don't know, let's see'. That's find of Rebecca's mantra, 'I don't know, let's see'. [Laughter] So in that way it was very unusual, because it was not institutionalized, it allowed for this kind of really free approach to discovery.

PA: How could you create that same kind of environment - or do you think it is even possible - in an institutional context? Starting with Laetitia, you worked at STEIM [Studio for Electro-Instrumental Music] for many years, can you imagine working in institutional context that way, and if so, what would an institution need to do to create that sense of trust?

LS: I think it would need to have the approach of a residency. It's really important to have people either live together or get to spend some time together, because I think a lot of what we do is informed by everything that is not part of what we are doing: I'm really interested in small gestures. A lot is informed through non-intentional activity. If an institution was to create some kind of a space: not a lab, some kind of a pleasant place – as for us in Normandy - where people can have some time to unfold and maybe think about things without having the urge to come to a result, and accepting that it might go nowhere. So I could imagine that it could happen where people would create some kind of discovery and I think that Steim in a way was a bit like that, except that people except the people had an idea for a project and people would help with that project.

At the end of the day I think it's really important to allow, again, for an environments where the researcher or the composer does not have goals that are already determined because the tools are going to change how one thinks, the friendship is going to change how one thinks, there are so many things that are going to change. So I guess, funding something in a nice place, with good food - very important for Rebecca, who needs some Camembert to get her going.

RF: I was wondering how long it was going to be before you said something about that.

LS: I could publish a paper on this, 'How to please Rebecca?' So I can see that it would be possible. I think it could be something like two weeks, and it would be nice if it was also repeated, because things change, and especially as we all work in different ways. It took me a while to design something that would make use of her ideas, to use it, to change it. So it's not like you say, I have this thing I've going to plug into this other things and it's going to work. That's not the fun part, the fun part is to have your ideas evolve because of this interaction, right Rebecca?

RF: I agree with everything that Laetitia said so far. I think that ideally having that space that feels like a residency, that is recurring and long-term, without the pressure to immediately produce something, where you have the freedom to explore a lot of ideas and try things. But also, I would add that institutionally I think there are so many barriers to that kind of work happening. At a university, for instance, the time pressure that I'm typically under as an academic. One of the reasons that I love going to Normandy is that it gets me away from the constant emails and people asking things from me every five minutes, and

asking totally different things each time. I think working at a university right now - at least in the UK - you have a lot of different responsibilities and your time is packed into little chunks and it's really hard to intentionally focus on one thing for a substantial period of time. So I think we've been successful in setting up a structure where we can do the

visit issues around what kind of work gets rewarded within institutional systems. I'm lucky to some extent at Goldsmiths because being able to say I'm making software that's being used to really make music, I'm making something and learning over a long period of time what it's good for and why we want to make this kind of thing, and that's an argument that isn't necessarily compelling in the conventional computer science department. Right now I am in a department where there are people who look at that as valuable, but still, it doesn't fit nicely into the rationale or into the metrics that are increasingly becoming part of how we are assessed professionally.

LS: That's interesting, I wonder when there was the Experiment in Art and Technology at Bell Labs, how they set up and how they paired people, I'm not sure how that was done, how much time they have, because that would be interesting as an example of one of those meetings or encounters. Although it's different in the sense that there was a project. In our collaboration, we didn't do a project: Rebecca has a whole full-fledged system and approach to instrumental machine learning, and the instrument that I worked on is also something that is still in development, if doesn't have an end to it.

So with Experiment in Art and Technology at Bell Labs it was more project-oriented; but still, when you look at some of the footage of the time, it definitely had some of the fun of just trying things out...so isn't really our case...

RF: Because we don't have fun?

LS: No, we do! I meant that it's not as if at some point we say, now we're done.

RF: I hope we're not done.

LS: Definitely, I hope so too. So it's very much like you said Rebecca, you have to come up with results to prove that you're not wasting important research time. I'm not an academic but I know, I have a sense of the pressure, and in my case it's just I'm not going to make any money, so it's going to be something that I do to for my performances. So again, it's a very unique relationship, where we both agree to do things...

RF: ...that are important to us despite not having external incentives.

PA: I don't want to be too goal-oriented in this question, but what were you able to achieve in your collaboration through this particular way of working?

RF: When I started working with Laetitia, the first version of Wekinator already existed and had been used by few other people, and I knew that there was something there, I knew that it was something that could be useful; so I would say the most concrete outcomes of our work have really been a substantial evolution of what the software does and how you interact with it. I made a new version of Wekinator a few years ago now and I remember synthesizing a lot of the conversations that we had had, as Laetitia had been using the original version. I had also been watching her experiments with some prototypes of the new instruments, and I had been talking to some other people using it in different contexts, for instance some people had been using it to teach, and I knew to some extent what I wanted to change about it but not exactly how.

Laetitia was the first person to see some paper mock-ups, you'll remember I showed you and said 'hey, what do you think of this?', and that was a really early point of making a concrete design that started to do things better, and that design has evolved over the last several years: things like, what does the user interface look like, how do you set up a new project, how do you understand what's happening, but also, how do you know whether something is running efficiently. For me, knowing that something is not running officially enough can be very useful in real-time, addressing the really important technical issues that have come up, it's really been largely through her use of the software and giving feedback to me that I've learned how to how to make it better. So that's one outcome, I think it's really substantial outcome.

Beyond that as well, I have a much better understanding of musically, what these techniques could be used for; creatively, why they might be interesting. I also think, Laetitia, the way that you think about control, and your relationship to the instrument, or your role in the composition and creation process has really changed the way that I think about these things, and now when I give talks to technical audiences about machine learning, that's now one of the things that I talk about quite a lot, is trying to get people to question this assumption, that when we make technology we want to make things that we can control more efficiently. You've spoken really eloquently about that not necessarily being your primary goal and about the rich creative possibilities that are present when you think about other types of interaction. I think that's a very foreign concept for computer scientists and machine learning researchers, but I think it's getting at the heart of what technology could offer us in creative processes that for the most part is being ignored. There's huge set of opportunities there, I think some really beautiful music and art to make. For

me, even the more important outcome is thinking in a different way about the role of technology and thinking more broadly about how we want to relate to it as people.

LS: We think we are going to create things that are going to allow us to control efficiently, when at the end of the day, when you look at what happens, we have been completely transformed by what we use; it's not as if it hasn't changed anything about how we think.

But for some reason, when we are in the process of creating, we don't think about this, we think it is going to allow us to do this and allow us to do that. All of these platforms that we're use are actually changing who we are. But for some reason it's not really acknowledged at the beginning, that actually we are creating tools that are going to change we are. It would be nice if we thought a bit about what we would be like to be, as opposed to just paying the price for it afterwards.

To return to your question, in my case, encountering Rebecca's work completely changed the way that I was thinking about instrument design, based on what she had designed and what she had been working on. It's almost as if I had learned the piano for 20 years and now I'm playing the trumpet. It's even more different than that, it completely changed the performance, it completely changed the instrument, because for me, instrumental design and composition and performance are integrally tied.

In my case, I think that it was extreme, in the sense that it meant completely rethinking everything I was doing in performance. There is obviously a range of how much one is willing to reinvent oneself through technology, but in this case it was really much more than I had expected: it completely changed how I am thinking and performing. So through this process there was this totally new way of thinking about performance, not from a theatrical point of view, but from a compositional point of view.

PA: A totally new way of thinking of performance: that's pretty impressive.

LS: For most people it may look exactly the same, but for me it's revolutionary. One of the things that that I was interested in, which is rather ironic in machine learning, was the machine not learning: what if it never learns correctly? Most engineers might not want to pursue this, to have the software do something it isn't supposed to do. I think it makes quite a big difference that Rebecca is also someone who is involved in artistic practice herself.

To go back to the institution, I think it's very important to emphasize a central aspect: without wanting to limit to categories of male and female, I think our friendship and our process was very much influenced by the fact that we are two women. Maybe we need to encourage those relationships more.

I think part of it is just allowing people to just interact and wander around without goals. It is getting to be very difficult to allow for the kind of interaction that is not based on some efficient result. In teaching, we can see the same thing. If we tell students we're going to do something, they say 'what am I going to do this?' I'm not sure we would can embrace the possibility of failure, it's very hard for students as compared to the 70s or 80s. Now they pay $50,000 a year. They think, well, this class is costing me $5000, and I have to go to work afterwards, so I'm not going to take a class which doesn't know where it is going.

In terms of a residency, it would need to be curated somehow, to choose people who are engaged in some practice otherwise. You could create a situation where all these people work together for say two weeks. You don't have to ask for results, there will always be results from people who are curious. I think it would create amazing results.

RF: I think another piece of art is also thinking about what form results take. Certainly there are results that come out of the work that we've done: there is the new version of Wekinator and the updates to it, there are the pieces that you've made, but also, we've talked about writing academic papers together and submitting to computer music or human computer interaction venues. We haven't done that so far and I wouldn't rule that out, but it's also quite interesting that it's not a great fit in terms of conventional academic publications for the kind of conversation that we're having right now. I think again, the really important, exciting stuff for me is how we've come into new understandings of what technology is good for, how to make better tools and the impact that technology has on the music, and the impact that technology has on us, and what we really value about everything that in that space: that's not really an academic paper, but I think it's important. It's important to have spaces where people can have these conversations, and having these conversations in the way were are right now, in a nonacademic style, where we're not referencing everything we are saying and trying to put it in a really heavy theoretical framework, we just speaking from our experiences and articulating things that we have learned for ourselves over time. So in a sense, I am glad we are doing this Array conversation...

LS: We should do an academic paper, Rebecca.

RF: We should.

PA: Well, maybe there needs to be a space for this kind of collaborative work, showing examples of successful collaborations. Maybe it could be

something in between an academic paper, a demo, and a performance.

LS: I think the process is interesting. When I talk to people about how this came about they are surprised really, because it's not so common, especially this bridging of spaces. Most environments are successful if they branch outside of their bubble, but it's difficult because they have self-sustaining systems. When you branch out and go outside, I think it's so profitable.

RF: That is something about our work together: I would go crazy if we didn't have a space to do this kind of work. In some senses, this is some of the most important work to me, but it's not necessarily the kind of work that is expected of me day to day, it's not necessarily the kind of work that lines up with the boxes that one is supposed to tick – but I'm OK with that, as long as we get to do it.

Laetitia Sonami is a sound artist and performer, whose sound performances, live-film collaborations and sound installations explore ideas of presence and participation. **Rebecca Fiebrink** is a Senior Lecturer in Computing at Goldsmiths, University of London, developing new technologies to enable new forms of human expression, creativity, and embodied interaction, such as Wekinator, her software for real-time, her software for real-time, interactive machine learning.

Artist Statements II

Back to the bones: bringing a performer's initiative to the design and development of interactive performance systems

by Mari Kimura

From the creation of the very first musical instruments and instrumental performances, made by blowing into hollowed bones with holes, the adaptation of found objects has inspired us to create music. Throughout the history of instrument-making, players have driven development, in relation to the needs of societies and environments. Today, however, I find that the models of human-driven invention and development of musical interfaces and instruments that trace their roots to antiquity, have become somewhat reversed in our field, such that the tools themselves often seem to drive computer-music practices.

As a classically-trained violinist from Juilliard, I took quite an unconventional path. For many years, I was the only violinist I knew to perform at the level of a concert violinist as well as compose and do computer programming for my own pieces. I wrote and presented my first interactive composition at the Computer Music Conference in 1992 in San José, California. Some of those who were there still remember my little Powerbook crashing on-stage about 20 seconds into the piece. I had to stop and reboot my computer in front of the audience (fortunately, a very sympathetic one). In those early days, people openly asked - presumptuously but not entirely implausibly – 'Who is doing Mari's sounds?', assuming I couldn't possibly program a computer on my own.

From this standpoint, I find that technological advances – perhaps driven by economic motives of software/hardware companies – are not necessarily responding to artists' needs in their push for innovation. Thus the curious reversal I mentioned: new interfaces, musical instruments, music apps marketed as 'for musicians and artists' are presented to us before the artistic necessity or desire to make music using them arises, without a clear vision of who these 'musicians and artists' are.

Computer Music, with its ever-developing technology, enables one to modularly add, combine, and create digital elements and devices, providing a plethora of possibilities to creators. Naturally, the creative process is vastly different from composing for a string quartet, for example, where physical limitations are at play. On the other hand, it is very easy to limit interactive computer music to

'what you can do' technologically – or 'what the software can do' – thus creating artificial limitations along technological lines, rather than artistic or physical contingencies.

In 2013, I inaugurated the Future Music Lab, a modest summer program at the Atlantic Music Festival, with the encouragement of pianist Bruce Brubaker, the head of the Piano Department at the New England Conservatory and a former colleague at Juilliard. I wanted to permit high-level performers to be inspired by new interfaces and new technology. The students of Future Music Lab had the opportunity to use IRCAM's Modular Musical Object (MO) sensor, which I came to use and compose with through my collaboration with IRCAM's Real Time Interaction Team, starting in 2007. Since 2015, I have moved on from using MO to working on a custom Arduino-based sensor system, in collaboration with media artist Liubo Borissov at Pratt Institute, which we call mugic. mugic uses a motion sensor embedded in wearable interfaces or objects - such as a glove, band, stick, etc. – to extract expressive and functional movements of the performer's body.

The Future Music Lab, now in its 5th year, has welcomed performers playing a variety of instruments or with other practices, such as singing or acting. In the meantime, I continue to develop my interest in the combination of two motions: 1) functional movements made in order to produce sounds from an instrument; 2) expressive movements (or ancillary movements) that are created typically as an artifact or just before/after the functional movements. The combination of these two types of movements, and other information from the performance such as audio-associated data, become very powerful tools, if they are analyzed and used effectively. I believe it is the user - the performer - who can best choose which data to use, which data may be relevant in the musical or artistic context and flow of interactive performance. This year, I joined the faculty of the Integrated Composition, Improvisation, Technology (ICIT) program at the University of California, Irvine, which seems to be exactly the right place for me to be pushing ahead in my research and the development of interactive performance systems, from my perspective as both composer and performer.

Musical Spaces and the Radically Wishful

by Paula Matthusen

In recent years, my artistic statements have focused on considerations of musical spaces, whether they are real, imagined, and/or remembered. This has been the most convenient way for me to weave together the threads of different projects I have been interested in: from acoustic writing, to electroacoustic sound installations, to various theater, dance, and collaborative projects. This grew out of a natural consequence of a very early attraction to the possibilities electronics afforded, first introduced to me by Paul Rudy at the Aspen Music Festival in 1996. This continued at the University of Wisconsin – Madison, when my classmates, including Christian Zamora, Jeff Snyder, Ryan Ross Smith, Morgan Luker, Teresa Campbell, and Sarah Florino formed the performance art group 52 Splinters. To the group's benefit, Jeff brought with him an AKAI S3000 Sampler as well as the chops to play it and accommodate our numerous live-electronic whims. Live-electronics quickly became a collaborative endeavor, and a site of learning and experimentation. Through the pieces we wrote, spaces came alive through feedback, a range of unusual samples, and the use of conventional and unconventional instruments.

Though the group no longer exists, these experiences continue to illustrate to me how communities can form around such curiosities. My interest in space has remained unabated, though now many of my projects involve a more sustained engagement with the social aspects of collaborating and recording. Sociality has always been embedded in the history of electronic musics and ensembles, though projects change with the increasing portability and miniaturization of electronics. Without the necessity to work in specific studios or around large, cumbersome machines, one may roam alone with any gear necessary in tow. Regardless, I am drawn to situations that necessitate movement with others.

Much of my recent work has centered around field recording, often large systems that never yield themselves to any singular type of interaction. Most frequently, this has involved interactions with sites of historical infrastructure in large cities. This began first with recording in the Atlantic Avenue Tunnel in Brooklyn, and then expanded to include aqueducts in New York and Rome. This has recently extended to cave systems in Kentucky, in particular historical tourist routes in Mammoth Cave [1]. The large breadth of these projects has necessitated traveling long winding routes, often with collaborators and friends, or people with expertise on these spaces from outside of music.

A large part of what makes these projects so enjoyable is that they serve as unusual meeting grounds. Much of the development of a particular project never makes its way to the final 'product,' though this affords many opportunities for the exchange of ideas, curiosities, and above all, care. For this reason, I have been drawn to projects that embrace the inefficient and the slow as a means of

inviting people to participate. This is not the only manner in which I work, though one which I find enormously pleasurable and often surprising, and it informs the more 'conventional' projects I return to. I am indebted to those who have very literally opened doors for me (as well as gates, freight elevators, manholes, among other structures), and to the numerous musicians and collaborators who have traveled with me through them. The slowness of the path invites company and collaboration. Two people whom I have traversed large distances with – Néstor Prieto and Terri Hron – are forever embedded in numerous recordings we have made together, and some of my favorite recordings from these projects are the noises or 'outtakes' of our fumbling for equipment in the dark or excitement at hearing something unexpected.

While reflecting on noise elements at the 2017 conference for New Interfaces for Musical Expression (NIME) at the University of Aalborg in Denmark, Greg Taylor, Stephan Moore, Scott Smallwood and I shared stories about some of our favorite moments in experimental recordings. A moment in Pauline Oliveros's seminal work Bye Bye Butterfly (1965) has long been one of my favorites. Just prior to the introduction of the recording from Puccini's Madame Butterfly into Oliveros's stunning and elaborate system of delays and oscillators, one hears the needle drop on the record and then ricochet through the electronics. Greg, Stephan, and Scott recalled the moment immediately when I described it. For me, it is a wonderful surprise, uniting the exploratory electronics with human movement, introducing noise to the system while revealing how part of it works. This moment is also one of listening to someone else listen, cutting across temporal axes separating performance and recording.

In my own work and in my listening, I am interested in finding vulnerabilities of systems: from the equipment and tools we use to interact with sound and spaces, to the large networks and infrastructures hidden lying under the surface of daily life. Opening up this vulnerability creates spaces for difference and interaction, ones that may often fall outside conventional economic and social models. For these reasons, I have been increasingly drawn to keeping noise elements within my recording projects, as noise is often indexical to specific times and places as well and the bodies inhabiting them. I am interested in pieces and performative systems that enact strategies of care, and embrace elements that at first may seem unusual as part of this care. In this sense, we can be 'radically wishful', and imagine situations that do not yet exist, and in so doing can also imagine different means of interacting with one another. [2]

An Individual Note on Intersectional Projects

by Silvia Rosani

This statement describes how technology enabled me to develop an intersectional project, White Masks. The project encouraged my development of a composition/performance practice with live electronics. Through this my interest in voices led me to develop interdisciplinary collaborations with other female artists. I will address how gender issues have emerged quite naturally within these collaborations, and have found space beside identity, class and colonialism through an intersectional perspective. The project highlights a parallel between 'the socialities of musical practice and broader forms of social power' so that the music performance enacts an alternative and 'utopian social space' [3].

I discovered the need to connect the sound recorded in specific places, with the history of the inhabitants of those sites, in the work of other women composers and sound artists. One example is Annea Lockwood, who searched for the history of the lands through which flew the rivers whose waters' sounds she was recording [4]. Like Annea's work, White Masks (2016) [5] connects the sound to the socio-political context in which it originates. People interact with the project via an interactive installation which facilitates voice recordings. This is followed by a performance for cello, live electronics and resonating masks, which is shaped as a sequence of pieces for different forces. The recorded voices are transported to the next performance site, embedded in the texture of the electronic sound. White Masks also engages with other technological means, in order to deepen the intersectional aesthetics. Sound analysis software is used to analyse the voices, so that they can be integrated with other sounds, creating a surface like a bas relief. Via the analysis, in fact, I am able to collect information about the frequency content of a sound and, subsequently, to impress the spectral envelope of that sound on another, so that the features of the first sound surfaces gradually from those of the second one. The textual elements are resynthesised in different parts of the performance space through the use of big metal panels, which are turned into speakers using contact sound exciters. The panels are often referred to by the artists as the masks. They become humanised through this sonic reconstruction and, after each performance/installation, are gradually closer to becoming a virtual community. The collection of voices resynthesised by the panels grows the more the project is performed, becoming richer and more likely to mirror the variety of audiences that the project meets.

I first encountered click languages through the British Library Sound

Archive, which includes a 1966 recording of the voices of African women, while they converse about the life of women in postcolonial Africa, and a song by Kuela Kiema, who accompanies himself with an mbira. White Masks was conceived in collaboration with cellist Esther Saladin through a shared interest in click languages, and is an all-women project which later included visual artist Inês Rebelo [6].

The click sounds in Kiema's song are, resynthesised in White Masks by the cello and live electronics. The relationships among the African women, in the 1966 recording, are the basis of the structure of the piece. The title of the projectis a reference to Frantz Fanon's work Black Skin, White Masks [7], but rather than addressing race matters, it points to colonialism as one of the causes of migration and displacement. A performance of White Masks, aims to provide an alternative imagined community, in which the usual hierarchies and social identities are subverted. Women perform with technology that they control themselves, stimulating in other women in the audience ''heterogeneous 'becomings''' (as defined by Briadotti and Born in [8] and [9]).

> I use Essl's words to illustrate another use of technology in my project: 'The field of new music technology also brings together academic research, academic artistic performance, engineering and music communities. It hence provides an environment where many binary opposites meet'. [10]

In White Masks, the boundaries between composer, performer and audience are blurred through the transformation of objects into speakers. The speakers are distributed around the performance space, so that audience members can actively choose different listening perspectives. By being given the opportunity to record their voices as part of the installation, the audience briefly swaps roles with the cellist. During the performance, the cellist also sometimes finds herself listening to the live electronics from a seat in the middle of the audience, while the composer performs. Role swapping had already been successfully experimented with at La Borde, a clinic led by Gilles Deleuze and Felix Guattari [11]. This stimulates a process of 'becoming' through which the unconscious turns into a 'force of flows and intensities' [12]. Similarly, White Masks promotes the exchange of roles between performer, composer and audience. This operates within a broader feminist approach that rejects dichotomies and, particularly, the masculine/feminine dichotomy.

As has been demonstrated in Federici's work [13], gender and social inequalities are so strongly entwined that they cannot be addressed separately. This is why White Masks strives to reach new audiences using a feminist approach that encompasses activities which tackle social inequality. For example, performances of White Masks always take place in public spaces, which are accessible without a ticket. As a female artist performing in public spaces, for audiences who do not typically go to theatres, galleries or concert halls, I choose to use this platform, to communicate to young women, that they should feel encouraged to realise their aspirations. This can be done simply through the act of the performance itself, or more effectively with related workshops dedicated to female youths [14]. Bell Hooks highlights the connection between happiness and empowerment [15], and the workshops connected to White Masks aim to empower young women through their involvement with the project. When they visit the university campus to record their voices through the installation, prior to the performance, they are not mere visitors, but part of a project whose realisation occurs on campus. The first contact with these communities of women is usually realised via one of their teachers, if they are in school, or local libraries. This may contribute to them perceiving Higher Education as reachable rather than elitist, and also to think that it is possible, and even not that difficult for them to become part of an academic environment.

I conceive of a female artist simply as a woman who is able to work in a field she chooses, and uses her work to reach out to other women. This may be achieved by displacing performances from traditional segregated and elitist performance locations to public spaces. The relevance of this gesture lies both in the non-exceptionality of the role model, and the way the location of performance is used to broaden reception. I chose to quote Daphne Oram in the title of this statement to reflect the desire to communicate to young women - through this work - that women do not necessarily need to be 'exceptional' to achieve a satisfactory career. Although she has served as a role model for later generations of women in electronic music, it has always struck me that Oram reflected on her practice with great modesty [17].

By promoting their art in less elitist environments or by creating accessible venues, female-identifying artists can reach other women and support them in their effort to imagine a successful projection of themselves. White Masks also opposes economic classism by offering audience members a free choice of seat: whether to sit or not, and how close to the sound source to place themselves. This is a contravention of standard theatres, where the best seats are only affordable for the wealthy, while others have limited choices. By offering an open choice of listening experiences, it is acknowledged that different kinds of listening attitudes exist.

Within an intersectional vision, allowing the audience the freedom to move around the performance space, rejects binary oppositional roles such as performer and audience. The opportunity to change the listening perspective or to access an art event with no admission fee, are all decisions that contribute towards fighting gender inequality.

References

[1] There are many organizations without whom this work would not be possible– briefly, the Brooklyn Historic Rail Association, the Friends of the Old Croton Aqueduct, NYC Department of Parks and Recreation, the American Academy in Rome, and Mammoth Cave National Park.

[2] In thinking about the 'radically wishful', I am broadly invoking Will Cheng's Just Vibrations (2016) as it considers and evokes elements of care.

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[7] Fanon, Frantz. Black Skin, White Masks (London: Pluto, 1986).

[8] Braidotti, Rosi. ''Teratologies,'' in Deleuze and Feminist Theory, eds. Ian Buchanan and Claire Colebrook (Edinburgh: Edinburgh University Press, 2000), 170.

[9] Born, ''Music and the materialization of identities.,' 380-81.

[10] Essl, Georg. ''On Gender in New Music Interface Technology.'' Organised Sound 8, no. 1 (2003): 21.

[11] Dosse, François. Gilles Deleuze and Felix Guattari: intersecting lives (New York: Columbia University Press, 2011).

[12] Braidotti, ''Teratologies,'' 161.

[13] Federici, Silvia. Caliban and the witch: women, the body and primitive accumulation (London: Pluto, 2004).

[14] Born, Georgina and Devine, Kyle. '' Gender, Creativity and Education in Digital Musics and Sound Art,'' Contemporary Music Review 35, no. 1 (2016): 1-20.

[15] Hooks, Bell. Teaching to transgress: education as the practice of freedom (New York: Routledge, 1994).

[16] McCartney Andra. ''Gender, Genre and Electroacoustic Soundmaking Practices,'' Intersections 26 no. 2 (2006): 30-48.

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Conversation III

by Pamela Z & Atau Tanaka

AT: I remember, Pamela, the first time I saw you in concert it was the late 80s in San Francisco at Southern Exposure Gallery. And you were playing a big plastic water jug.

PZ: And that plastic water bottle, to me, half of its impact was the visual, not just the fact that it makes a big booming sound. The visual was important because I'm thinking about gesture. I'm thinking about image. And now also I use video a lot in my work. When somebody invites me to come play someplace and they'll ask "Are you planning to use video or not," the first thing I want to know is "how is your video projection system set up?" Because, if there's a screen that's way above my head, then I'm not going to do it. Because I don't want to be in one of those situations where the audience has to choose between looking at the visuals or looking at me. I want one immersive single image, and I want to be floating in this image. So it's best if it's rear projected and the screen comes all the way to the floor.

AT: Sometimes I don't mind having projection on my body as well, even if I cast a shadow.

PZ: Exactly. That's certainly preferable over having it way off to the side or way above your head.

AT: The scale, the dimensions need to make sense.

PZ: It needs to make sense, because I think of it as one image. My physical self and this image that's with me, and I'm working with it as if it's a performer.

AT: Yes, it's a single unified thing. You used the word immersion, and that's quite important for me as well, to feel enveloped in the sound, if that sound's coming from gestures of my body. On that immersion bit, we just created a new lab here at Goldsmiths called SIML, which is an acronym for Sonics Immersive Media Lab. It's a big black box space with video projection floor-to-ceiling on all four walls around. In San Francisco there's a similar facility — you know Naut Humon—

PZ: Yeah Naut Humon. It was Recombinant Media Labs.

AT: And their Cinechamber. He's come out here to consult with us on building our studio.

PZ: Oh is that right? You know, Naut had that facility over on Brannan Street for a long time. That was a really beautiful the way he had it set up there. Those were the days when the video was being played off of disks, and he had this hardware system with ten channels. AT: Oh fantastic!

PZ: Now he's doing it at Gray Area. [Gray Area Foundation for the Arts in San Francisco] Do you know Gray Area?

AT: Yeah, I performed there last year!

PZ: He's doing Recombinant Media Labs there. It's a movable system that's dismountable, so he can put it up in that room and then, for the next event, it's not there.

AT: Have you done a piece for the Cinechamber?

PZ: I did a piece there at Brannan Street in the old building. I remember I saw many pieces there where people simply showed ten copies of the same single channel thing. So, when I went in there, I wanted to make something that was site-specific for this space. I built a piece called Sonic Gestures. It was ten channels of video, and each screen was different. It was an 18-minute thing that could loop. It had four movements. One of them started with handclaps. I had taken high-end HD video with a distant, black, duvateen background so that everything was just floating. The arms and hands were floating on a black background. And every screen was a different handclap –not ten copies of the same handclap. And I slowed it down so that you could see the hands approaching and impacting, and the sound was thunderous, because that room had those sub woofers. So it was like thunder claps. Another movement was my hand gestures with a vocal gesture attached to each. If you looked at the long end of the room, the video was crossing all three screens so that you had a 36-foot long arm.

AT: Oh wow! That's the body! The human body larger than life - that's scaled!

PZ: Exactly. And I created it for that situation where people were immersed in 360° of image so they had that feeling of human gesture surrounding them. That was really fun to do.

AT: What's interesting, moving on to talking about the body is, we as performers perform with real bodies, but then, in your Sonic Gestures piece, there's a representation and an expansion and an amplification of scale of the body. In your case it was your own body. You were the performer.

PZ: Yeah, but then I expanded that too. When I made Sonic Gestures, the event started with me doing an 18-minute live performance within the installation. So I was in the center and it was all around me with the audience also inside. But then it could play on a loop, after that, without me performing.

A few years ago, I made a piece called Memory Trace, and I actually had some other pieces before that where I had multiple bodies on stage with me, but they

were all projected while I was live. I have screens that are doorway-sized —sort of human scale– so that you have the full stature of people placed at different levels on stage. So you have an ensemble.

I did a piece years ago [Voci, 2003] where there were three screens and me performing live. In one section, I had four opera arias being sung simultaneously by four different singers, one of which was me. I really like that idea of these multiple performers, some of whom are "virtual" and some who are actually live.

Another thing I like to do in my work is to use speech fragments. I interview people and take the audio of their speech and chop it up to make text collages that become kind of an armature for the live performance, using fragments – from entire sentences to just a single word or syllable or even phonemes to build the music. So when I made Memory Trace a couple of years ago I wanted to carry that into video. So I asked a lot of different people to come to a video shoot. I had them all wearing black against a white background. I asked them questions and I asked them to just give me lists about memory or recite a dream they could remember – things like that. I started editing the video interviews and cutting them the way I do with audio. And, in the live performance, I used their bodies and their voices combined with me performing live. That was a whole other way of dealing with embodiment combining my actual present body with these other people.

AT: So in that case you need a one-to-one scale so the virtual bodies on the screen will be on the same scale as your real body.

PZ: And my screens were like 7' x 3' so it's as if the person is just standing there.

AT: Whereas the one where you're focusing on your arm is like 36 feet (12 meters). Meanwhile video of a live performer is used in a big rock 'n' roll arena or coliseum shows, because it's far away the performers are so tiny that you have to watch them on a TV screen to actually see them up close.

PZ: But that's always been ironic to me that these people are paying $250 or something to get a ticket to see the star they like. And they're just watching them on a very big TV with probably not as good of quality and resolution as they would've had if they had just stayed home and watched it on HBO.

AT: But there are subtle differences because obviously that's TV and it may take away from the true liveness and authenticity of the stage performance. At the same time, for us as experimental musicians and artists, we're working with these very same media and playing with scale…

PZ: And the idea that it's the presence – the human presence, because that performer is there. But, for someone in the nosebleed seats, he or she is a dot on the stage and then they have this gigantic representation. And there's probably somebody with a handheld – probably three or four different cameras and somebody's probably mixing it live…

AT: …so there's a whole TV production going on.

I have a story about liveness and the body and performance. Around the same time that I saw your piece with the water jug at Southern Exposure - this is when I was studying at Stanford at CCRMA - I heard a CD compilation of computer music and there was a piece by Michel Waisvisz, who was the director of STEIM for a number of years: and his instrument, The Hands. The album was all a compilation of different composers of computer music and tape music of the day… until Michel's piece came on. It was a very early version of The Hands in the late 80s where he was controlling a Yamaha TX-816 - a bank of DX7s - from his arm movements. But this was a CD so I didn't have a video, I couldn't see. There was maybe one photograph in the sleeve notes of the album, but by listening to the music it just sounded so visceral and so gestural. There were sounds that were swooping and crashing in a way that was just very different from the studio composed music.

PZ: So you and I both use these instruments that allow us to control parameters of audio and even image or whatever we want to control using physical gestures. And I'm often asked, "when you're recording work in your studio, do you still use a gesture controller or do you just use a keyboard controller since nobody's watching anyway?" And my answer is a complex one, because it depends on what I'm trying to do. If I'm playing samples, and I'm doing this [making gestures], I will get a different performance of those samples with a gesture then I will pushing a button or turning a knob or clicking something. It depends, if I just want to hear that sample play from the beginning to the end, at a particular spot in the recording, I don't even use a controller at all, I just pick that sample up and drop it into ProTools right where I want it. But, if I want to get the nuance of the attack and repetition and doubling and so on, sometimes these happy accidents – things you didn't even plan on – are much more likely to occur when you use a very physical way of manipulating things.

AT: I agree totally. Once a piece is done and I'm performing it from, for example, the Biomuse, I will always perform if from that whether I'm in the studio or when practicing at home or on stage. But it is the context that does change. So if I'm just practicing at home I'm not going to put all my blood, sweat and tears into it,

but if I'm on stage it'll feel more natural to get into it. Now, in doing a studio recording of a gestural piece of music, it's hard because you don't have the audience to pump you up.

PZ: Yeah there's a certain feedback that you get even if it's just the energy in the air.

AT: Yes, the excitement of live performance. To try to replicate that in the studio is…it is a studio recording so I don't need to replicate it totally.

PZ: I don't know if you do this but, when I record works from my live repertoire, I deliberately create new things: new sounds, new textures that I add to the studio version, because a character is missing. Because, in the live performance, people have the visual of me. And that's a pretty substantial layer of how they're experiencing the piece. So, if I just make the exact same sound that you would hear when I performed a piece live, but you don't get to see me doing it, it will seem as though something is missing.

So I tend to do arrangements in which I add a new layer. But then what happens is that, when the recorded version is done, I fall in love with the recording. And then I start thinking, "well how could I add that part when I'm performing it live?"

So I'll give you an example. I have a piece called Flare Stains. It's kind of a sound poem in which I'm describing the wax residue that gets left on the pavement from emergency flares. When I perform the piece live, I loop and layer my own voice. I also use tuning forks, and I start the piece by hitting these tuning forks together and actually touching the vocal microphone with them. And that goes into the texture of the loops. And then I'm singing and there's one point where I start crackling bubble wrap and that gets into the texture as well. So, I'm recording an album of some of my solo works. And I decided that Flare Stains should be on it. I thought this would be so easy because I can just make one pass for each of the things that I usually loop, and just create the loops in Pro Tools. And then I'll sing the melodic line over the top and add my text. And, as I'm working on it, I wonder how to best record these tuning forks. In live performance I just hold them against the microphone or the mic stand. And it's different every time, because sometimes the venue provides me with a mic stand that's plastic and not very resonant, and other times it's very resonant. The audience gets to see me making those tuning fork sounds, so it's OK if they're really faint after they become part of the texture. But when I'm in the studio I'm thinking, "how do I record these tuning forks just so?" I must've spent half a day trying the sound out on a wooden chair, or "what about on this stool?" So I'm pulling different objects into my little isolation booth and isolating each resonant tuning fork sound, and then manipulating it in ProTools. In performance I usually run it through my loops and put a little granular synthesis on it. But, in the studio, I thought "what if I boost the level and make it much louder, or what if I reverse the sounds so that I get reversed attacks?" So I wound up with a very complex layer of tuning fork sounds which are much more prominent than they are in the live version of the piece. No one will get to see the tuning forks, but they'll hear a much more manipulated and substantial sound from them.

AT: So the perennial question is: Is the recording a reflection of the live performance, or does the studio production become so advanced that we're wanting to perform the recording?

PZ: Exactly, that happens to me a lot. The piece with the bottle that you were talking about, for example, involves muttering. I frequently get asked how much improvisation is involved in the work. And I always tell people that these pieces are mainly through-composed and, if you see me do it from one performance to another, you'll recognize that it's the same piece. It has a structure, but there are improvisational elements that are built into that structure. And, in that particular piece, in one section, I hit the bottle, I capture the bottle sounds in three different delay lines that are all at different tempi so that you have out-of-phase loops of this bass drum-like sound. And then I'm singing the melody over that and, while I do that, I always manipulate the bottle in a circular motion, because that's part of the score, so to speak. Then when I get finished with that first verse I go into a section where I'm muttering. Kind of non-language, but language-y. That happens for a specific period of time, but it's not prescribed exactly what the muttering is. I do a sort of made-up language, as if I'm talking. For years I did that piece live, and then I recorded it in the studio. It's the first track on my record A Delay is Better. Then I got to where I learned the muttering as it is on the record. Now, when I perform it live I can't help myself, I have to do the muttering the same way that it is on the recording.

AT: We've both just been performing so long we're ready to make our own Las Vegas acts!

PZ! Exactly! You know it's like the rock guitarist who has the guitar solo, then the record comes out, then everyone memorizes the guitar solo, so now, when they tour the song, he has to play the guitar solo the way it was on the record.

AT: What's interesting is, despite that, we can still get sort of a spontaneous energy into the performance.

PZ: …because you're in the moment and you're physically performing it, you're being moved by whatever emotional

feedback you're getting from the audience and adding your own mood based on how you're feeling that day. Sometimes that muttering becomes a little love letter to somebody, sometimes I'm lecturing angrily at somebody… it changes from performance to performance.

AT: For me that's the kind of total immersive concert situation, whether we're using video or not. It's the feedback or energy or intensity.

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Artist Statements III

The Body in Sound

by Joanne Armitage

Sound is grounded in the body. It is a corporeal form in its conception, production and reception. Instigated by a kinaesthetic motion, a physical movement of an object in space—a step, a tap, a stroke, a speaker. Sound moves through space as vibration. Sound is actuated and propagated through materials; through objects, air and you. It enters you and is interpreted by you. Whilst complex mechanisms in the ear allow you to hear sound, your body feels it. Your body mediates your experience of sound. We interact with sound, it embeds within us and is sculpted by our physicality as we form it. Sound is physical, it is formed and received as vibration. When the physical sensations of sound go unnoticed they are still embedded within us. Through sound we place and displace ourselves. Music is said to impart a visceral impression upon the body, the emotional impact of this experience is a psychophysical response, but the physical is inherent, integral and absorbed. In her thesis on improvisation and feminism, Smith echoes the above by conceptualising the touch of sound on the body—highlighting its invisibility and its convergent and melding quality.

> Sound writes upon the exterior surfaces and interior substances of the body with an invisible ink that leaves its mark as it evaporates and disappears. The invisible presence of sound complicates the visual basis of intelligibility to underscore the corporeal as an improvisational process of sounding, audition, (re)writing, and transformation [1].

Performative practices involve affective interactions between bodies—of human actors, sonic gestures and architectural spaces. There is a (feminist) shift towards an embodied narrative in sound scholarship that relocates the 'understanding' of performative moments from sonic materialities to a lived, subjective experience [2]. Our participation within sound is not bounded by the flesh, it is both interior and exterior. McCullen [3] discusses how Trombonist Abbie Connant was removed from her position as solo trombonist in the Munich Orchestra as she was considered to 'not possess the necessary physical strength to be a leader of the trombone section.' Her body was scrutinised in the context of her sound, despite it being medically confirmed that she had above-average lung capacity. Connant was forced to engage further with her sensuous body and dealt with the stress and trauma of her situation using corporeal practices. Our bodies occupying spaces in hegemonic structures whether it be

be orchestras or technologies is not only a physical, but a political act.

The feminism of my practice is enacted through this exploration of embodiment, and further demonstrated in the politics of my approach—attempting to move away from tools and towards an embedded techno-sound practice that focusses on the sensuous. Such notions have been argued by Cusick to destabilise the mind/body 'problem' centralising the performing body in performance and emphasising corporeality. She suggests that an 'emphasis on corporeal performance can relocate music away from the "mind side" of Western culture, toward a space that includes mind and body' [4]. Such approaches touch upon themes of intimacy and embodiment. The moment of a performance is a tactile/intimate act [5], but as the 'physical rendering of creativity' is absorbed into the digital realm, the relationship between performer and audience has evolved—and some argue has become abstracted. The porous space from physical to digital can be blurred through tactile technologies. With the popularisation of sound installation as practice, there has been an increasing focus on the body and its space and place within the listening experience. This reimagining of the sonic landscape has drawn the listening body more closely into the sonic revealing new opportunities for 'embodied listening' [6].

Physicality and embodiment have been continually explored facets of live digital music creation, with designers working to unpick the performer-instrument relationship in the digital realm. This work has produced a plethora of weird and wonderful new interfaces for musical expression. From the Radio Baton to the reacTable [7, 8]. In my practice, I have explored approaches to using vibrations as a mechanism through which I can extend my improvisational laptop practice by rendering extra-musical physical experiences for the audience. In this next part, I will discuss ideas pertaining to sound as a physical and embodied practice, and the ways that I have explored this through developing conceptual systems relating sonic and physical materials. During the production of this work, central themes of embodiment, mediation and immersion emerged.

Key (2015), is a performance system that extends the connection between the physical gestures of laptop performance and the listener using haptic feedback. As a highly- mediatised laptop-based improvisation practice, the physical human gestures of live coding are often just small motions. Between the performer and their instrument, this interaction is a small surface area of skin on the finger making singular temporal connections with a computer keyboard. To summarise, it is a kinaesthetic movement with a haptic interaction. The temporal detachment and disconnect within live coding movements, when viewed as a performance gesture, is fertile ground for exploration; not only the notion that the performer reveals their plans prior to their inception, but the disconnect inherent in temporal flow being mediated by the laptop. In Key, I consider the keystrokes of live coding in the context of expressive performance gesture, and present a technological approach to amplifying, or highlighting them in live performance. I developed an array of vibrating motors that allowed me to render my keypresses as physical vibrations to audience members.

I extended this notion in It is only MIDI, a work where MIDI data controlling synthesisers is translated into physical vibrations that play across the listener's body—it acts as a vibrating piano roll. The motors are placed on a chair on stage and audience members are invited to sit on it and feel the physical renderings in the performance. Improvisation is inherently collaborative and this was heightened using the vibrators. As a performer, I had anticipated that the performative challenge would be to explore creating a disparity, and sense of abstraction between the 'heard' and 'felt' versions of the MIDI note information by altering timbral parameters on the synthesizer. Through testing and performance, it became apparent that the novelty of the experience was engaging listeners above the conceptual issues the work set out to address.

Originating as an approach to comprehending the data being sent out of the machine, in performance, the system grew to be a novel way of reflecting pattern. In relation to this, I found that the system facilitated a flexible way of coding SuperCollider patterns into vibration. Moreover, I found that it directly influenced my performance decisions, thus narratives, through connecting the listener's body to the underlying performance process. Audience members were mediating the performance by visibly responding to the motors, which influenced microstructures of my improvisation, but also by leaving and entering the chair on stage, which caused me to change my flow, affecting the macrostructures. I began to consider performing something that is physically interesting that could be separate from the sound. Using this performance system, I am connecting the listener to the MIDI data output of the computer, as opposed to Key where the keyboard input is rendered as vibration. By bringing abstracted MIDI data into the fore, the vibrations in this work function to create a sense of presence as to the underlying processes controlling a sound by amplifying them.

Rendering the action of coding as something physical to the audience members reconfigures the role code plays in the digital realm as the haptic element brings the physical body to the fore of the experience. I embedded myself into the work through the vibrations and used technology to extend my reach to those that I was playing with and for. My practice encourages bodies to be aware of themselves in relation to the sonic environment and using vibration technologies to reframe the flow of our sensory interactions, to rupture and recode how we experience a phenomenon. My work is neither representational nor mimetic of real world tactile interactions, but instead echoes and synthesizes aspects and dimensions of 'other' to relocate a 'form', transcribing it as touch. It intends to engender a sense of presence in the user, within which, I hope it gives rise to a greater physical embodiment of their experience. Instead of asking, 'What do we feel?' my work considers 'What could we feel?' Within that, I reveal techno-futures and synthetic ways of being within a creative artefact.

BALANCING ACT: Noise Counterbalancing Silence

by Amble Skuse

BALANCING ACT is a ritual, a spell, a mantra, an experience, a collective endeavor, a remembrance act for female names which have been 'noised' out of musical history, disappearing into the background. Noise, our voices become noise, our names become noise, inaudible, unheard, filtered out.

BALANCING ACT is a live processing piece performed by Amble Skuse and laptop. It takes the names of over 1500 female composers names and layers them into white noise. It brings those names to the concert hall, presents them though the computer's interface, and asks us to honour those names which have been ignored, removed, or forgotten. I then attempt to speak as many of those names as possible over the computer's generated sound. An EEG headset (electroencephalogram) measures my stress levels and uses this data to control the balance of the track and the microphone.

Conceptual Framework

The piece explores a balance between what I can do and what the computer can do. It explores ideas of human vs computer, and the cyborg (human + computer). I pit my ability to read all the names in the given time against the rising intensity of the computer, which tries to drown my voice out with noise.

For me this references the exhaustion of trying to keep up with a schedule which is not designed for human activity. As a composer with M.E. (Myalgic Encephalomyelitis, also know as Chronic Fatigue Syndrome) I am interested in the limitations of the human, of durational performance, of endurance.

The piece was developed as a response to the under representation of women composers both in musical educational institutions and the concert hall as described by Mohr-Pietsch [9]. Research for the Baltimore Symphony Orchestra surveyed the top 22 orchestras in the US and found that only 1.8% of their performances were of pieces by women. Mohr-Pietsch states that although around 40% of living composers are female, only 17% of names on music publishers' lists are female. In response to these unspoken names and unheard works, BALANCING ACT seeks to raise the issue of the gender-washing of composition history.

I use the voice to reference the ritual power of speech, and link to the powerful archetypes of the wise woman, the healer and the witch. The speaking of these names restructures reality and creates an intervention to bend the universe to their will.

In the piece, the computer speaks the names. As the computer speaks it, it must be true. This aspect refers to the phenomenon of women who are not believed until their position is confirmed by a man (or in this case, by a computer). As Rebecca Solnit has noted:

> Being unable to tell your story is a living death, and sometimes a literal one. If no one listens when you say your ex-husband is trying to kill you, if no one hears you when you say help, if you don't dare say help, if you have been trained not to bother people by saying help…[Women] are subject to irrelevant criticism whose subtext is that women should not be here or heard. [10]

This unlistening, this unspeaking, reflects throughout our culture, and impacts on women: from such violent acts as domestic violence all the way through men taking credit for women's work and ideas, to refusing to listen to a woman when she says that there are plenty of female composers to draw inspiration from.

The Piece

I began creating the piece by creating a list of names of all the female composers I could find from online sources. These names were sorted alphabetically by first name (referencing Lucy Stone and the problem of patrilineal surnames). I then used my computer's speech application to read out the names and routed the audio into my DAW.

I layered these voices to disturb the experience of listening. I doubled up the layering process, to reference 'memory' in terms of digital storage and capacity; 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, etc. As each layer is created the names become

more indistinct, it becomes more difficult to pick out the meaning of each layer, and the words being spoken. Our cognitive processing is pushed to listen to all these names until we are no longer able to pick out the words. As I listened, I noticed I began to shift my listening perspective from the communicative to the auditory.

Sine waves serve as an alert, a summoning of energy and a direction of focus. Their purity and intensity driving the listener towards and away from the sound. The discomfort in the pitch and volume challenges the listener to maintain their focus in this intense battle between sound and celebration of women. I chose to use sine waves to reference the pioneering women who were at the forefront of developing audio technologies, women who worked directly with pure generated sine waves, such as Charlotte "Bebe" Barron, Daphne Oram, Ruth White, Maddalena Fagandini and Eliane Radigue.

During the performance, the list of names is shown on a screen. As the names pass I try to read as many names as possible into the microphone. The effort of speaking over the computer not only references my experience of having M.E., but also the effort of women to counteract the gender-washing of the music industry.

The dynamic of the computer's part varies throughout the piece. This modulates the possibility of the human voice being heard over the backing track. The balancing of the two tracks is controlled by a max patch and the readings from an EEG headset I am wearing. Although the headset controls the faders, the data received from it is dependent on my emotional state.

The headset has 7 sensors: 5 EEG sensors and 2 accelerometers. The EEG sensors detect electrical activity in the brain across all 5 bands of brainwave activity, Delta Waves (deep sleep), Theta Waves (drowsiness, light sleep, visualization), Alpha Waves (wakeful relaxation), Beta Waves (active thinking and problem solving) and Gamma Waves (acute mental activity and consolidation of information).

The headset connects to the laptop via blutooth. I then use Terminal to route the data to UDP. Once in MAX/MSP, I route the data into the fader controls. I use the most dynamic of the 7 EEG sensors, and feed it into the patch. The patch reduces the low level background 'noise' and then splits the data into two groups. Data which results from being stimulated or stressed (which presents as a higher numerical output of between 600 and 800) and data which comes through when my mind is calmer (which presents as slightly lower figures, between 400 and 600). I split these two states into two groups: above 600 and below 600. This 'smoothed' data then gives a reasonable picture of whether my mind is calm, or stressed. These two states control the faders of the two different tracks. The balance of the tracks means that the calmer I become, the easier it is to speak over the computer.

This performance choice references the 'tone policing' of women. According to Bailey Poland, the act of criticizing the tone of the delivery of a complainant diffuses the message. [11] This silences legitimate complaint by demanding that it is delivered within a certain set of emotional parameters. This part of the performance references the attempts to ignore critiques around the lack of female composers in concert programming, citations and teaching by undermining the complainant's 'emotional' and 'unreasonable' state.

During each performance, I ask all the female composers and music makers in the audience to email me their name, and everyone in the room to email the name of a female composer or music maker who has inspired them. Using a simple code, the laptop then automatically parses the e mails into a .txt file and adds those names to the piece in real time. In this way the piece grows with every performance and becomes a living archive which says "She WAS here".

The input from audiences offers an alternative way of collaborating that does not rely on hierarchical 'gatekeeping' patriarchal structures. This collaborative structure is more akin to anarchism based on non-hierarchical free associations. (This process comes with the caveat that those contributing the names are within a certain circle of audience who will come into contact with my work. There is also a facebook and twitter call for names, which widens the pool a little, but it is still problematic in terms of reaching different demographics. In this way it requires further consideration to be free of my influence.) As the audience contribute the names, I do not impose my idea about the value of a composer's work, what genre we consider to be 'real composition' or the race, religion, sexuality, disability, first language, or gender identification of the composers. This is important in order to counteract a modernist or hierarchical approach to who becomes remembered. Who are the gatekeepers and who are they keeping out? Who defines what criteria we use to decide value in our artform? Or to put it more clearly, 'Who decides what makes art good'? [12]

The reading of the work falls somewhere between electronic music and performance art. Whilst the first of these art forms has a long held problematic relationship to women, performance art has spent decades exploring identity politics, contextual performances, gender, feminism, intersectionality and anarchism.

The performance of the piece is a dynamic response both to the silencing of women's contributions, and the silencing of women's complaints about the silencing

of their contributions.

Why Sonic Cyberfeminisms?

by Annie Goh

The very nature of specialism or a specialist field, such as computer music, is based on the logics of inclusion and exclusion. I propose thinking through Sonic Cyberfeminisms as a way of examining these processes more closely. My own practice, writings, and curatorial activities have been engaged in doing so in various ways. Thinking about feminist practices in computer music, is misguided, if we don't reconsider the meaning of computer music itself.

In 2014, I organized a panel at CTM Festival in Berlin with the title Sound, Gender, Technology – "Where To" With Cyberfeminism?. It was an attempt to discuss the role of gender in electronic music beyond the debates around the (lack of) representation of women which had become prevalent at the time. The guests of the panel were: Sadie Plant (writer, author of Zeros and Ones); Susanne Kirchmayr (DJ and producer a.k.a Electric Indigo, founder of female:pressure); Fender Schrade (media artist, light and sound engineer); and Marie Thompson (academic and sound-maker). In an article for the CTM Festival magazine, entitled Sonic Cyberfeminism and its Discontents, I tried to situate gender inequalities palpable on the surface of electronic music scenes in the historical debates of cyberfeminism since the mid-1990s [13]. At the time, it seemed pertinent to highlight how getting overly pre-occupied with a feminist agenda concerned only with fixing gendered disparities, we neglect to address the very categories which we think with and through, such as "male," "female," and "gender" itself.

In late 2015, in part spurned on by these discussions, I conceived of a multi-channel sound performance which I gave the title: GendyTrouble: Cyber*feminist Computer Music. I performed the piece for the first time at a mini-festival called Sexing Sound: Gender, Sound, Music in Chicago. I recall taking my place at the beginning of the concert at the University of Chicago's Logan Hall. As per my request, a 7.1 channel sound system had been installed. The concert hall was dark and the main light source was the glare from my laptop, which bounced off my face, as I stared studiously at the screen waiting for absolute quiet before beginning my performance. I had worn my hair slicked back in an androgynous fashion and I was wearing all black. As I waited, I channelled the seriousness of all the "computer music" concerts I had been witness to over my adult years. I wore no expression on my face, nor did I put any overt bodily expression into my physical actions. This performance was an ode to the archetypal computer music performer [14]. The conceptual framework of the piece was a playful deconstruction of the prefix 'gen' shared by generative music and gender. In the blurb text for the performance I had written:

> 'The project GenDyTrouble has its beginning point in the common etymological ground between generative art/music and gender (Latin: genus, generis, generare, Greek: genos, gonos). It performs a symbolic collision between Iannis Xenakis' "Génération Dynamique Stochastique" approach to waveform synthesis (shortened to "GenDy") and Judith Butler's foundational work of queer theory "Gender Trouble" and seeks to understand generative processes as a source of emancipatory potential. The impetus of computer music's fascination with generative processes and algorithmic composition is re-interpreted using sonic transformations as a metaphor for the construction of gender.'

As I began playing the four short pieces I had prepared, Gen(d)erate Anew, Microfeminine Sonic Warfare, The Battle of the Cybersexes, and Meditation on Reproductive Labour, I (self-)consciously took part in a tradition of highly-conceptual, stylized computer sound design, and multi-channel spatialisation. [15] Many of the pieces were based on sound experiments I had made around the Gendy/Gendyn wave-form synthesis. [16] I knew my nerd stakes were somewhat secured, having referenced Iannis Xenakis' in the programme text. Despite all the posturing of the serious-computer-music-performer, my experiments with Gendy/Gendyn and theorisation of to what extent the "gen-" prefix of generative sound/music could be collided with the concept of gender performativity famously put forward by Judith Butler, were done in earnest. Even playfully, I thought it a worthwhile endeavour to break through the rigidities of "pure, natural, harmonic" sound (as Xenakis had aimed to do with Gendyn) and relish in the artificiality of brash, unnatural, synthetic waveforms. The epistemic form of sonic naturalism was being replaced by that of sonic artificiality, and it felt exhilarating!

However, my later discussions along lines of sonic cyberfeminisms, have led me to other considerations. Namely, poking fun at computer music and its seriousness is one thing, and juxtaposing it with Judith Butler's notoriously difficult to read Gender Trouble was a kind of punk provocation, a collision of two erudite figures from computer music and feminist theory respectively. At the concert I was praised for the weird sounds I had produced, and the fairly complex multi-channel spatialisation I had orchestrated. I got some laughs from the audience for the piece "Battle of the Cybersexes" which featured real tweets from feminist activists and men's rights activists being

read out in computer voices in a real-time algorithmic race to victory. Yet there was something strangely dissatisfying about staying within the established boundaries of computer music; ultimately, there was no real blasphemy in splicing Butler with Xenakis. In a recent private conversation with Robin Buckley, who released Brostep in the Style of Florian Hecker in 2017, an eight channel composition using dubstep preset bundles to emulate Hecker's work (referencing Florian Hecker's 2009 work Acid in the Style of David Tudor), we shared how this type of provocation – whilst fun – ends up falling somewhat flat. In an essay assessing a potential radical, political reading of Markus Schmickler's 2010 album Palace of Marvels [Queered Pitch], Buckley questions to what extent aesthetically and in terms of temporality Schmickler's project can be reconciled with larger radical queer narratives to conclude that, 'despite hints of specific kinds of politics (an alternative canon or queer time), it never really distances itself enough from an apolitical message, reproducing white, masculine and capitalist models'.[17]

So what would it mean to really transgress the comfort zones of computer music? Remaining in the abstract and the hi-tech certainly didn't proffer much by way of conceptual defiance in my own performance. If I want to take seriously the idea of troubling gender, as Butler exhorts us to, this needs to be intersectional from its very core – that is to say, troubling gender means troubling race, class, sexuality, ability norms, transphobia, and more too. In Sadie Plant's famed treatise Zeros and Ones, a key 'cyberfeminist' text, it is the figure of Ada Lovelace – the first computer programmer before the invention of computers as we know them today – who leads us through the narration. [18] As impressed and inspired as I was by these descriptions of Lovelace and her work when I first read this book in late adolescence, no doubt contributing to my desire and attempts at learning computer programming myself, re-reading Plant's text today, I notice another important figure which haunts the book – the telephonist, the weaver, the circuit-board assemblist: the female labourer. This much less glamorous figure, less brilliant, less uniquely talented, but more essential to the continuing hi-tech global microelectronics economy surely deserves greater attention. At the same time during which Lovelace became a figurehead for initiatives supporting women and non-binary programmers and technologists, consumers complaints to Google were recorded about the pink-latex-covered fingers of womens' hands which can occasionally be unintentionally glimpsed as part of Google Books' huge scanning and archiving project [19]. These 'vanished ladies,'[20] poorly paid women of colour in Silicon Valley, whose

provides the world's largest technology company with one of its most well-known resources, and whose sisters (literally or metaphorically) provide the labour assembling circuit-boards, figure crucially in the supply-chain of the computers and microchip devices we "computer musicians" use in our everyday life.

In 2016 and 2017, I co-organized a series of events with my friend and colleague Marie Thompson, around the theme of Sonic Cyberfeminisms; these included a month-long online reading group called Decolonizing Sonic Cyberfeminisms, a panel-event called Doing Sonic Cyberfeminisms: Strategies of sonic resistance, and a two-day conference entitled simply Sonic Cyberfeminisms. One of the topics which emerged from these discussions was: it bears reminding that technology is not just computation. The very notion of "computer music," even in the distance it takes from "electronic music" in its privileging of computational processes, elides the often uncomfortable roots of our conceptions of technology. The focus on the micro-level of digital audio signal processing in the history of computer music has led to the growth of an implicit hi-tech edifice of the field, which when left uninterrogated, appears as pure and apolitical as the micro-chip itself – that is to say, not only deeply embedded in systems of capitalist, white supremacist, ableist, heteropatriarchy,[21] but party to constituting them. Studies of the workers of Silicon Valley such as Karen J. Hossfeld's, reveal in-depth how precarious, low-paid labour is predominantly provided by working-class black and brown women whose subordinacy is maintained by explicit gendered and racialised logics of their white male managers [22]. Yet, this knowledge, as with the oft-recited statistics of the environmental, economical, sociopolitical wreckage caused by the mining and processing of rare-earth metals, does not need to revert into a privilege-fragility in which "bad, rich Westerners" should feel guilty of using and profiteering off multiple channels of exploitation running from the Global South deep into the economies of the Global North. Such self-castigation is empty without any concerted action or effort to understand and address such exploitative mechanisms which make-up the reality of the global technological economy. The binary thinking which retorts defensively with charges of ludditism and the exasperated outrage are precisely the sentiment which counteracts all the serious efforts – strikes, protests, campaigns against exploitative labour conditions across all sectors – to enact meaningful change, however small or large.

Sonic Cyberfeminisms, then, is a way of understanding better the logics of inclusion and exclusion which are at play. These logics appear similar across hi-tech

fields; the white, male heroes of Silicon Valley mirror those of computer music. As Michelle Wright describes in the SubRosa cyberfeminist publication Domain Errors!, as uncomfortable as it is to admit, Western notions of "technology" are very often, and near completely, imbued with inherent progressivist ideas premised on white superiority. Evident in the writings about America's "digital divide" in the era of hi-technological expansion between white middle-class and working-class black people in the late 1990s, Wright traces how, 'technology is deployed as the latest chapter of evidence for Western superiority'[23]. As sanitised as our hi-technological devices might arrive into our hands, in considering how feminist and cyberfeminist approaches to computer music might manifest themselves, sonic cyberfeminisms will need not only to agitate within the confines of computer music, but also beyond its direct reach.

Sonic cyberfeminisms, perhaps despite implicit connotations of a nostalgic 90s hi-technology sheen which the prefix "cyber" imbues it with, is an attempt to engage critically with sound, gender, and technology in a multiplicity of ways. Whilst some of us might be made aware of some of the logics of inclusion and exclusion in practicing computer music, we should never rest only along lines of gender, as if these were not always complexly embedded along lines of race, class, ability, sexuality, and other forms of social division. Perhaps, the prefix 'cyber' - in the Greek sense of steersperson originally evoked by Norbert Wiener[24] - can be understood in terms of the flows of control and communication, to invest a fluidity into the intersectionality at the core of sonic cyberfeminisms [25]. Perhaps sound itself as a powerful affective force can too be harnessed for these purposes. Given the pleasurous adventures of computer music and the transformative potential offered by feminist approaches; sonic cyberfeminisms can be an opportunity to radically re-think and re-make existing configurations of sound, gender, and technology.

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Review

Is Marcus Schmickler's Palace of Marvels (Queered Pitch) a Radical Political Album?

by Robin Buckley

Palace of Marvels [Queered Pitch] (2010) [1] (which will be referenced in this essay as PM[QP]) by Marcus Schmickler is in many ways a political album [2]. German artist Marcus Schmickler released the album in 2010 on the Austrian label Editions Mego. Boomkat, a niche online retailer of physical and digital music, described the record as 'Marcus Schmickler's quest to explore the outer reaches of extreme computer music' [3]. Similarly, from an academic context, Haworth describes Schmickler's recent work in the current trend of 'extreme computer music', alongside artists such as Hecker and Roc Jiménez de Cisneros [(one half of EVOL)]' [4]. A performance of the album at Unsound Festival in 2015 was described as:

> Markus Schmickler...took a mischievous, brute-force approach to EDM's shock-and-awe tactics, rerouting rave's adrenalized energy through a maddening succession of Shepard tones accompanied by sweeping strobes. It went on like that for 45 elastic minutes more—all tension, no release, as exhilarating as it was exhausting.' [5]

This essay will investigate the different ways in which the album can be described as political, radical or extreme. It will look at how the aesthetics of academic and non-academic music are embedded in the album and how these canons are challenged. It will also reflect upon its conceptual themes of politics and nature, and how they are used to further political ideas. The music will also be examined through its use of 'queer time' through its compositional structure, in the context of a larger queer ideology. It will also consider its shortcomings and how these might have been overcome, and consider alternative methods to creating political musics within this genre. Is Schmickler's PM[QP] a radical, political work?

As outlined in his lecture Marcus Schmickler Ueber Elektronische Musik / Marcus Schmickler On Electronic Music [6], Schmickler takes a stance for his new electronic music as one which seeks to engage with both low and high music culture. In doing so, he poses a new canon made up of:

> '...Ligeti, Kagel, Lachenmann, Beuys, Cage, Dieter Roth, as well as Black Metal, Aphex Twin, Venetian Snares and The Beach Boys or David Bowie, as well as electroacoustic music artists Pierre Henry or Parmegiani, noise artists

noise artists like Merzbow or the often cited Iannis Xenakis'.

This new canon is also referred to in the festival Between Two Deaths, for which Schmickler curated the music programme in 2007: 'However, we cannot forget those who came before, Cage, Varèse, Xenakis or Throbbing Gristle' [7]. Haworth draws similar aesthetic comparisons between high and low music in Hecker's work, whom he places alongside Schmickler as part of the extreme computer music canon, and whom Schmickler invited to perform at Between Two Deaths. Furthermore, Hecker's work Acid in the Style of David Tudor (2009) [8] and Schmickler's PM[QP] were both created using a set of tools designed for them by De Campo [9]. Haworth describes Acid in the Style of David Tudor as 'David Tudor's neural network research 'becoming' acid techno in the journey from the ivory towers to the bedroom studio' and in doing so 'Acid voices the very real connections between the ostensibly disparate domains of 'institutional' and 'amateur' electronic music'. In this way both Schmickler and Hecker are successful in disrupting the separations that are often placed between high and low or academic and non-academic music. However, even very simply through Schmickler's new canon, as well as the two styles cited by Hecker, it is made up exclusively of European and American male artists. They both seem to ignore the possibility of a radical canon, one which seeks to decolonize and deconstruct the white-supremacist-capitalist-patriarchy [10]. Instead, they merely replace the academic canon that they work against with more white, Western men, albeit ones that are not creating work directly within the parameters of academic music or high culture.

Outside of these aesthetic sensibilities, PM[QP] takes a look at the socio-economic implications of music [ ] and of nature itself. Referring to Noise: The Political Economy of Music (1977), Schmickler looks towards the 'The Palace of Marvels', a concept created by Leibniz that is the 'idealization of a perfect political organisation, which is built in such a way that the master of the house is able to hear and see everything that is being said and done in the premises without himself being perceived by his subjects' (Editions Mego, 2010). Despite having this conceptual framework, there are no comments or actions, negative or positive, about a politics that function in this way. Listening to the album, Schmickler seems to have merely built his music around this theory, and created a musical description of these politics, without making any kind of political statement about it. Similarly, for the other conceptual framework of PM[QP], that of nature, he takes the same approach. Schmickler says in an interview that '...it is also a completely different and simplistic approach to a self-similar structure, that is also to be found in nature and that for itself is an interesting subject to be translated into sound' [12]. This is referring to the Shepard tone, which is how the musical pitches of the record are 'Queered'. Again, political discussion on the epistemology of this nature or of the Shephard tone are ignored in favour of experimenting with the sound itself. This leads to comparisons to a very modernist approach to working with electronic music, one ideologically related to that of Elmert in the late 50s, searching for 'a real musical control of Nature' [13]. Schmickler draws upon the natural sciences, not in a political way, but because the field itself is 'an interesting subject' (Schmickler, 2010). Drawing on different concepts, but only describing or reenacting them - rather than interrogating them or questioning the politics embedded in these topics - leads the album to a lack of political radicality, at least in relation to these subjects.

Another political function of PM[QP] would be its relationship to queer theories of time and ideology. In addition to the pitch being queered through the use of the Shepard tone, the album is made up of works that move away from the normative linear time of dance culture, by creating music made up of 'queer time' [14]. As outlined by Iadarola, electronic dance music normally uses a 'narrative [that] is established by linear enticement and suspense' and 'typically appear without tons of variation' [15]. The end result is a process 'where the ebbs and flows of stimulation in a huge crowd are homogenized to follow just one timeline—as prescribed by the DJ—in hypnotised ecstasy' (Iadarola, 2016). Referring to EVOL's work, Iadarola's descriptions can also be used to describe the queer time that is also embedded within Palace of Marvels [Queered Pitch]:

> EVOL tracks, though they use dance music as the host to their contagion, never have that host's dramatic build-up; their sounds only come in floods. Their work delivers pleasure in a form you simply didn't ask for—too much at once, too much for your own good (Iadarola, 2016).

Sherburne describes this effect in a performance of the work as 'all tension, no release' (Sherburne, 2015). An example of this from PM[QP] would be the eleventh track Mass Ornament. It fits both descriptions, as it is made up of an arpeggiated Shepard tones, punctuated by stabs of tones using non-Western harmonic scales; at around one minute in the piece increases the arpeggiator speed while the stabs continue to chaotically position themselves around the stereo field. The end, similarly again to Acid in the Style of David Tudor, 'is more humorous, at most a nod to the excessive, punishing tendencies of some Japanese

noise music... [rather than the]... softer, more subtle mimetic quality' (Haworth, 2013: p. 9) found in electroacoustic music. Therefore, this piece, and the album as a whole, aligns itself with the intent of seeking to escape the ideologies of 'bourgeois reproduction and family, longevity, risk/safety, and inheritance' [ ] through working against the aesthetics traditionally found in the normative time structures of electronic dance music. By doing so, it becomes '...a blackhole which contrasts against the light of this subject' (Schmickler, 2011; translated by author). This leads to the album sitting alongside a greater queer negative ideology, one fighting against any kind of future as represented by the child and society. This stance is described in No Future (2004) by Edelman: 'the queer must insist on disturbing, on queering, social organization as such -on disturbing, therefore, and on queering ourselves and our investment in such organization. For queerness can never define an identity; it can only ever disturb one' (Edelman, 2004: p.17). This ideology can also be seen in Schmickler's program notes for Between Two Deaths:

> 'The manifestations of the radically subjective positions presented in this festival, however, are a statement against the predominant, moral, and material mainstream. In these pieces a multi-layered critique against Gebrauchmusik (useful music) through the immediacy of desire is perceptible as time. The music presented here displays ... (political) failure, and (symbolic) death' (Schmickler, 2007).

Specifically these statements against the moral mainstream, through a (political) failure and (symbolic) death, sound very similar to Edelman's queer politics 'that takes both the value and the burden of that failure itself' [ ] and seeks 'the place of the social order's death drive' (Edelman, 2004: p.3). By working with the aesthetic functions of queer time and by positioning itself alongside a queer negative ideology, PM[QP] fits well into a larger radical queer narrative.

Whether, radical, working with politics or nihilistic, what are the alternatives for a version of PM[QP] that could be truly radical, political and extreme? One of the serious problems with the radicalness of the album is that, despite comparisons to a queer negativity, this 'negativity might well constitute an anti-politics but it should not register as apolitical' (Halberstam, 2008: p.148). This is where the album falters, for despite hints of specific kinds of politics – such as an alternative canon or queer time - it never really distances itself enough from an apolitical message, reproducing white, masculine and capitalist models. Mattin critiques such an approach and insists that:

> being aware that culture, creativity communication are becoming the tools of the "factory without walls," we need to be suspicious of ways in which cultural practices can be exploited by capital. Because of this we must constantly question our motives, our modus operandi and its relation to the conditions that we are embedded in, to avoid recuperation by a system that is going to produce ideological walls for us [18]

This is what the album needed more of: despite engaging with certain ideas and politics, it doesn't seek to profoundly disrupt or even be aware of these many different ideologies, and thereby ends up reproducing them. In their critique of No Future (2004), Halberstam points to other alternative models that seek to escape an apolitical nihilism with a truly queer canon, and leave behind a white supremacist, patriarchal and capitalist one: 'The anti-social archive must also be an archive of alternatives, however, and it must mix high and low, known and unknown, popular and obscure; and this archive where the promise of self-shattering, loss of mastery and meaning, unregulated speech and desire are unloosed' (Halberstam, 2008, p.153). This must be created alongside 'a queer agenda that works cooperatively with the many other heads of the monstrous entity that opposes global capitalism... but a queer politics which is also not tied to a nihilism which always lines up against women, domesticity and reproduction' (Halberstam, 2008, p.154). What PM[QP] would require in order to qualify as a radical political work is a more thorough investigation of the way it reproduces white supremacist, patriarchal and capitalist models, and a realignment with an anti-social canon of the kind described by Halberstam, that would truly disrupt these power structures.

PM[QP] does succeed in disrupting the academic canon, by drawing upon a varied group of musicians and artists outside and within the academy. This is a political action, but falls short of radicalness due to its reproduction of hegemony. The album draws upon the politics of surveillance and nature but fails to address or discuss any political contexts for these concepts. It succeeds in queering time and producing alternative compositional structures working against the normative ones within electronic dance music. It also succeeds in aligning itself against these same social contexts, with a queer negative ideology. However, the radicalness of such a negativity is disputed. PM[QP] by Marcus Schmickler is therefore not a radical political work, nor does it take an extreme political stance. However, there are politics and political ways of thinking embedded in the music, which if engaged with further, more deeply - and most importantly, with more self-awareness - do have the potential for creating a radical, political album.

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