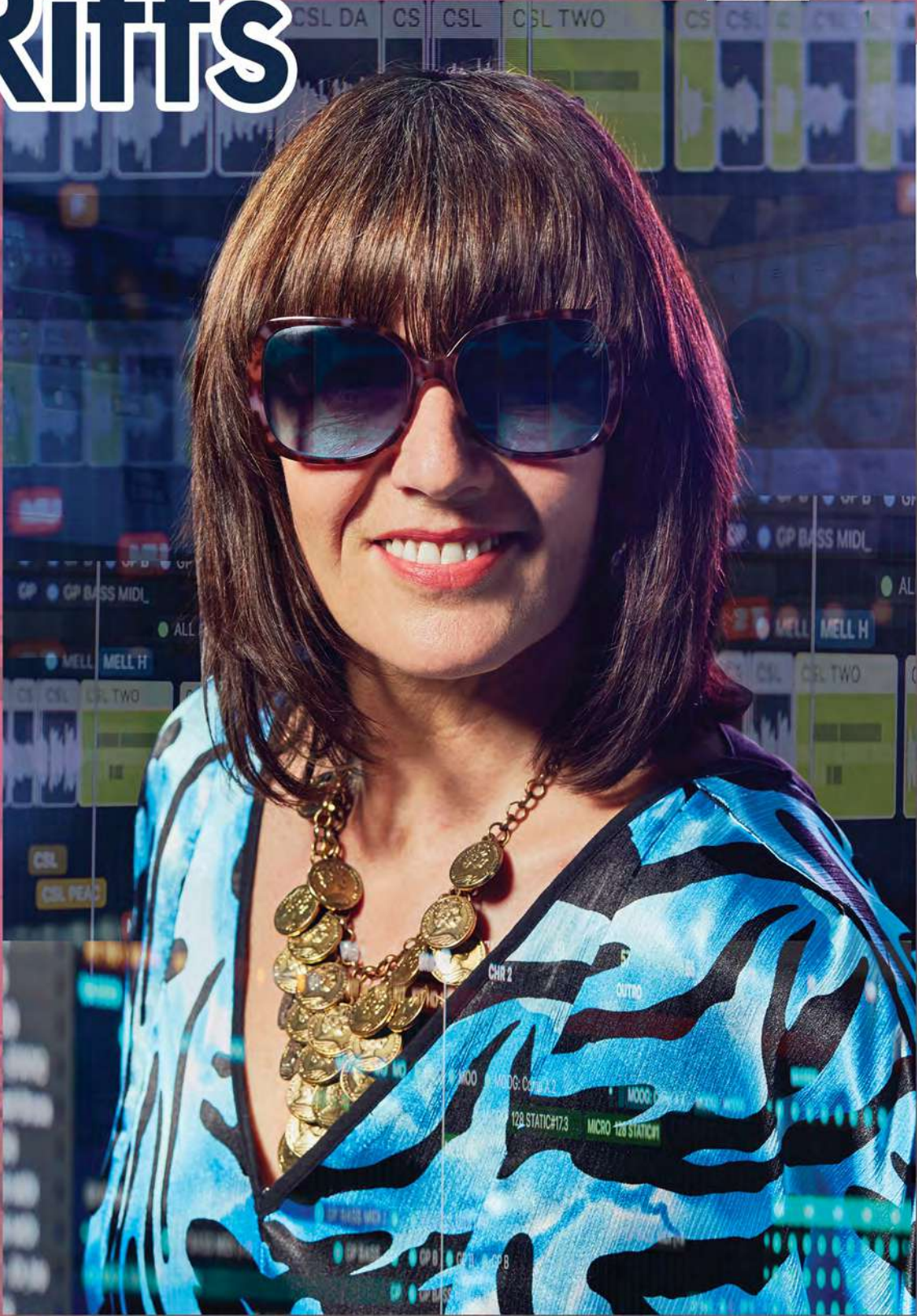


# Riffs

# R

Volume 4  
- Issue 1

Experimental writing on  
popular music



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Shot at R Manor Recording Studio (Jewellery Quarter, Birmingham).



# Riffs

Experimental writing on popular music

**Music and Technology**

Vol. 4 Issue 1  
July 2020

# Riffs

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# EDITORIAL

Edmund Hunt

Guest Editor, *Riffs* Vol. 4 Issue 1

‘Technology is something I love and hate at the same time. On one hand the absence of any kind of technology means silence (or an environment of natural sounds which we hear much clearer because of the general silence); on the other hand, you need technology to make art’[1].

In describing her feelings about technology, the composer and performer Christina Kubisch drew attention to fundamental questions of disjunction and paradox that can arise whenever art is mediated or produced by technology. These questions are not only relevant to those who identify as electronic musicians. For all artists who work with sound, whether as performers or creators, such issues can affect any part of their practice – from creation, to performance, to dissemination.

When the editorial team chose Kubisch’s statement to head the call for papers for *Riffs: Music and Technology*, we could not have imagined how different the world would look in the first half of 2020. It is tempting to see an eerie prescience in her sentiments. Replace the word ‘art’ with ‘conversation’ or ‘human connection’, and evocations of online meetings, mediated by stuttering internet connections, are all too apparent. Here, too, the paradox of music and technology is brought into focus. In these times of Covid-19, the widespread use of technology has allowed the arena of musical performance to move from public venues to personal electronic devices. At the same time, many of the people who create this musical content face unprecedented existential challenges to their careers. Perhaps more than at any other time within the last few decades, the musical experience has become domestic, experienced largely within the confines of our homes, through recordings, online platforms, or our own music-making.

Although all of the contributions to this issue of *Riffs: Music and Technology* were completed in a pre-pandemic world, the issue's themes and discussions are more relevant now than ever. The geographical spread of contributors is testament to the ways in which technology can facilitate new connections between musicians. The pages of this issue feature musical styles and traditions from Tanzania, India, Aotearoa New Zealand, Ireland, and Continental Europe, spanning genres such as jazz and contemporary electronic music, from contributors based in Africa, Europe, and Australia. *Lullaby-Sonic Cradle* by Supriya Nagarajan is an example of the ways in which worldwide dissemination and performance have shaped the development of a work for live performers and electronic media. Nagarajan, who is both a contemporary composer and a performer of Carnatic vocal music, describes the coalescence of new technologies, her own performance practice, and the traditions and stories of audiences and participants who engage with her work. Matthew Noone's *Waiting for Gandharva [the ephemeral disembodiment of being]* also describes a musical journey between countries and continents. Beginning with rock and blues, Noone's practice as a composer and sarode player led him on a personal, creative journey from Indian classical music to the Irish tradition. For Noone, the potential difficulty of bridging different musical genres can mirror the disjuncture at the heart of human-computer interaction. Rather than seeing this as an obstacle to creativity, Noone argues that the model of musical 'mongrelity' provides a pragmatic, positive way to be a musician in a postmodern world.

In discussing the development of popular music and radio broadcasting in post-colonial Tanzania, David Kerr and Hashim Rubanza highlight the diverse musical influences that coalesced into a new genre, known as *Bongo Flava*, in the 1990s. Kerr and Rubanza propose that the characteristic sound of the genre, resulting in part from the studios of Dar Es Salaam, became emblematic of a particular moment in Tanzanian life of the late 1990s. In a similar vein, Lachlan Goold and Sean Foran also focus on the recording studio, but from the perspective of jazz. Arguing that the recording studio is both an instrument and an artistic process, Goold and Foran outline a rigorous methodology to investigate jazz musicians' use of technology. By embedding post-production elements within a live performance, the authors propose that their methodology enables the performers to realise a 'produced' sound.

Process and method are also central to *Push and Pull: Or, How I Learnt to Stop Worrying and Love the Technological Failures* by Sophie Rose. As a composer and performer, engagement with technology is part of Rose's ongoing creative process. She describes how her project grew from a desire to 'touch' the voice, leading her to design of a set of data-gloves that became integral to a new composition. Titled *Tāwhirimātea*, the piece is a reimagining of a Māori legend. In contrast to Rose's development and deployment of new technology, Mattia Merlini and Stefano Maria Nicoletti focus on human-computer interaction in which technology, in the form of artificial intelligence (AI), has creative agency. In considering whether computers can compose music, the authors focus on embodiment – the ways in which having a body not only affects the production of music, but also our capacity, as humans, to appreciate and understand the sounds that we hear.

It seems paradoxical to suggest that AI and new technology can emphasise the importance of corporeality, yet the rapid proliferation of technologically-mediated interaction during the first half of 2020 (in the form of online meetings and live-streamed performances) has underlined this disjunction – embodiment cannot be replaced by two-dimensional video and computer-mediated audio. The human body is present by our heightened awareness of its absence. At a deeper level, this experience draws attention to issues of dichotomy that pervade our understanding of music and technology, discussed in detail by many of the contributors to this issue.

Writing in a publication that will be read primarily online, I am conscious of another paradox. The technology that facilitates the creation and dissemination of *Riffs* can also form an impenetrable barrier for readers without access to appropriate hardware or an adequate internet connection. Technology can simultaneously embrace and exclude, just as music created with and for technology is sometimes confined to the specific hardware or software that created it. Perhaps these themes deserve greater consideration. As the authors of this issue have demonstrated, the multifaceted relationships between music and technology raise numerous questions, to which there are many different answers.



The ideas and perspectives in this issue of *Riffs* reflect the contributors' diverse relationships with technology – as performers, creators, musicologists, and innovators, whose work often resists being contained within a single genre or area. In line with the journal's aim to encourage experimental thinking and writing about music, images and audio are not merely decorative, but are an integral component of each author's contribution. Artwork by Matty Evans, created as part of an artistic practice that explores the transformation of text and image into music, is an example of a creative response to the ideas that are discussed within these pages. I hope that each reader will be likewise inspired and challenged by the ideas, opinions, images and sounds that are encountered within *Riffs: Music and Technology*.

**Edmund Hunt** is a Derbyshire-based composer who writes instrumental, vocal and electroacoustic music. In 2018, Edmund became a Postdoctoral Research Fellow in composition at Royal Birmingham Conservatoire, focusing on composition and live electronics based on the analysis of early medieval languages. During 2019–20, projects have included an electroacoustic composition for Longyou International Festival, China, a Cohan Collective Residency to create a 20–30 minute dance work with choreographer Edd Mitton, and an ongoing Sound and Music New Voices work for dancer, string quartet and live electronics. Edmund is a co-investigator of *Augmented Vocality: Recomposing the Sounds of Early Irish and Old Norse*, an AHRC-funded research project which is scheduled to begin in 2020–21.

**Endnotes** [1] Christina Kubisch, 'Artists' Statements II: Christina Kubisch', in *The Cambridge Companion to Electronic Music*, ed. by Nick Collins and Julio d'Escriván, 2nd edn (Cambridge: Cambridge University Press, 2017: 176)

# FROM TEXT TO SOUND AND SOUND TO IMAGE

Matthew DF Evans

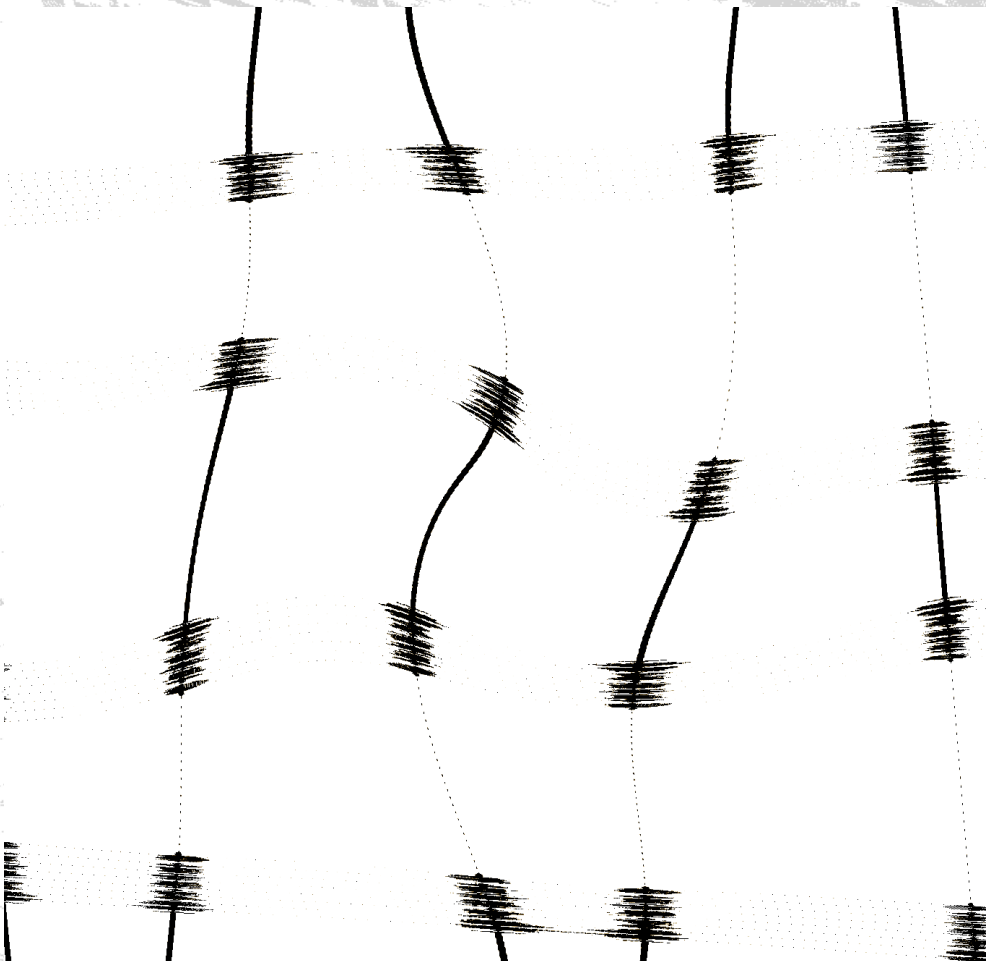
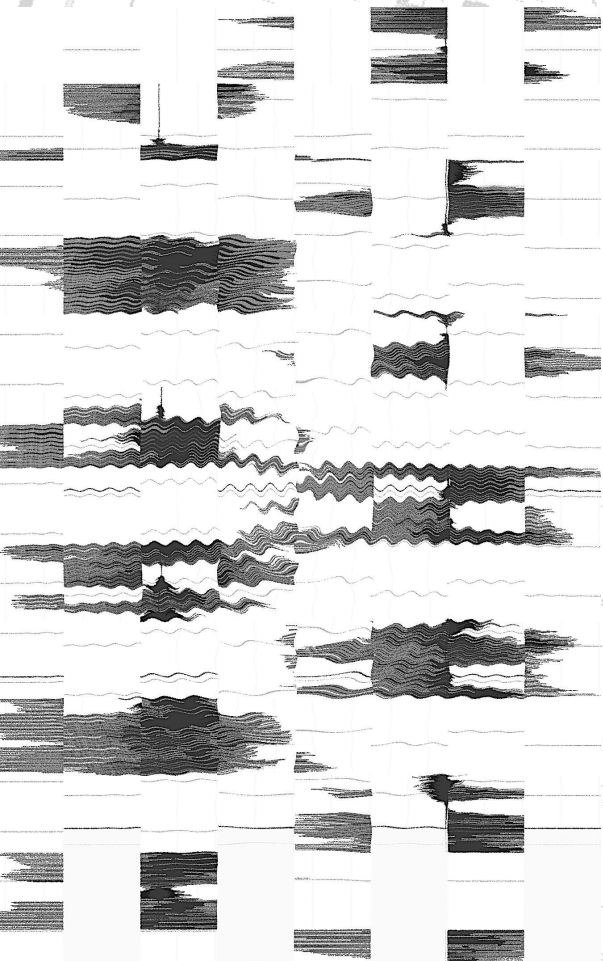
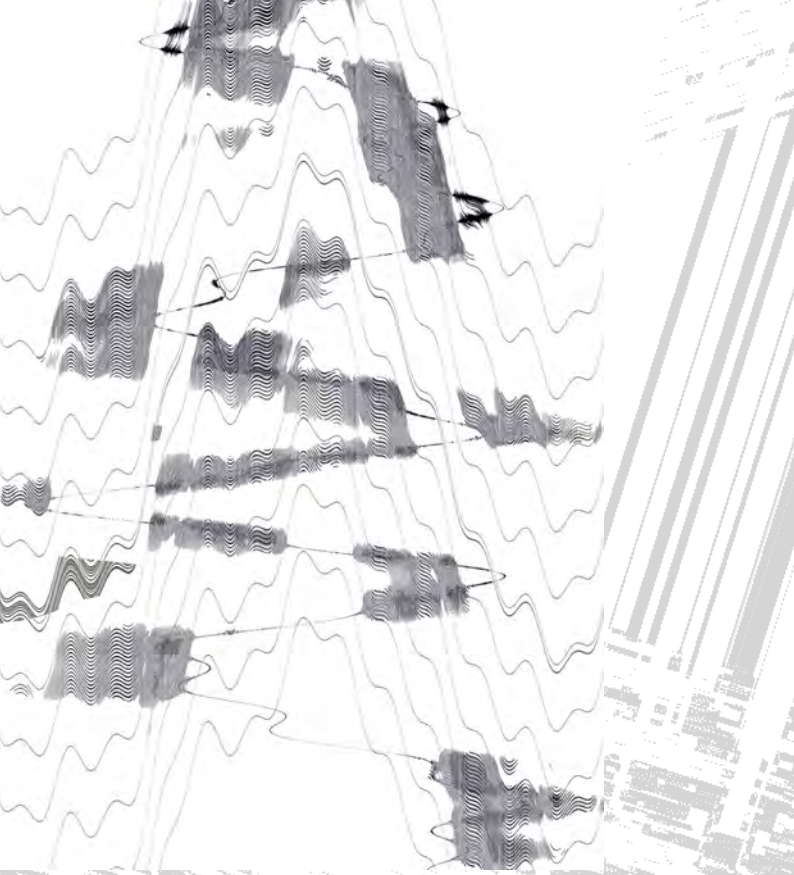
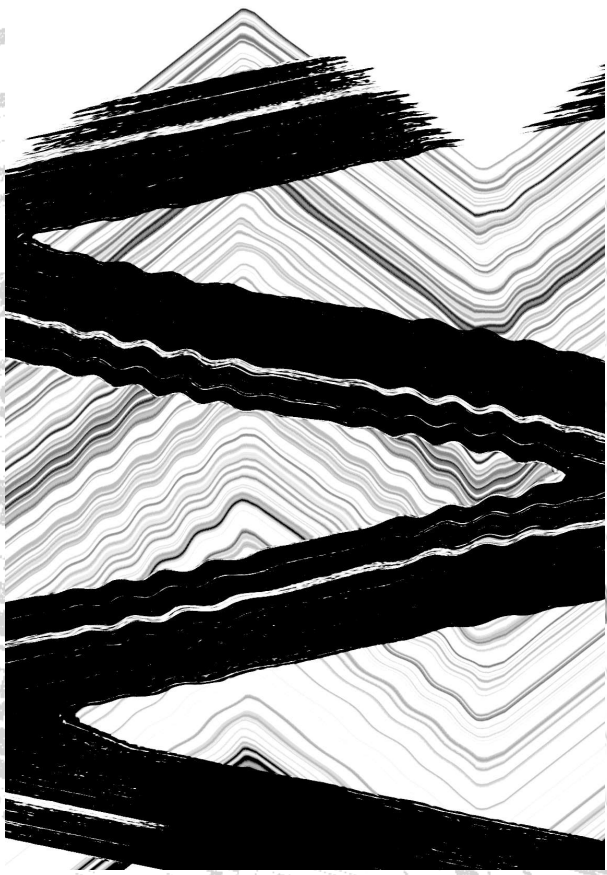
My practice is usually concerned with transcoding images into sound and music. In doing so, the aim is to explore the various ways that multi-modal experiences can be created from a source that may only affect a singular sense. This process has been used to investigate how data and digital artefacts can be recycled to create new forms.

In the case of this project, however, the process my practice ordinarily takes has been reversed. Instead of making sound and music from an image, the image has been a means of creating sound. These sounds have then been realised and manipulated back into the visual domain.

The titles of the various articles of this edition have been turned into sound via a text-to-audio synthesis algorithm. This audio signal has then been visualised as a waveform. Each waveform has been used as the basis of creating a larger image. The form of the waves has been schematised, forming various shapes and patterns. This process, therefore, has a means of expanding the visual shapes created when one visualises sound as a graphical representation, prompting a novel interplay between text, sound and image.

**Matthew DF Evans** is a Birmingham based sound artist and musician focused on connecting sound and image. Graduating from UAL (LCC) with a BA in Sound Art & Design and the Royal Birmingham Conservatoire with an MMus in Music Technology, Evans is currently a Visiting Tutor and Doctoral Researcher at the Royal Birmingham Conservatoire exploring the translation of image into sound and music.

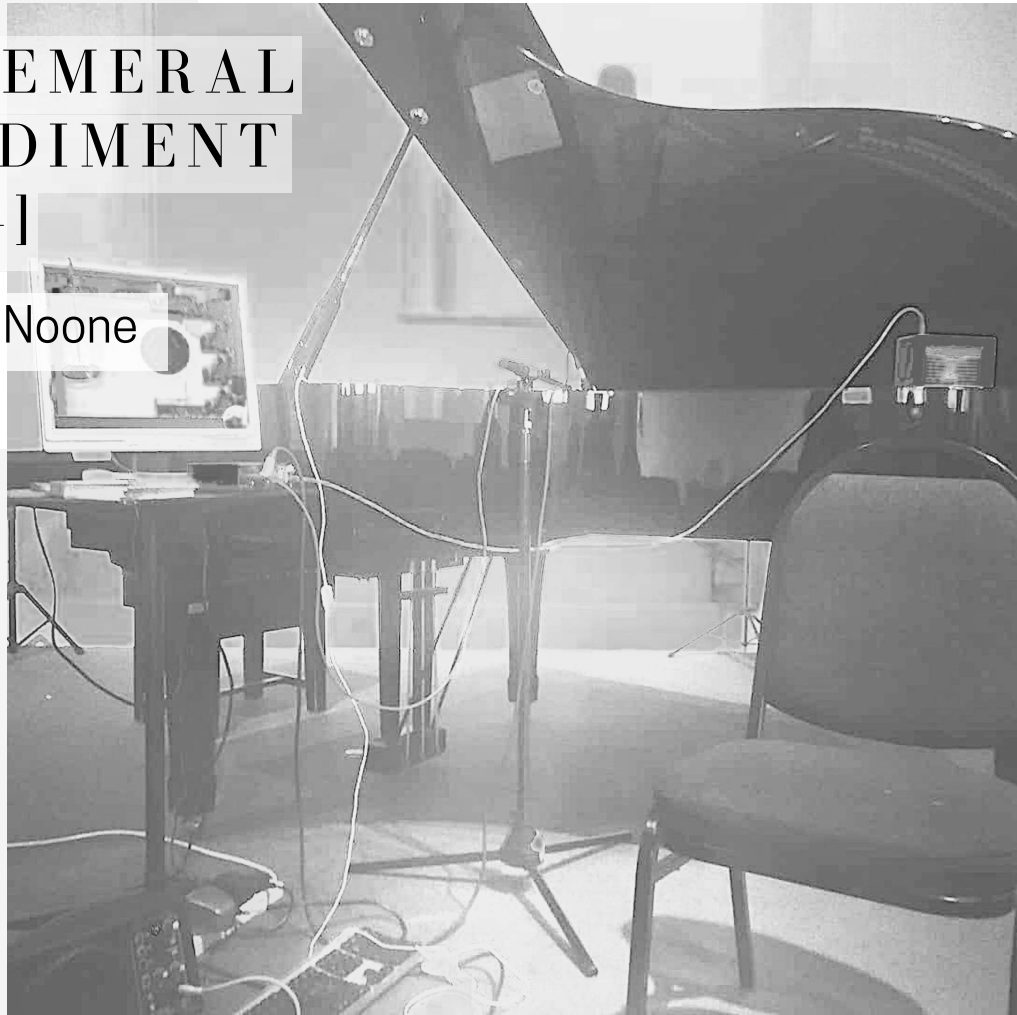
<https://www.matthewdfevans.com/sound-1>



# WAITING FOR GANDHARVA

[THE EPHEMERAL  
DISEMBODIMENT  
OF BEING]

Matthew James Noone



VOL 4 ISSUE 1

ESTRAGON: Charming spot.  
Inspiring prospects. [He turns to Vladimir]

Let's go.

VLADIMIR: We can't.

ESTRAGON: Why not?

VLADIMIR: We're waiting for Godot

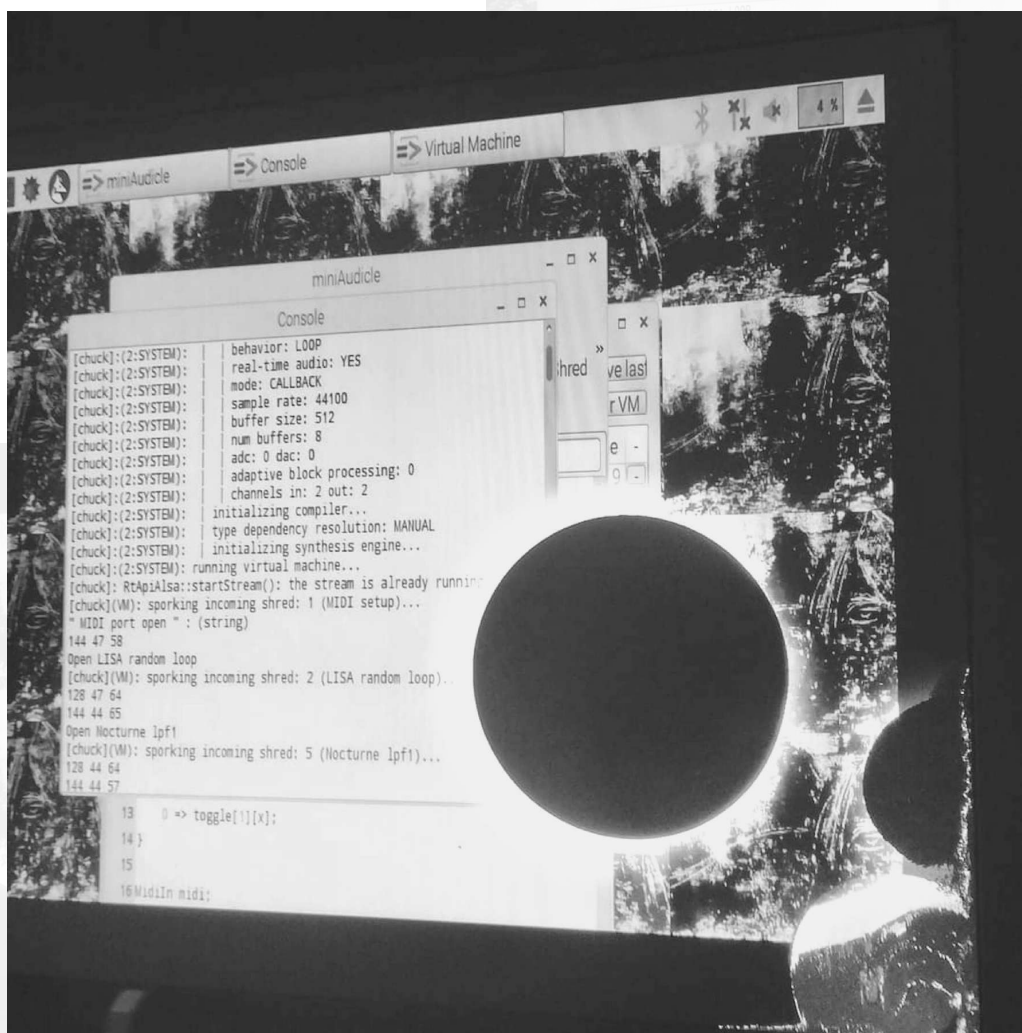
ESTRAGON: [despairingly] Ah! [Pause]  
You're sure it was here?

'Waiting for Gandharva', a composition for piano, feedback and electronics, is an exploration of the ephemeral and disembodied nature of using technology to make music. The title, 'Waiting for Gandharva', is a tongue-in-cheek reference to Samuel Beckett's most famous existential work, *Waiting for Godot*, and also the Hindu celestial musical beings known as Gandharva. The composition employs electronic manipulation of the acoustic sound of the piano using two microphones, a single-board microcomputer and a battery-operated mini amplifier.

In this article, I document the genesis of the composition and my anxiety about giving up some of the creative autonomy in my practice to a computer. My reflections here focus on the first disastrous (non)performance of the piece in which the entire concert program had to be abandoned due to a computer malfunction.

VLADIMIR: What do we do now?  
ESTRAGON: Wait.  
VLADIMIR: Yes, but while waiting.  
ESTRAGON: What about hanging ourselves?  
VLADIMIR: Hmm. It'd give us an erection!  
ESTRAGON: In the meantime let us try and converse calmly, since we are incapable of keeping silent.  
VLADIMIR: You're right, we're inexhaustible.  
ESTRAGON: It's so we won't think.  
VLADIMIR: We have that excuse.  
ESTRAGON: It's so we won't hear.  
VLADIMIR: We have our reasons.  
ESTRAGON: All the dead voices.  
VLADIMIR: They make a noise like wings.  
ESTRAGON: Like leaves.  
VLADIMIR: Like sand.  
ESTRAGON: Like leaves

[Silence]



Truth be told, I've always been suspicious of using computers for music. Growing up playing rock, blues and indie guitar music, I never saw the computer as a valid music-making tool. To me, computers were un-feeling machines, cold and clinical devices of abstract thinking. In my musical world, computerised sound was the opposite of what music was all about: that ephemeral but embodied quality of 'tone'. I believe that the quest for tone is an encapsulation of the human struggle: imagine BB King searching for ultimate expression of the blues in just one bent note; Kurt Cobain screaming his throat ragged over three chord power pop; Hendrix cajoling swirling feedback from his amps. These are the sounds of catharsis that spoke to my teenage existential angst.

ESTRAGON: [Feebly] Help me!  
 VLADIMIR: It hurts?  
 OESTROGEN: Hurts! He wants to know if it hurts!  
 VLADIMIR: [Angrily] No one ever suffers but

By the late 1990's, petulant guitar music was all over the mainstream. It had become corporate, sanitised and generic. Suddenly, playing guitar didn't feel so cathartic. The most 'punk' choice was to make electronica. Like many of my peers, I sold my guitars and bought old drum machines and samplers, distorting them through guitar pedals with loads of saturated feedback. It was an extension of a 'beautiful noise' aesthetic of rock and an attempt to subvert the cold and 'non-human' sound of the machine.

VLADIMIR: This is awful!  
 ESTRAGON: Sing something.  
 VLADIMIR: No, no! [He reflects]  
 We could start all over again perhaps.  
 ESTRAGON: That should be easy.  
 VLADIMIR: It's the start that's difficult.  
 ESTRAGON: You can start from anything.  
 VLADIMIR: Yes, but you have to decide.  
 ESTRAGON: True.

By the turn of the millennium, even electronica had become mainstream. For many years, I gave up performing music altogether. Around this time, I became a Zen Buddhist. My musical practice involved whacking wooden blocks with dimpled mallets, chiming bells and listening to the sound of my blood, sinews and bones. My Buddhist practice eventually led me to India on pilgrimage. After only a month, I clashed with the head monk in a zen temple in Bodh Gaya. He wouldn't allow me to play a small flute in my room of the evening. I promptly abandoned my utopian spiritual quest.

[Silence]

Through chance and circumstance, in early 2003 I attended my first concert of Indian classical music at the Dover Lane Music Program in Kolkata. I was immediately converted. For the next decade, I studied Indian classical music with Sougata Roy Chowdhury and K. Sridhar in Kolkata and the UK. My main instrument became the fretless twenty-five stringed lute called sarode. Here was an instrument and a musical system that were constructed around tone, feeling and raw emotion. I felt like I had found my musical home.

VLADIMIR:       When you seek you hear.  
ESTRAGON:       You do.  
VLADIMIR:       That prevents you from finding.  
ESTRAGON:       It does.  
VLADIMIR:       That prevents you from thinking.  
ESTRAGON:       You think all the same.

For many years, I became the North Indian classical music guy and I was obsessed with all things raga. My gurus taught me that music was predominantly a spiritual practice in which the musician and listener can achieve transcendence. In Indian music philosophy, certain tones or pitches are understood to activate energy centres in the body and appease celestial beings. These beings, known as Gandharva, are omniscient, always listening, waiting and receptive. In this cosmology, non-musical sounds, especially sounds that are not acoustic, are considered disruptive to the harmonic order of the universe. I was sold and quickly became an enthusiastic zealot.

VLADIMIR:       Christ! What's Christ got to do with it?  
                  You're not going to compare yourself to  
                  Christ!  
ESTRAGON:       All my life I've compared myself to him  
VLADIMIR:       But where he lived it was warm and dry.  
ESTRAGON:       Yes. And they crucified quick.



My teachers bestowed their blessings on me to begin performing. Soon after I settled in the West of Ireland. In my newfound musical fervour, I imagined a world where pop music no longer existed. Everyone would spend their time sitting on the floor listening to Indian music. All the pubs in Ireland would serve chai and burn incense. I was the purest of the pure, on a mission from God.

VLADIMIR:        Say, I am happy.  
 ESTRAGON:        I am happy.  
 VLADIMIR:        So am I.  
 ESTRAGON:        So am I.  
 VLADIMIR:        We are happy.  
 ESTRAGON:        We are happy.

[Silence]

After a while, I had a creeping feeling of doubt about the veracity of my fundamentalist position. I was a white, middle-class Australian male trying to perform Indian classical music in rural Ireland. While I had a deep love for Indian classical music (and some level of proficiency in the performance of it), I had to admit that I would always suffer from ‘duck in the henhouse’ syndrome. Aubert uses the ‘duck’ analogy to explain how foreign performers of Indian classical music are ‘constantly susceptible to being questioned, even judged as suspicious’ (1). No matter how enthusiastic or competent I was as a performer of Indian classical music, I could never claim to fully belong to the Indian tradition. I would always be both inside and outside it at the same time. I discovered that this conflict of identity was common amongst other foreigners studying Indian classical music (2). Many were having similar experiences to me, trying to find ways to integrate Indian music with their own sense of cultural self.

VLADIMIR:     Calm yourself, calm yourself.

ESTRAGON:     You and your landscapes! Tell me  
                  about the worms!

In 2012, I decided to immerse myself in Irish traditional music. Over four years, as part of an arts practice PhD, I explored how to adapt Irish traditional music for the sarode. In the process, I slowly but surely found ways to integrate myself into the world of traditional music. I even toured India with several Irish musicians (3). However, in terms of my identity, things were getting even weirder. I was now a white, middle-class (and middle-aged) Australian guy playing Irish traditional music on an Indian instrument.

VLADIMIR:     Why doesn't he put down his bags?

ESTRAGON:     Rubbish!

Rather than being troubled by this lack of clear musical identity, I embraced it, re-imagining myself as a musical 'mongrel'(4), acknowledging and celebrating the power of inter-cultural complexity. The mongrel has a special role in inter-cultural exchange and a unique kind of strength or 'hybrid vigor' (5). Embracing my mixed musical pedigree was challenging, but also liberating. Reclaiming my mongrel identity helped to rekindle a connection with my rock n roll soul, which had long been subdued. 'Hey Indian music guy', it said, 'Let's fuck shit up.'

VLADIMIR:     Then all the dogs came running  
                  And dug the dog a tomb.

[He stops, broods. Softly]



In 2018, I was awarded an Irish Research Council Postdoctoral Fellowship to research 'mongrelity' in musical composition. My aim was to put flesh on the bones of the 'mongrel' concept. The plan was to compose three new works in collaboration with three composers who also displayed some 'mongrel' traits (6).

VLADIMIR: Oh pardon!  
ESTRAGON: Carry on.  
VLADIMIR: No no, after you.  
ESTRAGON: On the contrary.  
[They glare at each other]  
VLADIMIR: Ceremonious ape!  
ESTRAGON: Punctilious pig!  
VLADIMIR: Finish your phrase, I tell you!  
ESTRAGON: Finish your own!  
[Silence. They draw closer, halt]  
VLADIMIR: Moron!  
ESTRAGON: That's the idea, let's abuse each other

I used these collaborations as opportunities to explore both my fascination with, and distrust of, computer-manipulated sound. I worked with the composer and pianist Ryan Molloy to create 'Waiting for Gandharva'. The piece was an attempt to bring together my disparate musical identities in a single composition. 'Waiting for Gandharva' is how I imagine it might sound inside a sarode if it was connected up to a Marshall stack and played by John Cage (or, perhaps, what it sounds like to be inside some dark recess of my own head).

VLADIMIR: All I know is that the hours are long, under these conditions, and constrain us to beguile them with proceedings which - how shall I say - which may at first sight seem reasonable, until they become a habit. You may say it is to prevent our reason from foundering. No doubt. But has it not long been straying in the night without end of the abysmal depths? That's what I sometimes wonder. You follow my reasoning?

ESTRAGON: We are all born mad. Some remain so.

# Waiting for Gandharva

MATTU NOONE

Dead slow

Piano

(scratch string) ... (continue until b.3)

L1

(c 12')

L2

mf

p

mf

♩♩ smpre

4

L3

♩ = 80

mf

pp like an echo

L4

p

move harmonic up string

mf

8

L5

activate loop immediately after the attack to patch resonance

f

(indefinite harmonics)

mf

p

(scratch string)

13

gradually increases momentum to the end

L6

♩ = 80

mf

pp

f

L7

f

19

L8

ALL LV.

♩ = 80

repeat until feedback

ff


f

move harmonic up string

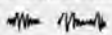
**Technical Details**

- This piece involves electronic manipulation of the acoustic sound of the piano using two microphones situated inside the body of the instrument.
- These microphones are routed through a USB interface and into a small Raspberry Pi(microcomputer) which is running a programme called CHUCK.
- CHUCK is programmed with 8 different pieces of code which effect the acoustic sound of the piano in different ways. Primarily, these pieces of code record//playback// loop the sound of the piano while also manipulating the sound with different effects such as delay// reverb// granular synthesis// random functions.
- These 8 pieces of code are triggered by using a MIDI keypad by the performer. This is signified by the symbols **L1|L2|L3|L4|L5|L6|L7|L8**
- The electronically manipulated sounds are then sent to a small amplifier which is situated inside the piano.
- The purpose of these loops is to gradually build up sonic density until the point of feedback.
- The electronic element of the composition could be replicated using other software and hardware.
- When the amplifier starts feeding back this is the cue for the performer to press another MIDI keypad which gradually fades out the piano loops.
- The piece finishes with the acoustic material of the score.

**Breathing**

- The symbol  indicates a non-audible breath (inhalation//exhalation) before playing the next phrase. Suggested durations are given in the score. The purpose of these breathe marks are temporal guidelines as well as an invitation for the performer to become more conscious of their own state of being which will naturally impact on the outcome of the performance.

**Harmonic material**

- All harmonic material is indefinite (non-octave specific) unless specified.
- The following symbol  indicates scratching the string inside the piano using the fingernail in a sustained manner.

In 'Waiting for Gandharva' the acoustic resonance of the piano is amplified using distortion and feedback. This is achieved through live sampling using the coding software, Chuck. The computer-processed sounds were then played through a small battery-powered amplifier placed inside the piano. The code patches were based around random looping, long delays and reverbs. Drawing inspiration from my Zen days, the timing of the piece relies primarily on the breathing patterns of the performer. The score includes instructions for breath durations between each melodic phrase. Inspired by structures of improvisation in Indian classical music, the piece uses limited pitch material clustered around the tonic and the third note of the scale (7). It reaches its conclusion with a saturation of feedback and noise.



**‘Waiting for Gandharva’ (2019)**

ESTRAGON:           So long as one knows.  
VLADIMIR:           One can bide one’s time.  
ESTRAGON:           One knows what to expect.  
VLADIMIR:           No further need to worry.  
ESTRAGON:           Simply wait.

As part of my research fellowship commitments, 'Waiting for Gandharva' was scheduled to be performed as part of a lunchtime recital at the University of Maynooth in April 2019. Everything worked perfectly in the sound check. My decision to create an electro-acoustic composition using coding software seemed validated. The mixture of acoustic piano, computer granularized loops and lo-fi distortion created a sound world that I found very satisfying. I felt like I had finally made something good.

VLADIMIR: Well?  
ESTRAGON: Nothing.  
VLADIMIR: Show.  
ESTRAGON: There's nothing to show.  
Try to put it on again.

After the soundcheck, final preparations were made in the hall. Programme notes were printed and left on chairs, and a small, expectant and curious audience gathered slowly. After formal introductions were made, the pianist took his place at the piano, paused, and clicked on the MIDI pad to begin the premiere performance of 'Waiting for Gandharva'

[No response]  
[A few minutes of hushed discussion]  
[Rearranging of leads]  
[Banging on the keyboard]  
[Reopening the software]  
[Turning it off and turning it on]  
[To no avail]  
[Waiting for Gandharva could not be performed]



VLADIMIR: Charming evening we're having.  
ESTRAGON: Unforgettable.  
VLADIMIR: And it's not over.  
ESTRAGON: Apparently not.  
VLADIMIR: It's only the beginning.  
ESTRAGON: It's awful.  
VLADIMIR: Worse than the pantomime.

After the embarrassing failure of 'Waiting for Gandharva's' premiere, it took several days of troubleshooting to figure out what had gone wrong. In the end, I have to admit, it was primarily human error (8).

VLADIMIR: Well? What do we do?  
ESTRAGON: Don't let's do anything. It's safer.  
VLADIMIR: Let's wait and see what he says.

Performing with computers, just like with any musical instrument, involves practice, a degree of struggle and (sometimes) accepting imperfection. This imperfection can be either machine- or (perhaps more often) human-made. The relationship between instrument, body and music making lies at 'the core of most music cultures' (9). I don't have this kind of embodied relationship with computers. I wonder how many people do.

VLADIMIR: Tell me to think.  
ESTRAGON: What?  
VLADIMIR: Say, Think pig!  
ESTRAGON: Think pig!  
[Silence]  
VLADIMIR: I can't.  
ESTRAGON: That's enough of that.  
VLADIMIR: Tell me to dance.  
ESTRAGON: I'm going.

The problem of (dis)embodiment and computer music has been discussed at length in academic discourse (10). A recurring point of reflection in this discourse is human-computer interaction and the notion of ‘interface’ (11). Some scholars argue that, in any instrumental practice, the smooth interface is ultimately ‘a chimera, the pursuit of which can lead to frustrated expectations’ (12). Musical instruments are in fact ‘characterised by a resistance to the smooth interface’ and are ‘often uncompromising when it comes to a potential merge with the human’ (13). Rather than trying to hide it, perhaps the answer is to embrace this disjuncture, to “claim the cut, work on the seam, not to blur it away, but to appropriate and promote it” (14).

ESTRAGON: I'm hungry.  
VLADIMIR: Do you want a carrot?  
ESTRAGON: Is that all there is?  
VLADIMIR: I might have some turnips.  
ESTRAGON: Give me a carrot.

The appropriation and acknowledgement of disjuncture has a parallel with my concept of musical mongrelity. Mongrelity is a moving between worlds of the sensual, cerebral, visceral, messy and sometimes contradictory reality of being a musician in the postmodern world.

Likewise, human-computer interaction is not smooth, nor need it be. Our relationships with musical instruments are not always harmonious. Rather, instrumental performance practice involves struggle, patience and perseverance. It is the embracing of this struggle that makes the performance of music such a captivating human experience. Arguably, there is something beautiful and very human about the vulnerability and fragility of human-computer interaction.

VLADIMIR:       How's the carrot?  
ESTRAGON:       It's a carrot.  
VLADIMIR:       So much the better, so much the better.

I don't really view computer-based music as either inherently bad or intrinsically good. Using computers as a music-making tool simply provides opportunities for reflection and questioning. Working with computer-manipulated sound in performance can help us challenge binary constructs: the ephemeral and the embodied; the clinical and the spiritual; the pure and the mongrel. The frustration of using a computer to make music also offers poignant opportunities for empathy through self reflection and an acceptance of our human foibles.

ESTRAGON:       Well? Shall we go?  
VLADIMIR:       Pull on your trousers.  
ESTRAGON:       What?  
VLADIMIR:       Pull on your trousers.  
ESTRAGON:       You want me to pull on my trousers?  
VLADIMIR:       Pull on your trousers.  
ESTRAGON:       [realizing his trousers are down] True.  
                  [He pulls up his trousers]

I still don't know if I will ever completely embrace the computer as a performance tool. However, I am intrigued enough by the questions to wait and see what happens.

VLADIMIR:       Well? Shall we go?  
ESTRAGON:       Yes, let's go.  
                  (They do not move)  
                  CURTAIN

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## Endnotes

1. Aubert (2017: 82)
2. Noone (2013)
3. See 'Sound of a Country' <https://www.youtube.com/watch?v=O8kPUDbEzck>
4. Noone (2016)
5. Kapchan and Strong 1999
6. Mel Mercier (sound art/ Irish music/ theatre/ gamelan), Ryan Molloy (Irish traditional and Western classical music) and Dan Trueman (hardanger fiddle/ electronics/ western composition/ digital instrument design)
7. In this version, the tonic is A.
8. I had put a volume envelope function into the MIDI pad code that was operated by a button. I didn't realise that the button had been activated during the soundcheck, which meant the envelope was always on. It simply had to be pressed again and was reset, allowing sound to come through.
9. Rebelo (2006: 27)
10. Featherstone and Burrows (1995); Khan and Seifert (2007); Hajdu (2017)
11. Stowel et al (2009); Cook (2017)
12. Coyne et al (2004: 440)
13. Coyne et al (2004: 433)
14. Coyne et al (2004: 44)

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# INHUMAN, ALL TOO INHUMAN

## INTRINSIC LIMITS OF COMPUTATIONAL CREATIVITY IN MUSIC

Mattia Merlini & Stefano Maria Nicoletti

In this paper we aim to reflect upon the human-machine relationship in creative contexts and, more precisely, on some of the limits that machines present when we take creativity into consideration. In particular, we want to raise some concerns about the possibility that machines can genuinely instantiate intelligence as we understand it (the thesis of *strong artificial intelligence*) and are therefore able to take our place as creative agents. However, even considering the more plausible positions regarding the potential abilities of artificial intelligence (e.g. machines' ability to reproduce behaviours that seem intelligent: the thesis of *weak artificial intelligence*), we are convinced that there are still some discrepancies in comparing creativity between human beings and digital agents. After having argued against the plausibility of human-like intelligent (and creative) machines, we are going to present some actual cases of *weak AIs* in action,

alongside some questions that – we argue – are surely more imminent and interesting than the science-fictional scenarios depicted by *strong AIs* supporters: should we underestimate the importance of having a body in the creation of music? And what can be said about our understanding of pleasure and meanings? And also, what role should we grant to all of those social aspects and values that are related to music and that define a large portion of the meaning of the music itself, especially in the field of popular music? To answer these questions, we will address four orders of *issues* concerning musical creation by referring to sociology of music, musical semiotics and embodied simulation. Thus, it will become evident that music is much more than just a sonic phenomenon, and this is something we should never disregard while trying to assess the role of creative machines.

### *The Limits of Artificial Agents*

To better understand the capabilities of the (inhuman, all too inhuman) artificial agents which populate our lives (e.g. smart assistants like Google Home and Amazon Alexa, or algorithms that help profile our online behaviour to better suggest what content should we pay attention to) we should first try to assess their limits. In the opening of this paper, we are going to confront the idea that it is possible to entirely recreate the human mind through computational means and – if, as we think, that is not the case – that we can at least mechanically (and limitlessly) reproduce/simulate human intelligent behaviours by deploying algorithms. These two ideas pertain to two different fields, the first being more akin to *metaphysics*, and the second – often labelled with the name of *mechanism* – representing the much more limited project of limitless mind *simulation*, which is rooted in the famous article written by Alan Turing (1950). During the next two subsections, we are going to present some arguments against both of these possibilities and in favour of the idea that machines bear within themselves some intrinsic limitations that could help us reject a set of (unjustified) worries, while making us shift our attention on the salient aspects of AI which can impact (and are impacting, as of today) the course of our lives as well as challenging our notion of creativity (e.g. how artificial intelligence can stimulate our creative processes and aid the human artist in his/hers creative moments). To further promote clarity and understanding of the point we are going to make in this paper, we give a brief schema of our argument:

1. If we have good reasons to (at least) doubt the plausibility or the imminence of strong AIs and the truthfulness of mechanism, then we do not have to worry about truly intelligent and mind-possessing artificial agents which are going to replace us in creative contexts (in short, the issues linked to strong AIs in creative contexts are not impelling, imminent or plausible).
2. When confronted with two sets of issues, addressing the ones which are more impelling, imminent or plausible is a commonly good practice.
3. We have good reasons to (at least) doubt the plausibility or the imminence of strong AIs and the truthfulness of mechanism:
  - a) Searle's argument against strong AIs and the addendum by al-Rifaie and Bishop against strong computational creativity and
  - b) the philosophical implications of Gödel's theorems.
4. Hence, in short, the issues linked to strong AIs in creative contexts are not impelling, imminent or plausible.
5. Furthermore, we have a set of issues - concerning human-machine interactions in creative contexts - which are more impelling, imminent or plausible (some elements of this set are presented in the following article) than the ones linked to strong AIs and creativity.
6. Then, we argue, dedicating our attention to more plausible, impelling or imminent issues concerning machines and creativity would be a good practice (as we do by always presenting actual or very plausible scenarios).





### *Strong and Weak AIs*

The first position we are going to present is taken from a paper written by John Searle (1980) in which the philosopher argues that (1.) *intentionality* – intended as the ability of the mind to be about, refer to or represent things, states or properties of the world – is a product of causal features of the brain (in humans or animals) and (2.) that we could *never* obtain *intentionality* by solely instantiating a computer program. In doing so, Searle proposes a distinction between two theoretical positions regarding AI and its nature, labelled *strong AI* and *weak AI*. According to weak AI, studying the mind through computational means gives us nothing more than a powerful tool to test our hypothesis. On the contrary, according to strong AI, we could use computers and algorithms to *create* a mind which is able to *understand* and to have mental states (Searle 1980:417). It is solely against the latter claim that Searle disagrees: to show its implausibility, the philosopher constructs a *thought experiment*, now famously known as the *Chinese Room Argument* (Searle 1980:417-419).

Suppose that I am a native speaker of English and that I know nothing about Chinese: I cannot recognize the ideograms, nor am I able to write or speak Chinese. Now, suppose that I am locked in a room and that I am given two batches of Chinese symbols along with a set of rules, which are written in English and can be used to correlate the second batch with the first. As a native speaker of English, I fully understand the rules and these enable me to correctly correlate one set of symbols from the first batch to one set of the second, only by identifying their shapes. Furthermore, suppose that I am given a third set of symbols in Chinese, alongside some instructions which allow me to correlate the symbols from the third batch to the previous two batches and suppose that the people which handed me the three sets of symbols call the first batch a “script”, the second a “story”, and the third “questions”. The symbols that are given by me – in response to the third batch – are called “answers to the questions”, and the set of rules that I possess is called “program”.

Now let's imagine that I can play this game also in English and that I get so used to manipulating symbols in Chinese (and that the programmers are so good at writing the programs for me) that my responses are indistinguishable from the ones that would be produced by a native speaker of Chinese (and my performance is equivalent – from the outside – to the one I give whenever I play this game with English batches). However, I still do not understand any of the Chinese symbols: “[...] in the Chinese case, unlike the English case, I produce the answers by manipulating uninterpreted formal symbols. As far as the Chinese are concerned, I simply behave like a computer; I perform computational operations on formally specified elements. For the purposes of the Chinese, I am simply an instantiation of the computer program.” (Searle 1980:418). It is pretty clear for Searle, at this point, that there is a substantial difference between the English and the Chinese cases: in the former, I *understand* the stories, while in the latter I am only manipulating symbols. In the former, I can operate both on *syntax* and *semantics*, while in the latter I am forced on a *syntactic* level. By this experiment, Searle argues, we are inclined to refute the thesis of strong AI's supporters: that is, we are inclined to say that a computer cannot be a mind for it cannot replicate one of the peculiarities of human minds, which is *understanding*. In short, syntax is not sufficient for semantics.

Despite our knowledge of the numerous critical stances regarding this argument (for some of them see Searle 1980:419-423, Kurzweil 2000, Crane 1996, Churchland & Churchland 1990 and Pinker 1997), we believe that the Chinese Room Argument serves (at least) the purpose of inducing doubts towards the plausibility or the imminence of strong AI. If that is the case, we can also accept the linked distinction made by al-Rifaie and Bishop, regarding *strong* and *weak computational creativity*: “[...] in Strong Computational Creativity, we argue that [the] computer is not merely a tool in the study of the creativity; rather the appropriately programmed computer really is creative, in the sense that, computers given the right programs can be literally said to *understand its creation* and have other cognitive states (e.g. teleological and emotive) associated with human creative processes.” (al-Rifaie and Bishop 2015:45). Having good reasons to doubt the plausibility or the imminence of strong AI gives us – at the same time – good reasons to doubt the existence of strong computational creative agents, leaving the door open to addressing more plausible and impellent problems concerning machines and creativity (to be discussed later in this article).

### *Anti-Mechanist Arguments and Gödel's Theorems*

As a second attempt of making our reader doubt the plausibility or the imminence of *strong AIs* and the truthfulness of mechanism, we are now going to briefly present an argument against mechanism (as analysed in Beccuti 2018). In 1951, Kurt Gödel presented the philosophical consequences of his famous incompleteness theorems, claiming that his second theorem "[...] *makes it impossible that someone should set up a certain well-defined system of axioms and rules and consistently make the following assertion about it: All of these axioms and rules I perceive (with mathematical certitude) to be correct, and moreover I believe that they contain all of mathematics. If someone makes such a statement he contradicts himself.*" (Gödel 1951:309). Let us expand on this claim: during the same conference from which this passage is taken, Gödel traces a distinction between mathematics in its *subjective* sense and mathematics in its *objective* sense. The former is the set of provable propositions starting from some axiomatic system, the latter is the set of true propositions in the absolute sense: are these two sets – Gödel asks himself – the same set? If so, we could not possibly “encase” the entirety of mathematics using only one axiomatic system: if this said system were to exist, in fact, the proposition that expresses its consistency could not be proved in it (as per the second incompleteness theorem), in which case the initial assumption is contradicted. If, on the contrary, we were to distinguish objective from subjective mathematics, then subjective mathematics – on the one hand could be axiomatized using only one system but – on the other hand – the problem of explaining (both philosophically and mathematically) the existence of true propositions which are not accessible by formal proofing would remain open (Beccuti 2018:2-3). Gödel is then inclined to accept the following *disjunction*: either we can not formalize subjective mathematics, or we can not reduce objective to subjective mathematics. In other words – and following Gödel's argument – “[...] *either mathematics is incompletable in this sense, that its evident axioms can never be comprised in a finite rule, that is to say, the human mind (even within the realm of pure mathematics) infinitely surpasses the powers of any finite machine, or else there exist absolutely unsolvable diophantine problems of the type specified* (where the case that both terms of the disjunction are true is not excluded, so that there are, strictly speaking, three alternatives). It is this mathematically established fact which seems to me of great philosophical interest.” (Gödel 1951:310). Hence, according to Gödel, either mechanism is false, or there exist mathematical problems for which we can not hope to find solutions.

By analysing this argument in a deeper manner (see Beccuti 2018), we can unearth four different assumptions, mathematical and philosophical in nature, which are the usual common ground (Beccuti 2018:8-9) of a possible proof of the said disjunction: 1) the incompleteness theorem; 2) theories-machines isomorphism; 3) the Church-Turing thesis; and 4) consistency of the human mind. Suffice to say that the first two assumptions are out of the realm of informal debating (they are metatheorems of mathematics, mathematical results themselves. Questioning these requires us to question the entirety of mathematics) and the third – despite it being an hypothesis fuelled by empirical evidences – is widely accepted by the community of experts in mathematics and computer science. That leaves us with the (more easily) questionable assumption – the fourth one – on which a large part of the philosophical debate is focused. We will not consider here the entirety of the positions that try to favour or discredit this claim – or other more subtle ones, involved in this proof (Aldini, Fano & Graziani 2016): it is sufficient, for our needs, that the two arguments hereby presented grant the reader enough of a doubt concerning limitless (and creative) strong AIs to consider problems associated with them as not impelling, imminent or plausible (or, at least, less plausible than the ones we are going to present). By doing so, the reader will agree with us on the need of focusing our attention on more real (and already present) questions concerning machines and creativity, as per point 3 (a similar position, concerning the real problems and opportunities of AI towards which we have to direct our attention can be found in Taddeo & Floridi (2018) and in Floridi, Cows, Beltrametti et al. (2018)).

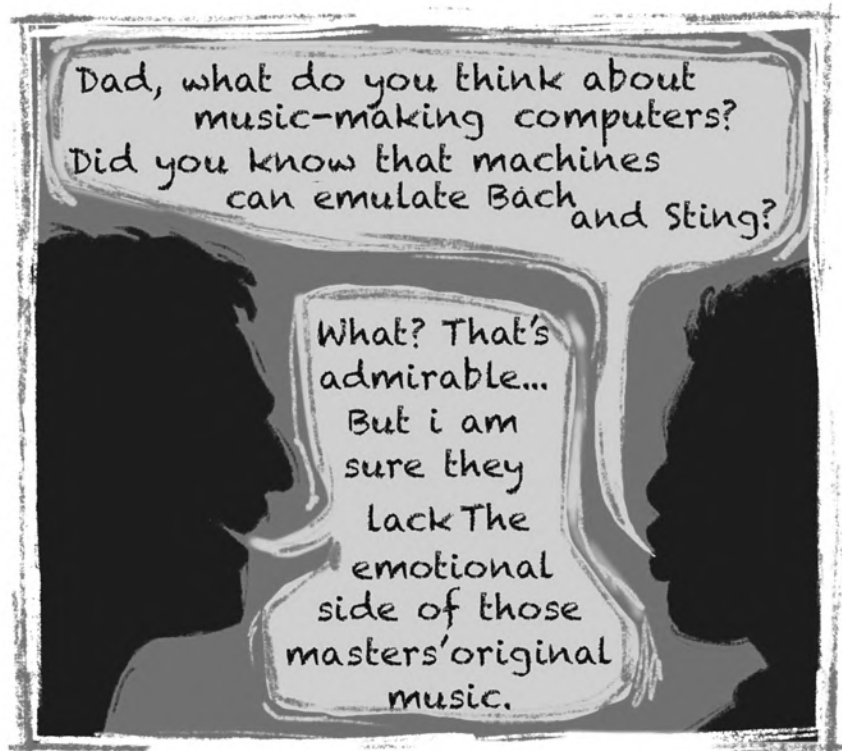
### *A Look to the Present*

So, it seems like AIs cannot possibly take our place: we can definitively place our anti-Terminator weapons far from our children's reach. But one could argue that machines are already simulating – if not actually instantiating – music creation (and not only that, see Colton et al. 2012 and Cohen 1995 for examples of AI applications in the field of painting and poetry). Now, these are the kinds of matters that we have to reflect upon, instead of worrying about sci-fi strong comp-

-utational creativity. Because yes, computers can kind of create music, and this triggers a whole lot of points concerning creativity in general and the role of machines in our habitual activities. In the following lines we will try to tease out some of those questions, while trying to highlight more limits in computational creativity that we assume as implausible to trespass.

For the purposes of our argument, I would like to split music into two broad categories: *emotional* music and *rational* music. This distinction is purely instrumental, so no ontological claim is made here. The first one is the one that we usually listen to for the pure joy of listening and looking for emotions/sensations, it does not matter if it is in the music of Beethoven, The Beatles or Burzum. *Rational* music is that kind of music which major factor of interest lies in its rational side, in the fact that it is *interesting* but not necessarily pleasant. We do not usually listen to such music to empathize with the composer or to feel strong emotions, but rather to enjoy its structure and, most of all, the concept lying behind the work (much of the avant-garde music can be included here). Given that it is quite intuitive that computers can produce a piece of *rational* music (but we will see if that is the case), can this work with *emotional* music as well?

### *Emotional Music and the Social Issue*



Standard Situation

Do they? And do they also lack the genius of great composers and songwriters? Quite paradoxically – if you consider our positions until now – we would answer negatively to that question. Or, to be more precise, we could say that there is no actual reason why we could not be moved by listening to a piece of music composed by a machine. David Cope, developer of the creative AI named EMI, is firmly convinced of the potential of his digital creature, whose musical output is actually so impressive that it managed to change the mind of Douglas Hofstadter, previously (Hofstadter 1979) quite sure of the opposite (to access the full debate, see Cope 2001). It can be quite emotional indeed! EMI can produce music using Markov chains that recombine pieces of previously analysed music by the composer that you want to emulate, and further working on it via additional phases of the elaboration, that give the new piece coherence and recognizable patterns (for details, see Hofstadter 2001:44-51).



EMI Demo

This process makes sense if you start from the assumption that creativity is "the association of two ideas heretofore not considered related but now revealed as logically connected" (Cope 2015: 310), as Cope does, but of course it does not work so well if you take other factors into consideration (to which we shall return soon enough). Even at first sight you can spot some insidious (and classic) critiques, like the one concerning the lack of intention in what the computer is doing, and the superficiality of the "recombination" it is producing. Hofstadter refers to this in the terms of *sounding like* vs *speaking like* a composer (Hofstadter 2001: 53-55), presenting a layered conception of *style*, in which what EMI does is just imitate the surface and sound like Bach, which is basically the same kind of argument as that of the Chinese room. Of course Cope does not agree on most of Hofstadter's critiques, but he also provides responses (Cope 2001: 83-92) that are mostly questionable themselves, especially when he provides *ad hoc* definitions of what music and creativity should and should not be, and when he mixes some aspects of EMI's work with some others that must be attributed to his own work on EMI (e.g. when he responds to the critiques about the "soullessness" of "20,000 lines of code" by pointing out that such an apparently inspiration-less and imagination-less task required thousands of hours of passionate human labour and programming, see Cope 2001: 90... but this has nothing to do with EMI's capabilities, we argue). His arguments only work if you assume him to be the actual composer using EMI as a means to compose (quite derivative) music, as he sometimes seems to assert himself. But this has nothing to do with EMI itself delivering results that are actually equivalent to music composed by real people, which is the very idea Hofstadter was criticizing.

That is why we argue that it makes much more sense to acknowledge the limits of computational creativity and develop something like Pachet's Flow Machines. In such a context, style is conceived as "a malleable texture that can be applied to a structure, defined by arbitrary constraints" (Ghedini, Pachet, Roy 2016:334), so Flow Machines are useful to study that particular human behaviour that is style (the same kind of use we can make of weak AIs), by applying those textures to constraints defined by the user (so you can get, for instance, a Beatles song harmonized by Wagner or a dodecaphonic 'Boulez Blues').

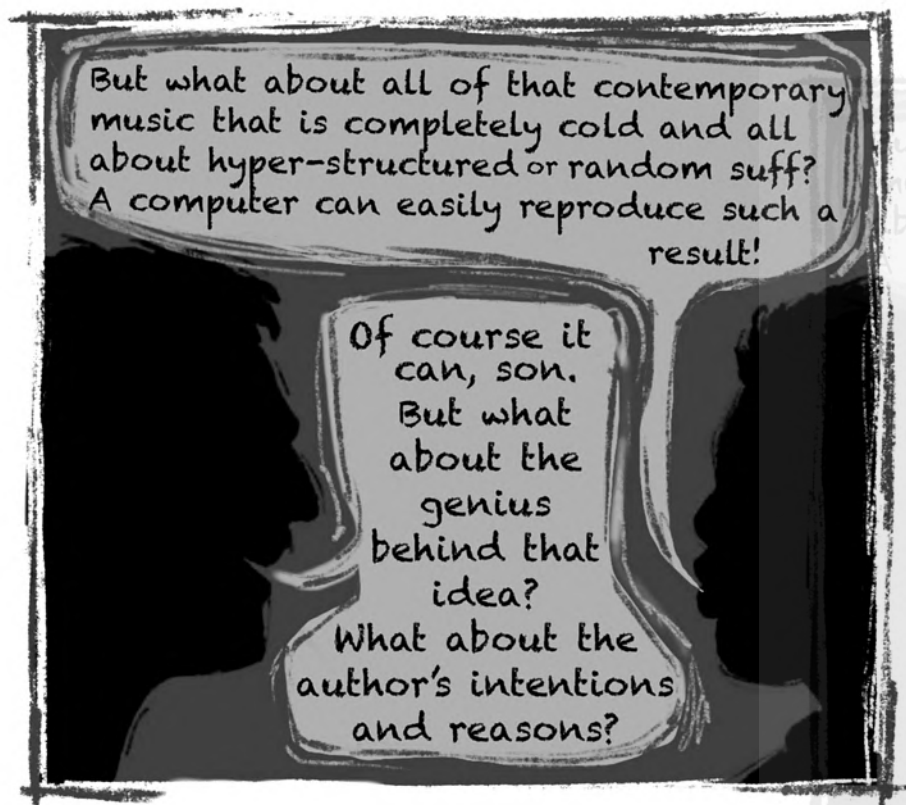


Flow Machine Demo

Such an approach does not pretend to transform machines into artists, and this act of modesty is the result of a much more mature attitude towards computational creativity. And that is because what we are really losing with AI-created music is not really emotion, nor the genius or the intention, but the very humanity of it, in several different senses. The first one will be presented now as the social issue: Pachet can easily generate a new song “in the style of The Beatles”, but there is something about the original songs by the Fab Four that a machine cannot reproduce, which is the social context. Music and its meaning always rise from very concrete situations, so, for instance, the music of The Beatles was carrying a whole set of meanings which would not make sense in a computer-based context. Moreover, those ideals – or merely the shared passion for the same kind of music – are what keeps fans together, so there is an actual social context surrounding the music and defining it far beyond its supposed textual meaning (Spaziante 2007:33). Of course there might exist a community of computer-generated music lovers but... would it really be the same? Can we feel the same about that music? Cope (2001:335) argues that such problems are basically much ado about nothing, because music (as sound) stands by itself, in some sense – it is the only tangible thing we have and it is basically the only thing that actually matters in our relationship with music. Which is a very musicologically naive perspective.



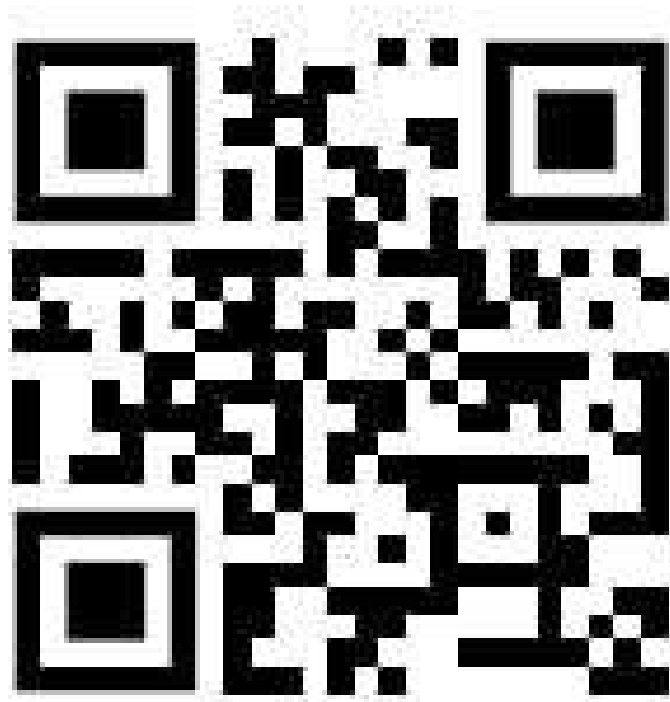
*Rational Music and the Experiential Issue*



Standard Situation - Reprise

This time, the person on the left is kind of right. Though many attempts of contemporary art aim to delete those intentions and reasons, there are always residual elements that are, once again, making things more complicated than they might seem. After all, if we take John Cage's work as example, his music was an attempt to free music from human creativity by giving the sceptre of the composer to the case (Cage 1961), and Xenakis took the game a step further, by letting stochastic formulas define the form of the composition, leading to a structuration of case - as it is in nature - but the same composer also highlights the centrality of human choices in such a process, not to mention his very personal cultural roots and interests, his ideals and rejection for much of the avant-garde music of his time, and we might go on like this for a while (Xenakis 2003). This leads to the very issue discussed here, the one we shall call *experiential issue*.

What a computer lacks – and will always lack, if the first section of this paper makes some sense to you – is the capability of having an experience not merely in terms of manipulating 0s and 1s, but in terms of a lived experience, just like Xenakis was arguing (see above). Please note that this argument should also be effective when talking not only about avant-garde composers, but also highly structured music like that of extreme metal band Meshuggah, which features a very strict and mathematical procedure (Pieslak 2007), which is already possible to simulate online.



Visit [djen.co](http://djen.co) to generate music in the style of Meshuggah.

It is that kind of experience that sets the very conditions of every musical creation, in the theory of music semiologist Jean-Jacques Nattiez (2007): the choices composers take (and so the core of their music) spring from situational factors, discourses and personal experiences, like for instance their relationship with existing music (and composers). Nattiez's aim is to focus our attention on the aesthetic (Tagg 2012: 196-198) side of musical creation, claiming that – obviously enough – creative choices do not come out of the blue (see, for instance: Amabile & Pillemer 2012; Ghedini, Pachet, Roy 2016: 325-329, Kozbelt, Beghetto, Runco 2010), neither do they relate to some kind of metaphysical Zeitgeist. Nothing of this fundamental commerce with the world is compatible with computational creativity.

*On Top of It All. The consciousness and Body Issues*

We may have closed the previous paragraph in a much too insistent way. But the reasons for our determinacy will be unveiled in this paragraph, which you might consider as a small coda that will hopefully convince you of the fact that we can relax when talking about AI-apocalypses with art and creativity playing the role of the main victims. In fact, further applications of the positions discussed above lead to the ultimate core of the problem, which is the intrinsic absence of consciousness and body in machines. The consciousness issue should be clear enough by now, and it is something that makes very much sense if we start from Searle's position, but also from a phenomenological perspective. Once again, weak AI seems to be the only possibility.

And what about the body issue (to read more about this specific issue, see Merlini, Nicoletti 2020)? Well, did you ever listen to the majority of post-rock music feeling a strange kind of chill in your body (especially in your hands) whenever the guitarists use tremolo picking? This is just one of the endless examples that one could think of to briefly explain how much having a body affects what we get from music. Such a point can be found in the reflections of French philosopher Merleau-Ponty (1945), but also finds support in contemporary neurosciences, and especially in the idea of *embodied simulation* (see, for instance: Gallese, Sinigaglia 2011): we can simulate (via mirror neurons) actions carried out by other individuals in our very body and flesh, including the physical actions that give birth to music (for some more advanced results in this research area, see Molnar-Szakacs, Overy 2006). The simulation is influenced by our competences (i.e. a guitar player can understand what tremolo picking physically feels like, unlike a piano player; see Moore 2012:4) and this might also explain why we tend to empathize in such a natural way with vocal performances and with their very "grain of the voice" (Barthes 1977:49-54), which is also carrier of meaning, since we all know, to some extent, how it feels like to sing. Let's also keep in mind that popular music is usually created by actually playing the instrument (Moore 2001:56-60) which is a very specific action with its more and less obvious affordances (Gibson 1979) and carrying a whole set of specific body shapes and physical sensations, so the creative choices themselves are body-driven, to some extent.

Music is not just notes and pure sound. It incorporates values, stories, ideals, concepts, sensations and kinds of pleasure (intellectual and physical) that require the very being that we call *human* for them to be understood, embodied, elaborated and used as fuel for new creations in the field of art, a field that we think is bound to be – and remain – exquisitely human.

## *Conclusions*

In this paper, we argued that theories on strong artificial intelligences in creative contexts – capable of taking our place in every aspect of creation, and musical creation in this particular case – are not very plausible if we take into consideration the four previously mentioned issues, which can ultimately be brought back to Searle’s Chinese Room argument, which we explained at the very beginning of the article. Nonetheless, AIs have taken huge steps into the field of creativity – and they will most likely continue to do so – and this should stimulate research around other problems, much more impellent (and less futile) than all the science-fictional worries that often lead us – more for the fascination they carry along, than for actual well-motivated fears – to discuss about artificial intelligence. Already between the present lines, we were able to address some of those topics and issues, that range from the necessity of a better comprehension of what “creativity” or “intelligence” might be, to the understanding of what defines the musical work as such, and to the question of whether or not there are strictly human features that we can find in art and that we tend to take for granted. All things considered, we believe that this seminal work leaves the door open to subsequent studies regarding the human-machine interaction in creative contexts and, in conclusion, we would like to outline some directions for further research.



Firstly, the intrinsic difference between the creative capabilities of human subjects and artificial agents could be captured in a stricter manner: we are convinced that some narrower arguments could be made in support of the intrinsic limitations concerning AIs, this time without the need to rely upon broader philosophical claims about human minds and their mechanical reproducibility. Secondly, we believe that neuroscientific claims about creativity and embodied simulation/cognition deserve a broader and more in-depth discussion: some further work could be addressed to unearth potential links between the field of neuroscientific studies and the one concerned about AIs limitations, not forgetting to also compare the results with the phenomenological suggestions of authors such as Merleau-Ponty, that gave much importance to the relationship between our world and the body. Lastly, we reckon that the theoretical framework hereby outlined could benefit from the confrontation with the reality of computational creativity: whether or not any of the limitation concerning AI and creativity is to be found inside the product of this (mechanical) creative (?) process is another question that remains open.

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Martina Nicoletti for the figures. Our friends Francesco Marsigli and Davide Venturi for the feedback. Our reviewers for their precious advice.



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Image: Matthew DF Evans

# DANIELLE MOORE

## TALKING TECH, LOCKDOWN AND THE IMPORTANCE OF LIVE MUSIC

Ian Davies

*What role does technology play in your sound (previously and during lockdown)?*

Pre-lockdown, most of our recording as a trio team was done in the studio in Nottingham. There is an extensive set up over there with various outboards, a sound desk, various synths and loop stations available to choose from. Most of the drum programmes are either part of logic or samples the lads have taken from old car boot vinyl purchases, or indeed live takes from our own drummer. In a usual "jam" situation, Chris (Todd) would set up a drum loop on Logic, Jim (Baron) would play keys, initially with me writing vocal lines using a Boss RC-30 loop station. This allows me to record a number of short ideas instantly so I don't forget, which is usual! During lockdown

the Notts studio has been out of action, so my simple setup at home in the attic involves quite simply Logic and my Samson Go Mic, although I have just purchased a Rode NT 1-A usb mic which goes through a phantom power/sound card. I'm yet to become familiar with this though, so haven't quite tweeted the sound.



*How does your practice as an artist connect with technologies, music or otherwise?*

I have to admit, I've never pursued a love for technology, but have realised the importance of knowing and learning more as time progresses, especially in the current situation. I went on a couple of Logic courses so I could record vocals on my own, which was not only great to learn amongst a class of varied abilities and I just loved making mistakes whilst learning. I use the recorder on my iPhone all the time for getting little ideas down especially when travelling as I pick up on conversations and often they inspire lyrics; something I've struggled with in lockdown because of lack of social scenarios. My Mac laptop is my lifeline as it has allowed me to broadcast a weekly radio show via OBS which pairs audio and visual and it also manages my DJ mixes. Really, my Mac is my main work tool.



# Riffs

50

*Do we need technology to make art?*

Well, that would depend if you mean recordable art or spontaneous live art. I believe art becomes more accessible through technology. I can't write music too well, so I don't know how else we would record or retain information without technology. I also believe technology has made it easier for those who haven't had the joy of learning a musical instrument; there are so many programmes and toys now it can be fun and relatively inexpensive. Whilst I don't think we need technology to make art, I feel it's a wonderful addition to the progression of this amazing thing.

*Have accidental innovations or moments with technology contributed to your work?*

Being a non-playing musician, I've often tinkered and dabbled with the synth sounds putting them through various Logic sounds ...creating warped wonky twisted pitches, but mainly my tech dabbling involves the loop station and stumbling across voice changers on the TC Helicon, which offers endless banks of vocal effects which add so much more interest to a standard voice like mine. Doubling and trebling, harmonising and pitch shifting is a great way to write melodies and accidentally make something completely different sounding. Other than that, recording the sounds of basic everyday items - like umbrellas opening and closing and banging radiators and playing the recording backwards - is accidental as it gets!



*Have you got a favourite piece of tech that you use when making music?*

The Logic reverbs are ace!!! I love messing around with them and the other effects are equally as good. I'm also loving my TC Helicon VoiceLive Touch. I use it in every gig and it adds depth, distortion and interest to my voice. It also makes me feel like I'm in control of something savvy.

*What do you think the future of music and the music industry is, especially in a post-COVID-19 world?*

That's an impossible question to answer factually of course, as who knows where this will take us? But I truly hope we get back to social events as that is where my personal stimulation for writing comes from. Sounds on the streets, hearing people chatter, general industrial sounds...and how they are processed by us as individuals. I'd hate to think that venues would struggle to exist due to limitations on numbers through social distancing. The power and importance of human interaction has become so much more obvious in lockdown. The power and beauty of communication through music, and the exhilaration of seeing a live gig and being part of the audience, cannot easily be replaced online. However, I do think for the immediate future we will continue to broadcast via platforms like OBS, where people can see the performance and feel more connected to the artist through chat rooms and Zoom-like interaction. I think there will be more pay-to-view streams and a new opportunity for collectives and more local musicians to perform and gain audiences, rather than the focus being concentrated on a few very high paid individuals. I hope, and I can only hope, things change for the better. I can't imagine a world without live performance and vital local community serving venues.





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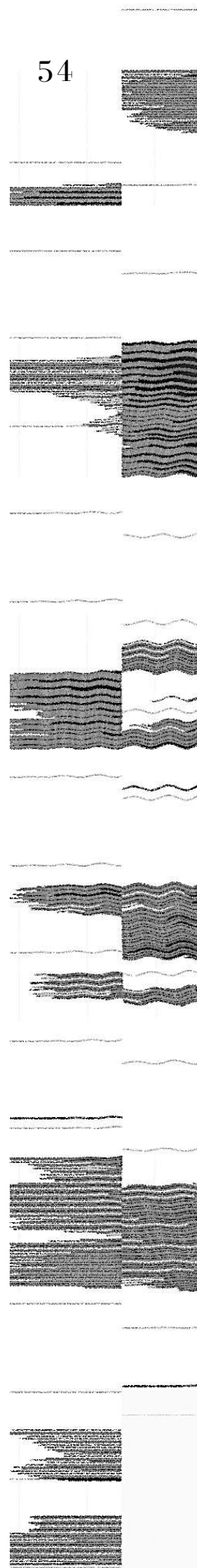
Shot at **R Manor Recording Studio** (Jewellery Quarter, Birmingham). With thanks to Helen Bentley and Gerry Parchment, and to Lyle Bignon for location management.



# PUSH AND PULL: CREATIVE PRACTICE AND CREATING TECHNOLOGIES

Sophie Rose

The lures of technologically enhanced performance are numerous but present challenges. This paper discusses the interplay of creative practice and embodied technology design as I experienced it through the co-development and construction of a set of data-gloves for use in performance. The project grew from the desire to engage with technology in an intuitive and visually exciting way. Using an embodied technology to interact with the voice radically changed my experience when performing. It led to feeling immersed in the sound and performance in contrast to disconcerted (with sampling) or nonplussed (with effects pedals). The gloves encouraged specificity in performance techniques and the use of movement cues. Audio manipulation via embodied interactive technology was startlingly empowering. The gloves connected to Ableton via MAX/MSP. MAX/MSP monitored the movement of flex sensors and buttons and communicated this by Musical Interface Digital Instrument (MIDI) to Ableton. Data triggered samples and audio effects in Ableton that affected the audio output of two microphones. Making, evaluating, troubleshooting, and curating sonic effects led to the creation of the piece, *Tāwhirimātea* (Rose 2018a), the adaptation of *Te Karanga* (Rose 2018b), and use in *These Would Be Other* (Burke & Mann 2019). This is an ongoing project, which will build upon the initial iteration discussed in this paper, to explore using embodied interactive technology to manipulate, alter and spatialise sound in surround sound and Ambisonic environments. There is further work to be explored within the design and





technical capabilities of these gloves, including how it changes the user experience and what effects the types of interactions have on composition and performative outcomes.

### *Push and Pull*

The lures of technologically enhanced performance are numerous but present challenges. This paper discusses the interplay of creative practice and embodied technology design. Technology has become far more accessible, easy to use, and relatively inexpensive for the practitioner and consumer alike. In early 2018, I began using MAX/MSP (Cycling '74 2018), and a world of possibilities for interactive audio manipulation unfurled. This led to co-developing a set of data-gloves for performance purposes. These gloves connected to Ableton via MAX/MSP using virtual serial ports and Bluetooth. MAX/MSP monitored the movement of flexible sensors and buttons that triggered samples and audio effects in Ableton via MIDI data affecting the audio output of two microphones. The project grew from the desire to engage with technology in an intuitive and visually meaningful way. The commonplace grids of knobs and buttons found on commercial MIDI controllers had always felt unintuitive. By making the controllers mobile, I hoped to escape the constraints of the singer-songwriter stuck behind an instrument. This investigation quickly became entwined with other aspects of my practice. Making, evaluating, troubleshooting, and curating sonic effects lead to the creation of the piece, *Tāwhirimātea* (Rose 2018a), the adaptation of *Te Karanga* (Rose 2018b), and use in other's pieces such as *These Would Be Other* (Burke & Mann 2019). This enterprise inspired an ongoing exploration of the use of effects on the voice through embodied interfaces.

This project explored technology development with composition, performance, and improvisation according to the practice-based methods outlined by Candy (2006) and Mäkelä (2007). Contemporary designs with similar technological outcomes include eMic (D. Hewitt 2011; D. Hewitt & Stevenson 2003; D. G. Hewitt 2006), VAMP (Jessop 2009, 2012, 2018), Alto.Glove (Thorn 2018); GloveSense (Wiegman, Wells, Hedlund, & Erad 2015); AirSticks (Ilsar 2012); and

Mi.Mu (Mi.Mu Gloves LTD 2016; Mitchell, Madgwick, & Heap 2012). The most influential project for our design was Mi.Mu. The Mi.Mu gloves have eight sensors per glove (two per finger, with no sensors on the pinky finger). They communicate via WIFI through software, Glover, to Ableton (or any other DAW). Glover is used to interpret gestures which can be mapped to sounds or effects. Jessop created the Virtual Augmentation and Manipulation Prosthesis (VAMP) as a super-human voice prosthesis for an opera character. VAMP enables the wearer to 'pinch-to-hold' notes while singing, allowing the performer to move off the note while 'holding' the previous pitch. The performer can thus sustain, pitch-shift, or otherwise affect their voice (for example, vibrato) to enhance performance. We did not examine non-glove based gestural music technologies for the implementation of this project, but we were interested in the gestures and philosophies underpinning the eMic and AirSticks. Hewitt and Stevenson (2003) used the eMic controller as a tool to explore the singer's use of gestures with a microphone stand. The gestures that they explore include the stroking, tilting, and rotating of the microphone stand which are sensed through tilt, ribbon, and pressure sensors, and mounted joysticks. Hewitt (2006) notes that audience-performer communication is harmed when the audio manipulation is conducted behind the barrier of a laptop. The eMic removes the barrier to the audience whilst allowing the performer to use the traditional codified language of the microphone stand for control and audio manipulation.

Our interactions with technology shape us in physical and psychological ways (Burt 1994; Erkut & Dahl 2019; Höök 2018; Weintraub 2015; Wilde, Schiphorst, & Klooster 2011). The implications of this are evolving interface designs that engage the performer in embodied interaction during performance. As a kinaesthetic learner (Gault 2016), I integrate new techniques into my practice to internalise information fully. This experience aligns with embodied cognition philosophies (Ádám 2013; Geeves & Sutton 2015; Leman & Leman 2008) and somaesthetic approaches to design for optimal use of objects. Embodied cognition is the theory that our understanding, knowledge acquisition, is shaped by the body and environment that we inhabit (Cowart 2019).

It has roots in Merleau-Ponty's phenomenology (1965), Dewey's pragmatism (1920), and is linked to modern somaesthetics (Höök 2018; Shusterman 1999). Somaesthetics and soma design dictate that objects should deepen the user's mindfulness and engagement with the item through use. Merleau-Ponty incorporates the mind-body connection in phenomenology, placing the body in the foreground of understanding perceptions. Shusterman argues that we must analyse the body's responses to understand our perceptions of reality entirely.

*Or, How*



Figure 1. Materials used to create DIY flexible sensors.

(We used practice-led research and research-led practice (Candy 2006; Smith & Dean 2009) as applicable to each design stage. Literature informed the programming aspects, and the electronic design and physical fabrication used our pre-existing knowledge and skills.

We used MAX/ MSP (Cycling '74 2018), Arduino (arduino.cc 2019), and Ableton (Ableton 2018) to develop the technology and drew inspiration and ideas for problem-solving from Jessop (2009, 2012), Mi.Mu development blog (Mi.Mu Gloves LTD 2015), and GloveSense (Wiegman et al. 2015). This literature demonstrated a variety of approaches that other creators had used and provided a framework to formulate our process. To keep the construction achievable in the limited time frame of two months, we modified parts of default projects from Arduino and MAX/MSP, such as the Virtual Colour Mixer. We built bespoke, flexible sensors using jumper cables and static insulation bags (shown in Figure 1 and 2) to proof the concept and assess the ranges of data gathered before switching to more durable, commercial-grade flexible sensors. The wearable elements were constructed from swimming grade Lycra, lace, metal eyelets, polyurethane vinyl, plastic project boxes, and shoelaces. The circuit boards and housing for the electronics connected directly to the sensors, which were attached to the gloves. Each glove sent data to one virtual serial port channel into MAX/MSP. Small capacity power banks, hidden within the performer's clothing, powered the gloves. Cloud Unknowing, my collaborator, designed the circuit boards and electronic looms, and I constructed the gloves and tested physical materials and prototype sensor designs.

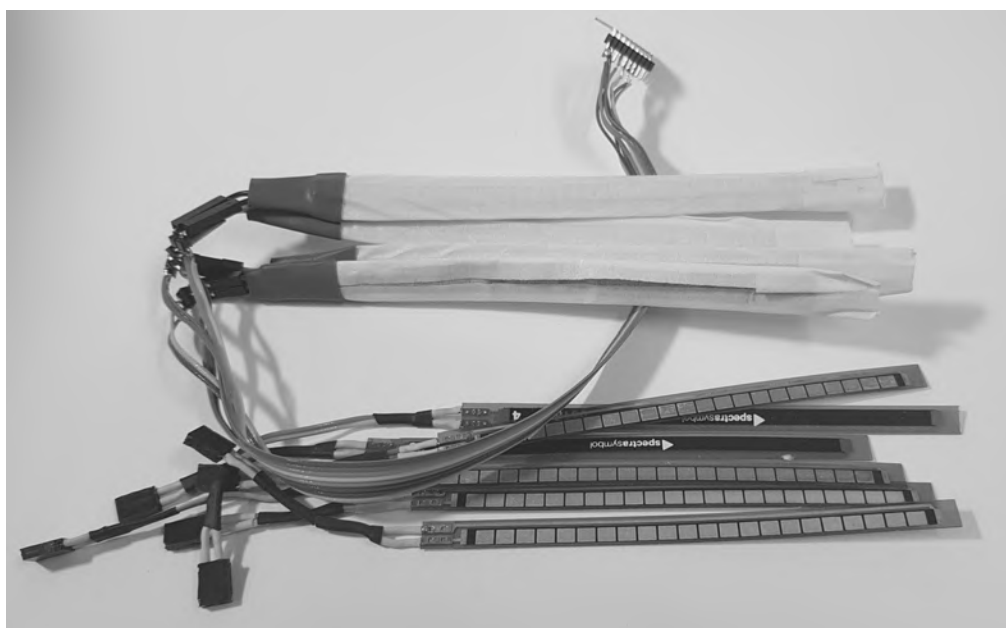


Figure 2. Commercial and DIY flexible sensors.

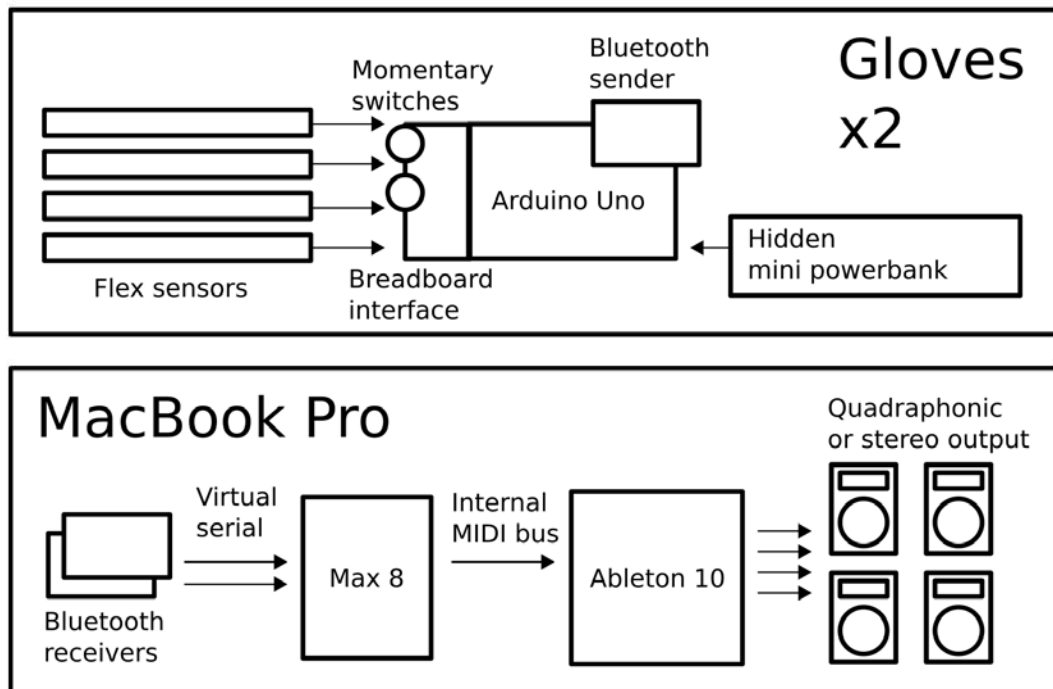


Figure 3. Functional diagram of performance set-up.

The primary research output of the original design, *Tāwhirimātea* (Rose 2018a), was composed through my exploration into the use of gesture on digitally mediated singing. The work is around 20 minutes long and is written for a singer and a percussionist, both using extended techniques. I used the legend of the separation of Ranginui (sky father) and Papatūānuku (earth mother) as inspiration for the sonic effects. *Tāwhirimātea* is the god of storms and thunder. He is furious when he learns that his brothers have torn Ranginui and Papatūānuku apart from their eternal embrace for what he perceives as selfish motivations. *Tāwhirimātea* calls up storms to attack his brothers Tūmatauenga, Tangaroa, Rongo, and Haumia-Tiketike, and he pursues them still. A graph score and conducting cues were developed with my collaborator-percussionist (Cloud Unknowing) allowing room for improvisation, a sense of movement, and storytelling. These gestures included: a violin bowing hand and arm movement which triggered substantial delay and reverb while limiting the audible frequencies according to the position of the ring finger; a fist striking downwards to cue mallets on cymbals which would produce a small amount of delay with the right hand or a massive amount of distortion with the left hand; a flat palm moving up or down parallel to the floor to indicate volume changes which produced a large feedback delay into substantial reverb effect of

# Riffs

the Ethereal Canyon plugin in Ableton; and rubbing the index finger and thumb together to cue a drone which created small amounts of delay on the voice. There were four buttons on the black boxes, shown in Figure 4, one of these captured a new sample for use in a granular synthesiser, and the other three triggered thunder and bird call field recording samples. Effects were curated per hand so that if the battery on one glove failed, the effects used would be aesthetically consistent. Compositional and aesthetic inspirations were drawn from *Licht & Abyss* (Pouget 2012); *Idol* (D. Hewitt 2010); *The Litanies of Satan* (Galás 1986); *Bad Body Double* (Heap 2009); *Sappho* (ChagallMusicOfficial 2015); and *Moving Creates Vortices, Vortices Create Movement* (teamLab 2018). **Please see the QR code if you would like to experience this piece.**



Tāwhirimātea (Rose 2018a)

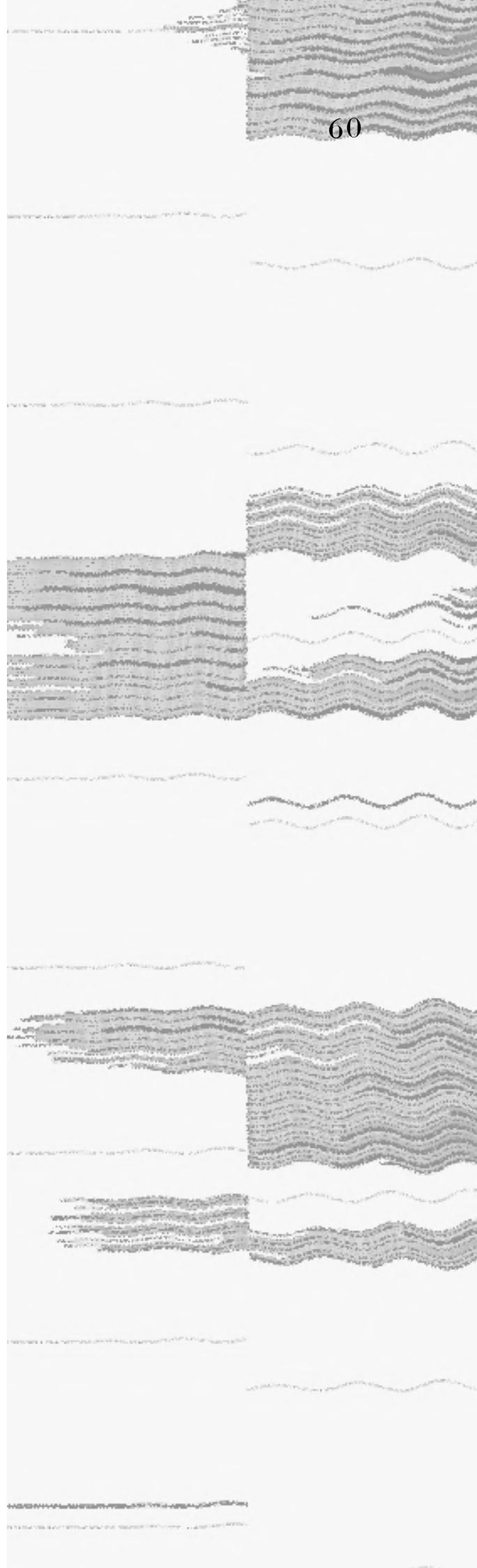




Figure 4. Initial glove design and fabrication.

MIDI Mappings						
C..	Note/Control	▲ Path	Name	Min	Max	
1	CC 1	Live Mic   Ether...	Feedback	150 %	0.0 %	
1	CC 2	Live Mic   Rubb...	Frequency	500 Hz	19.9 kHz	
1	CC 3	Live Mic   Laundry	LFO Amount	6.50 ms	0.00 ms	
1	CC 3	Live Mic   Laundry	LFO Rate	10.0 Hz	0.03 Hz	
1	CC 4	Loop Pedal   La...	Dry/Wet	79 %	0.0 %	
1	CC 5	Loop Pedal   Pit...	Fuzz Amount	74 %	11 %	
1	CC 6	Loop Pedal   Ga...	Feedback	95 %	19 %	
1	Note C3	Plain Audio	Slot 1			
1	Note C#3	Stored Loops 2	Slot 1			
1	Note D3	Stored Loops 3	Slot 1			
1	Note D#3	2-Granulator II ...	Grab			

Figure 5. Ableton MIDI routing.

Whereas *Tāwhirimātea* (Rose 2018a) was composed to demonstrate and chart the potential of the technology, *Te Karanga* (Rose 2018b) was arranged from a pre-existing gestural piece for the use of the gloves. *Te Karanga* was initially written for an ensemble of eight to twelve performers using Foley techniques and controlled by a conductor-narrator. The conductor-narrator told a story in Te Reo Māori while giving sound cues based on demonstrative gestures to the ensemble. For example, a two-fingered walking motion cued footstep sounds and speed, and a Māori dance move that flicks the fingers upwards and outwards cued water bubbling and percussion. These and similar sounds contextualised the story, which is the journey through the New Zealand bush to a marae (meeting house). When the main character of the text reaches the marae, a karanga (welcome call or song heard at the beginning of a pōwhiri – welcoming ceremony) begins. The demonstrative gestural cues were adapted to glove performance by retaining enough of the gesture to function as a cue whilst triggering the desired chain of effects. For example, I changed which hand performed certain gestures to avoid engaging the distortion at inappropriate moments. This piece was used to refine further the use of effects and experience embodied interaction with an interface.

### *I Learnt to Stop Worrying and Love the Technological Failures*

The first iteration has proven successful as a performance tool, composition device, and provided a unique nexus between practice and interaction with technology. I will use our current version to look at design following embodied cognition, composition, and live performance in future iterations. The experience of developing this prosthesis unequivocally affected my creative practice, and forced a change in workflow by refocusing aesthetic choices on spatial audio and creating sound environments for an audience. Questions that my practice previously explored were, 'how does a melody flow and develop?' and 'how do I integrate this theory?' These concerns changed to, 'how far can I push this device?' and 'what are the limits of it and me?'



Design evaluations had a significant role in the incorporation of technology. Technical hiccoughs and troubleshooting imposed limitations on rehearsals and workshopping of Tāwhirimātea. This encouraged specificity in techniques to be performed and the use of movement cues instead of rigorous rehearsals and memorisation. During the first concert, a persistent bug in Ableton inserted audio glitches due to an incompatibility with my laptop's screen refresh rate. The problem stuttered playback whenever a sample looped. To combat this, I tried altering the sample audio, the loop duration, and removing, reformatting, and re-entering samples. These intractable digital glitches became a feature of the composition. Bluetooth did not endear itself for future projects. Bluetooth 4 was not compatible with my devices, and Bluetooth 2 had difficulty connecting and remaining connected to the computer. The introduction of audience members into this ecosystem added more competing local Bluetooth devices, further reducing Bluetooth's robustness. This unreliability made every outing an exercise in patience and persistence. The low current draw of the Arduino Uno was not sufficient to keep larger powerbanks running as the powerbanks could not detect the current draw and would turn off during performance. This complication necessitated having several small, pre-charged powerbanks on stage in case of battery failure. When batteries failed on stage, one would once again be faced with the Bluetooth debacle. Irritatingly, the time it connected without fuss was during a performance of John Zorn's *Cobra* (1984), when both the stage and venue were crammed full of performers and audience members, and I ran out of battery on one side. As we developed and altered the technology, the reliability of the machine changed my interactions with it. This relationship will be discussed in conjunction with music for surround sound, quadrophonic, and Ambisonic environments in future research.

Using the gloves necessitated incredibly deliberate movement to control the sound output. This control improved with continued exposure to the system and became more refined and malleable as the gloves were assimilated into practice. Although I was freer to move on stage than I had been with a guitar or piano, I remained tied to the microphone stand and computer for monitoring purposes and to stay close to the failsafe panic buttons. Through erroneously dissecting the technology, audience feedback provided valuable

insight into how we interpret gesture, technology, and sound connecting. For example, one thought that the percussive elements created by granular synthesis were linked to a pulse sensor. This idea is interesting, though it would be finicky to implement in performances. It could be useful in a meditative or therapeutic setting as demonstrated by the BrightHearts project (Burton, Morrow, Beswick, & Khut 2018; TEDx Talks 2013) which uses the individual's pulse to affect visual and musical stimuli to reduce anxiety in children awaiting surgery. The design seemed like witchcraft – which was surely supported by the costuming and staging. The costuming (black makeup, feather Māori style cloak (korowai), feather neck and chest covering, and exposed muscle patterned leggings, see Figures 6 and 7) alludes to shamanism and magic and was framed by blue-green lighting with a chrome drum kit which reflected the lighting towards the audience and around the room. The feathers gave the illusion of complete coverage to the waist and undressed past the skin below that.

## *Oh God, It's in My Body*

The glove concept was seductive with its promises of freedom, movement, and the ability to manipulate sound in a visually exciting way. Inherent in this is the use of gestures – their meanings, emotional transference, preserving natural movements, and extending creative abilities. The voice and body are intimately connected; the embodied cognition approach seeks to include the mind, body, and location into phenomenology to ensure the capture of the full picture when gathering data. The practitioner may exploit or subvert common gesture usage. This technology returned the use of my arms in live performance in contrast to my regular self-accompanying performance experiences as experienced by Hewitt (2003) with the eMic controller. It also gave me back an enhanced potential for expressive gestures usually available to singers, but not to instrumentalist-singers who have their hands occupied. By being hands-free, I could conduct efficiently in *Tāwhirimātea* and *Te Karanga*. Gestural assignments were unsophisticated due to the relative simplicity of the first iteration of this project; for example, the 'all sound off' gesture was the 'Fuck You' double finger sign. This gesture was unintentional but was kept for my amusement. It was satisfying when it became a useful feature.

The gestures used in *Tāwhirimātea* were specific to instrumental percussion cues. In *Te Karanga*, I drew the gestures from a combination of Māori Kapa Haka dance representations of animal and elemental sounds. I used the gloves in an avant-garde improvisation of *These Would Be Other* (Burke & Mann 2019) at the Make It Up Club with Brigid Burke and Steve Falk. We began with a piece composed by Brigid Burke derived from an untitled spoken-word piece by the late Chris Mann.

In my interpretation, it made the spoken word sound more like the shouting-into-the-void sense that I get from much of Mann's recorded works. The piece was simultaneously internal self-talk and public rambling. Being able to convey these electronic enhancements through gesture added to this interpretation. The Ethereal Canyon delay supported the Chris Mann style of delivery, and the 'all off' gesture fit the text.



Figure 6. Gloved performance of *Tāwhirimātea* and *Te Karanga*. Photo by Kylie Supski and ReVerse Butcher (2019).



Make it Up Club Performance  
(audio only).

Unforeseen emotional consequences that I experienced while performing with the gloves were dramatic. I felt a sense of empowerment when using the technology which I have not felt in acoustic performance or when using effects on other instruments, such as distortion on the guitar. The embodied nature of the voice leads me to believe that this may be a shared experience by those whose first mode of expression is the voice, that is, singers, actors, poets, and laypeople that do not actively engage in visual or tactile art. It may even be a broadly common phenomenon across any demographic. This experience differs from sampling one's voice and gives an engagement with the voice which sampling cannot. It is instantly responsive and does not provide the same human recoiling or uncanny valley feeling as sampling. I think more about the physical and virtual space I occupy, which alters my artistic choices. When sampling my voice (for use as a synthesizer or as pre-recorded audio), I would feel disconnected from my voice. Often, I would not be able to recognise that voice as my own or I would experience an uncanny feeling when hearing it played back. For example, the third movement of *Life... Certainly is Very Interesting* (Rose, Rudegair & Wilson 2018) incorporated live voice and a synthesizer made from my voice. That fact had to be pointed out to me by my collaborators. When using effects pedals, as I experimented with in my master's thesis, I was engaged with the sound, but it did not feel like an extension of my being. When adding the effects via the gloves, I feel fully immersed in the sound and activity of creating. It gives an impression of haptic control over my voice.

The procedure for performing with the gloves has developed into a ritual, albeit not always a calming one. Step one: suit up and curse the bulkiness and inability to hide the technology; Step two: anxiety when waiting for Bluetooth to engage and connect; Step three: hope that the sound engineer is paying attention to the audio levels; Step four: pull the voice outside of my body to externalise and manipulate it as an instrumentalist might. This is an emotionally complex sequence, especially steps two and three. The development of this new performance ritual provides a unique sense of freedom in performance. For example, I know that if I use samples, there will be audio stutters as they loop. Therefore, these glitches may be exploited to focus in on the acoustic voice for a small moment before it is plunged back into the technologically mediated sound.

Using embodied technology in performances immerses the artist in the sound in a way that feels like a virtual haptic feedback. In this way, it has similarities to virtual reality technology, such as the Oculus Rift (Facebook Technologies, LLC. 2019), and may be used to immerse an audience in the sound-world that the performer engages in through spatial music and performative actions. The immersive environment and storytelling potentials speak to our human desires. The merging of two worlds and experiencing the physical sensations for information based in fiction is an exciting concept.


#### *Conclusions and Future Work*

Using an embodied technology to interact with the voice radically changed my experience when performing. It led to feeling completely immersed in the sound and performance in contrast to disconcerted (with sampling) or nonplussed (with effects pedals). Further exploration is needed in the design and technical capabilities of these gloves, including how it changes the user experience and what effects the types of interactions have on composition or performative outcomes.



Figure 7. The modified feather korowai cloak, necklace, and leggings.

Although the system is still rudimentary, it has been useful in different performance contexts. Use of the gloves created new performance rituals. The use of gesture, costuming, and sound cues may build a ritual or shamanic sound environment which can influence the audience experience to create immersive sound worlds and performance experiences. This work has been ongoing, and project development will continue at a doctoral level, investigating the incorporation of embodied technologies in practice and embodied cognitive perception. The second version of the gloves project began in February 2020, and an installation work using a tangible interface with photosensors to explore different technologies' impact on performance and composition has begun. The overall construction and programming will be altered to have custom software and improved versatility.



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Photo by Kylie Supski and ReVerse Butcher (2019).



# SOUNDING TANZANIA IN THE STUDIOS OF DAR ES SALAAM

David Kerr and Hashim Rubanza

*“When we were at school we were taught to sing the songs of the Europeans. How many of us were taught the songs of the Wanyamwezi or of the Wahehe? Many of us have learnt to dance the rumba, or the cha cha, to rock and roll and to twist and even to dance the waltz and foxtrot. But how many of us can dance, or have even heard of the gombe sugu, the mangala, nyang umumi, kiduo, or lele mama?”*

Julius K Nyerere, Tanzanian president from 1964-1985  
Inaugural Presidential Address, (Nyerere 1966, 186)

As the above quote makes clear, music performed a central role in the project of imagining post-independence Tanzania [1]. Technologies such as recording studios and radio stations were crucial in defining the musical sound of the newly independent nation. State-run Radio Tanzania Dar es Salaam (RTD) was tasked with recording and broadcasting Tanzanian music to the nation (Sturmer 1998, 115) [2]. It was largely in the studios of RTD that the music which defined the sound of the post-independence nation was recorded. The nation, as Ana M Lopez argues of Latin/o America nations, was to be “insistently sung and danced” into being (Lopez 1997, 310). Musicians, as the lyrics of the Asilia Jazz Band below show, were tasked with supporting the state’s ideology of African socialism or *Ujamaa* [3].

*Sasa vita imetangazwa jamaa, wananchi wote tuwe imara, vijijini na mijini tuisite kuwafichua, wahujumu na walanguzi eh.*

*[The war has been announced, let all citizens be stern, be it in the villages or cities let us not hesitate to expose the manipulators and defrauders.]*

Asilia Jazz Band, Wahujumu na Walanguz (Manipulators and Defrauders)

In the 1980s under pressure from the IMF and the World Bank, Tanzania began to move away from a socialist social and economic model. The shift to a private economy had a profound effect on musical production and who, where and how the sound of the nation was created. Across Africa, structural adjustment reforms of the 1990s radically changed social, economic and political realities. Relaxation of import duties allowed individuals to buy recording equipment, which led to the establishment of several private studios and a consequent explosion of musical output. At the same time, private media ownership enabled FM radio stations not controlled by the state to broadcast music previously considered unsuitable by RTD. For Tanzanian audiences, music created in Dar es Salaam's recording studios came to define the sound of this post-structural adjustment era in the nation's history, much as RTD's musical output had characterised that of African socialism. In this article, we explore the role of technology in shaping the new post liberalisation sounds of Tanzanian musical production. While audiences may not have been aware of the technological changes in music making, these could be heard in the new sound of songs. Paul Greene suggests "listeners and musicians around the world invest sound technologies and studio recordings with anxieties on the one hand, and desires on the other" (Greene 2004, 10). Drawing on Greene's observation we argue that technologies, and the sonic texts they produced, were heard by Tanzanian audiences as embodying both the new possibilities and uncertainties of neoliberal reforms.

During the 1990s, private studios in Tanzania produced an array of new genres which came to be known collectively as *muziki wa kizazi kipya* (music of a new generation). *Muziki wa kizazi kipya* was an important means through which young people expressed their thoughts, whether positive or negative, celebratory or censorious, about transition to a capitalist economy. Implementation of structural adjustment programmes in Tanzania created both openings and insecurity; as opportunities for waged labour collapsed, the informal sector became the major source of income. Informal economic activities called "*miradi ya maendeleo*" - (development projects)

largely run by children, young people and women - became the principal sources of income for most families (Tripp 1997, 105). Simultaneously, new signs of musical stardom, celebrity and financial success were emerging post-liberalisation as symbols of the new social and economic realities of Tanzania. In the course of political, economic and social reforms, music became increasingly recorded and broadcast through private studios and FM stations rather than state-owned radio RTD. The development of private studios and radio stations moved, rather than removed, control over what was recorded and broadcast. Music of the immediate post-structural adjustment period became, for Tanzanian audiences, emblematic of the social and economic transformation taking place. Lyrics from popular *muziki wa kizazi kipyra* songs evoke both the potentialities and impossibilities of this period [4].

*Aliyeuziwa cheni katoa hela bandia, aliyepokea hela naye kauza cheni  
ya bandia  
Tuliozoea jiji tunasema ngoma draw*

*[The buyer of the chain pays in fake money, the seller of the necklace  
sells a fake chain  
Those of us familiar with the city, we say it's a draw]*

Professor Jay, Bongo Dar es Salaam

The first independent studio to be developed in Dar es Salaam was at Don Bosco Youth Centre, in Upanga, between 1990 and 1991. This was followed by Mawingu (Clouds) studio started by Joseph Kussaga, for which Bonnie Luv was the producer (Perullo 2011, 249). By the mid-1990s there was a small number of studios operating in Dar es Salaam, including Bongo Records, MJ Records and Sound Crafters, which produced and recorded most of the *muziki wa kizazi kipyra*. Studios play a critical role in shaping the contours of musical production and are where its lyrical and sonic content are largely defined. The 1990s were a period of technological innovation in Tanzanian music, with studios readily adopting newly available electronic and digital technologies. Producers of *muziki wa kizazi kipyra* increasingly used the computer and synthesizer, rather than the live band, as the building blocks of musical production. New FM radio stations largely broadcast *muziki wa kizazi kipyra* with the result that in major cities this new music was ubiquitous. Debates about whether *muziki wa kizazi kipyra* could be considered 'real' music or authentically Tanzanian raged in the media.

The changing recording technologies of the post-structural adjustment period were a material manifestation of the shifting nature of Tanzanian society. This material shift was perceptible to Tanzanian society in the sound of the music broadcast on the radio and heard in everyday life. Listening is an intimate experience which places the listener in relation with the social realities of the musical text. For the Tanzanian audience, it was not only song lyrics that represented the changing social realities of the country but the music's sonic texts. Paul Peter Matthyse (Majani / P-Funk), the producer and owner of Bongo Records, describes the technological shift inside Tanzanian studios thus:

In the beginning recording studios were still based on hardware with a little combination of software ... computers weren't so powerful, they could only do a certain amount of things, but it was still an upper hand. The biggest thing then was the multitrack recorder. For us locally we had the 8 track machine which used chrome tapes. We used to have mixing consoles, so all your pieces of equipment would enter into that mixer, all the sounds from your computer, whatever recordings you had, for example voices, extra pianos and such, would go to the mixer then you would mix with your hands, physically.

Majani / P-Funk, Dar es Salaam 2020

In addition to the influential studios of Don Bosco, Mawingu, Bongo Records, Sound Crafters and MJ Productions, several other entrepreneurs and budding producers recorded *muziki wa kizazi kipya* songs. By the early 1990s, studios such as Sound Live in Magomeni Mapipa, on the edge of Dar es Salaam's central business district, were recording hip hop. This studio used a Yamaha keyboard for making beats and it was from this keyboard that all the drums (kicks, snare and hi-hat) as well as bass and flute sounds came. Recording was done on a vintage tape deck with two sizeable reels protruding from its frame. Beats were typically accompanied by high-pitched melodies.



These ranged from alternation between two keys within a C minor, C major, D minor or D major frame, which functioned as the central thematic sound of the composition. In other compositions, a flute or whistle created in the synthesizer would be added. As the number of studios in Tanzania expanded in the late 1990s and 2000s, each began to have a distinctive musical character. Producers began to use the JV Roland Keyboard to sequence keys and beats, others used the Tascam 8 track spool, or the 8 bus 24 channel Makie Mixer, as was the case with Sound Crafters.



Paul Peter Matthyse (Majani - P-Funk) in his studio in Dar Es Salaam Tanzania.

As the musical forms of *muziki wa kizazi kipyra* evolved, a new and distinctively Tanzanian music genre, Bongo Flava, emerged. Derived from the Swahili word *ubongo*, or brain, Bongo has become shorthand in Tanzania for the city of Dar es Salaam, and indeed Tanzania itself. Dar es Salaam and Tanzania are Bongo because they are places which demand the concerted use of intelligence and cunning to survive [5]. Initially, for many Tanzanians such as the singer Carola Kinasha, Bongo Flava was a form of 'rap music done in a Tanzanian way or with Kiswahili' (Carola Kinasha, Dar es Salaam 2006). For others such as rapper 2 Proud, (also

known as Mr2 and Sugu), it was a new style of Tanzanian hip hop, a medium which would speak truth to power and describe 'like *hali halisi*' [the real situation] (2 Proud, Dar es Salaam 2006). Early hip hop groups such as Kwanza Unit, GWM, the Villains, and Hardblasters, as well as solo artists like 2 Proud, were important in the development of Bongo Flava. Almost all the early Bongo Flava songs were recorded in one of five studios, (Don Bosco, Mawingu, Bongo Records, MJ studios and Sound Crafters). Each producer, whether Boniluv at Mawingu, Master J at MJ Productions, or P-Funk at Bongo Records, developed their own characteristic sound. While Bongo Flava may initially have been oriented towards hip hop, by the turn of the new millennia it had begun to incorporate a wider range of elements lyrically, vocally and musically. Songs were increasingly sung rather than rapped, and lyrical content began to celebrate the 'good life' enabled by neoliberal reforms.

*Sema unachoweza , Fanya unachoweza , mbona unashangaa , mambo ya fedha*

*[Say whatever you can, do whatever you can, why are you wasting time, (where) money is concerned]*

Mr II and Lady JayDee, Mambo ya fedha [Where Money is Concerned]

Paul Peter Matthysse describes the evolution of the sound of Bongo Flava thus:

The distinctive sound came from a combination of influences... reggae, ragga, hip-hop, RnB, we had influence from South Africa and also Lingala was involved when it comes to melodies and guitar riffs [6]... We kept on fusing and changing it more and more and creating an identity, from the kinds of basslines we used to play, certain grooves, certain drum patterns we also used to use distinctive sounds.

Majani / P-Funk, Dar es Salaam 2020



While early Tanzanian *muziki wa kizazi kipya* had a certain roughness to it, by 2000 further development in digital technology gave producers the ability to create a wider range of sound. The use of more sophisticated digital studio technologies made the cutting of samples, the layering of sounds and the building of tracks much easier. Combining the synthesizer with the computer made the range of instrumental sounds available to the producer wider. The sound that resulted from these new technologies was smoother and more polished than the production of *muziki wa kizazi kipya*. Bongo Flava encapsulated the emerging Tanzanian identity, distinct from the period of *Ujamaa*. Bongo Flava became a musical phenomenon and its stars began to perform regularly across the wider East African region. Singers and producers became celebrities, appearing in Tanzanian films and on TV, as well as being a regular source of stories in the Tanzanian popular press. Music, and musical celebrities, were at the centre of the new imaginings of a poststructural adjustment citizenship, which represented wealth, recreation and corporeal pleasure rather than a celebration of the modest, hard-working, rural citizen of the *Ujamaa* period. Bongo Flava's novel, slick and accomplished sound sonically represented commercial and financial success. In its sonic qualities, the music spoke of the new possibilities for consumption, wealth and pleasure enabled by neoliberalism.

*Tunapenda sana ma-wine mashmpain, lakini ndio vile tena hatuna mahela  
Tunatamani mamisosi ya kumwaga ni mapiza mabaga, na mazaga zaga ila ndio vile tena hatuna mahela*

*[We like wine and champagne but this is just the way it is, we don't have any money  
We crave a variety/plenty of food, pizzas and burgers and different things to eat  
But that's just the way it is, we don't have any money]*

Ngwear feat. DarkMaster, Nipe Dili [Give me a Deal]

As Bongo Flava continued to gain commercial success, and digital software and plug-ins increasingly became the means of musical production, between 1999 and 2008 several new studios were established including Fishcrab, Kama Kawa, 41 Recordz, FM Studios and Dhahabu. Songs such as Diamond Platnumz' "Moyo Wangu" [My Heart], produced by Lamar, Ngwair's "Ghetto Langu Tu" [Only My Ghetto], produced by P-Funk, and Dully Sykes "Dhahabu",



produced by Master J came to define this era. Throughout the 2000s, Bongo Flava dominated Tanzania's airwaves. In 2009, the catchy hook from Dully Sykes' song "Bongo Flava" was used by the mobile telephone company, Tigo, in its radio adverts. The sound of this hook became ubiquitous across Tanzania to such an extent that it seemed to become part of the very fabric of everyday life. Bongo Flava songs have become an important part of Tanzanian musical history and the 'classics' of the genre are broadcast weekly on radio programmes such as DJ Fetty's *kali za kale* (blast from the past) on Clouds FM. Rather than the earlier *muziki wa kizazi kipya* songs, it is the popular hits from the Bongo Flava era by artists such as AY, Dully Sykes, Ngwair, Ray C, Lady Jay Dee, Ali Kiba and Professor Jay which continue to feature regularly on the radio. For Tanzanian audiences, songs from this period came to embody the late 1990s and 2000s, when the dreams of liberalisation seemed to be, at least symbolically, realised through music. The sound of Bongo Flava was a sonic assertion of an alternative vision of national citizenship, one whose sweet melodies and borrowings from transnational genres spoke to the fantasy of liberalisation and new relations of global participation. The relationship between Tanzanian publics and the sonic texts of Bongo Flava is complex and nuanced. As we explore in the remaining part of this article, audiences in Tanzania brought multiple readings to these sounds.



Bongo Flava Spotify playlist

*So far nadhani equipment nyingi sana in terms of the practical equipment, vingi havijabadilika. Kuna aina tofauti tofauti tu ya ma-guitar...kuna aina tofauti tofauti ya keyboard, drums and so forth. Lakini nachoona mimi kama ninaweza kutaja (kifaa kimoja) ni digital audio work station. D.A.W nazo ziko nyingi, lakini DAW tukiitumia kama kifaa kama moja ya sehemu inayotuweka pamoja... imebadilika sana kwa sababu...zamani ulikuwa na uwezo wa kurekodi guitar , solo , yaani rhythm, guitar rhythm , bazi labda, drums na vitu vingine unavirekodi kupitia sound card lakini vinapitia kwenye hicho kifaa kama, hiyo software hiyo , ambayo tunaita digital / audio work station...iwe ni Logic au ni Cubase, au nyingine yoyote ile.*

*[So far I think a lot of the physical equipment has not changed. There are many types of guitars, many types of keyboards, drums and so forth. But in my perspective the one thing that I can mention [that has changed] is the Digital Audio Workstation, (DAW). There are many types of DAWs, but the DAW is one of the single pieces of equipment that brought us all together. It has changed a lot.... Because back then one was able to record the guitar, solo, that being rhythm, guitar rhythm, bass maybe, drums and other things via the soundcard but would all pass through that device, the software that we called the digital audio working station regardless if it was Logic or Cubase, or that of any other kind.]*

Boniphace Kilosa, Boniluv, Dar es Salaam 2020



Boniluv making music in his studio in Dar Es Salaam Tanzania.

How was the polished, skilled and full sound of Bongo Flava heard in Tanzania? In her book, *Africa in Stereo: Modernism, Music, and Pan-African Solidarity*, Tsitsi Jaji interrogates how African women read images of consumer goods, beauty and technology in the glossy magazines of the 1950s and 1960s. Jaji suggests that the women examined these texts through an interpretative and reflective practice she terms “sheen reading”. Women, she says, had a layered reading of the magazines’ glossy surfaces. The surface was enjoyed for immersion in the pleasures of capitalist consumer culture as well as the exposure to pan-African aesthetics it enabled. Jaji suggests that the sheen invariably wore thin, opening space for readers to recognise and critique their precarity and exclusion from the glossy images inside (Jaji 2014, 116). Drawing on Jaji’s notion of sheen reading, we suggest that Tanzanian audiences heard and interpreted the sonic surface of Bongo Flava in multiple ways. There is a pleasure in listening to Bongo Flava. The genre’s most famous producers are talented musicians and the songs they created are catchy “ear worms” which stick in the mind. Its sound is a distinctively Tanzanian one, particularly for an East African audience. While Bongo Flava producers drew on RnB, hip hop, reggae, soukous and rumba, their production was heard by local audiences as representing a new, emerging Tanzanian identity. Both the music and its creators circulated widely in the East African region, and Bongo Flava was also widely popular in Nairobi and Kampala. It thus represented, for Tanzanians, a sign of national success. In part, Bongo Flava was popular because it was new, exciting and dynamic, and the digital technologies used by its producers created original and energetic sonic texts. However, the sounds created on digital technologies in the studios of Dar es Salaam not only spoke to notions of individuated accumulation and consumption but also reflected the anxieties the social changes that liberalisation had engendered. The lyrics, videos and sonic texts of Bongo Flava songs explored the new possibilities and anxieties of the period. One response was to reflect the anxieties of the new liberalised economy and songs often encouraged young people to strive, work hard and seek to overcome their difficulties. The sonic sheen of Bongo Flava spoke to Tanzanian audiences of new social and economic possibilities but for many also marked the limitations to their ability to participate in it.



*Maisha ni kama vita nani atakuokoa? Kijana endelea kupigana  
iwe usiku au mchana kijana pambana, Kama kijanani hukujituma  
uzeeni utabaki umenuna, maisha hayataniwi.*

*[Life is like war, who will save you? Young man keep fighting Be  
it at night or day young man fightIf you don't exert yourself  
during your youth, you will be frowning. As an old man, life is no  
joke]*

TMK Wanume, Umri [Age]

What we have sought to show, in this article, is how the technologies of musical production and the sounds they were able to produce were invested with desires and anxieties by audiences in Tanzania. The development of private studios represented a radical shift in the relationship between music, technology and producer, which if not overtly noticed, was heard by Tanzanian audiences. Changing studio technologies created new sounds which were heard as embodying the uncertainties and opportunities of liberalisation. Through the sound of Bongo Flava, Tanzanian audiences experienced not only an intimate personal but also a collective relationship to the changing social conditions of life in Tanzania [7]. The novel, smooth, digital soundtrack of Bongo Flava was experienced by many Tanzanians as pleasure. Yet, to return to Jaji's notion of sheen reading, the music's smooth sound was also heard as embodying the multiple potentialities, satisfactions and disappointments of the new era.

## **Postscript**

*Kama technological advancements zingeondolewa mimi  
ningerudi kufanya muziki kama nilivyokuwa nikifanya zamani  
lakini nina wasiwasi ya kwamba watu wengi sana wangeona  
muziki sio kitu rahisi tena kama ilivyokuwa sasa hivi.*

*[If these technological advancements were removed I would go  
back to making music the way I used to back then but I fear a  
lot of people would not find music as easy to do as is now.]*

Boniluv, Dar es Salaam 2020

This article is the product of more than a decade long friendship. It is part of an ongoing collaboration and interest in Tanzanian popular culture and the everyday intellectual life of Dar es Salaam. Our collaboration has involved an Arts Council funded artistic residency which enabled Hashim to come to the UK and work with a range of cultural partners in the West Midlands in 2009. Hashim is currently translating Dr Kerr's first book on the sub-culture of the stowaway in Dar es Salaam into KiSwahili.

**David Kerr** obtained his PhD from the University of Birmingham in 2014 and since 2016 has been a Postdoctoral Research Fellow at the University of Johannesburg. His research has explored amateur, everyday music making practices in Dar es Salaam and Birmingham. The focus of his current research is the vibrant cultural ecology of street performance genres in Dar es Salaam and their role in generating a distinct street episteme. He has published in the fields of cultural and social anthropology, cultural studies and media studies. Dr Kerr is also involved in a number of initiatives to make street music genres from Dar es Salaam available to a wider audience.

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**Hashim Rubanza** is an MC, spoken word artist, researcher and writer living in Dar es Salaam, Tanzania. His first musical release in 1993/4 was with a hip hop group called Black Houndz. In 2001 he formed a musical collective under the name "kikosi cha Mizinga" [the bomb squad], which provided a space for artists in the emerging hip hop scene to develop a more radical voice. Since 2005, Hashim has increasingly focused on communicating through media other than hip hop including film, spoken word and poetry. Hashim has been a researcher on a range of projects with academic partners, NGO's and in the corporate sector. He is interested in the creative, cultural and intellectual everyday life of Tanzania. In 2020 he will be co-convening a course on African Hip Hop with Professor Msia Kibona-Clark at Howard University in the United States.

<https://jamiisanaa.wordpress.com/poems-by-hashim-rubanza/>  
swahilified@gmail.com

Twitter: nafsi\_okoa

## Endnotes

1. There is significant literature on the role of culture in imagining Tanzania: for example, see Kelly Askew's book *Performing the Nation: Swahili music and cultural policies in Tanzania* (2002) and Laura Edmondson's *Performance and politics in Tanzania: the nation on stage* (2007).
2. Initially called the Tanganyika Broadcasting Service (TBS).
3. Following the Arusha declaration of 1967, Tanzania began to follow a policy of African Socialism called Ujamaa. This ideology saw a return to African tradition as providing the building blocks for a modern socialist state. As Nyerere suggested "We, in Africa, have no more need of being 'converted' to socialism than we have of being 'taught' democracy. Both are rooted in our past, in the traditional society which produced us." (Uhuru na Umoja [Essays on Freedom], 1966).
4. There is an extensive body of literature on the emergence of *muziki wa kizazi kipya*, hip hop and Bongo Flava in Tanzania, see Englert (2003; 2010), Omari (2009; 2011), Suriano (2007), Perullo (2007) and Kibona-Clark (2018).
5. Bongo Flava is the musical flavour of Dar es Salaam and Tanzania.
6. Lingala is the lingua franca of Congo and Majani / P-Funk here refers to the influence of Congolese genres Rhumba and Soukous on Tanzanian music production.
7. Listening is rarely a solitary practice in Tanzania and music is largely listened to and heard collectively.

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TMK Wanume, "Umri" [Age]

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# THE CHANGING NATURE OF JAZZ ARTISTS WITHIN THE RECORDING TECHNOLOGY SPACE

Lachlan Goold & Sean Foran

The nature of the recording artist and how they engage within the recording studio as a technological space is changing. The recording studio is an instrument and an artistic process, and so too, technology has enabled the musician to learn the craft of recording, embellishing their instrumental skills. With real-time audio manipulation becoming highly implementable on the live stage for a variety of instrumental situations, what creative agency is lost for the music producer when this technology enters the recording studio? This paper presents multiple perspectives on how modern musicians in jazz-based performance styles are using technology to shift the nature of audio manipulation within the recording studio, with the analysis of a recording by both the artists and the producer.



*Introduction*

The nature of the recording artist and how they engage within the recording studio as a technological space is in constant flux. The recording studio is accepted as an instrument and recording as an artistic process (Kealy 1979). Knowles & Hewitt (2012) posit that technology is enabling recording practice to merge with performance practice in instrumental style performances. Musicians have learnt production skills to embellish their instrumental skills, weakening the delineation between roles within the studio (ibid). These computer literate musicians have been pivotal in both electronic music recordings and live-stage performance, but musicians working outside this area is our focus here (ibid). The implementation of real-time audio manipulation has developed on the live stage for a variety of stylistic situations, including that of jazz musicians. Jazz recordings have incorporated the techniques of contemporary production in the recording studio (Reynolds 2018). However, these practices can absorb significant amounts of time and energy for the recording studio's production team (see Reynolds 2018; Scott 1999; Watson 2009). This paper investigates the change in the creative agency for the music producer when jazz musicians bring real-time audio manipulation technology into the recording studio. We address this situation through a studio recording of an acoustic jazz trio – *Trichotomy*, of which co-author, Sean Foran is a member, with co-author Lachlan Goold acting as Producer for the recording session. Within the recording, the trio aimed to utilise technology with performative intent, engaging in the creative manipulation of their acoustic sounds in real-time. The musicians analysed the recording process, contrasting this with the field notes of the producer. Subsequently, the produced track is then analysed again, by both the musicians and producer. We argue, the recording aspect of this approach is less engaging for the producer, but the recording process is highly-efficient and much quicker than previous multi-track approaches that were time-consuming and expensive (Goold & Graham 2018). The completed track, including video of the performers recording, is available through the QR code on this page, and ideally should be viewed before or while reading.



“Reassemble” - *Trichotomy*, Final Produced Track [Multi-camera Studio Video]

## *Recording Jazz*

Jazz performances often feature spontaneous interactions between musicians, interplay with the audience, the venue, and the creation of an ephemeral social and musical experience. The improvised nature of the music suits a live setting, where both the musicians and audience members can feel the music more intimately than on a recording. In these performance settings, musicians engage with the space and work with their performance materials to create an engaging dialogic event (Jackson 2012). It may be easy to perceive that a jazz recording is inferior to the live experience; in that, a recording does not accurately capture or represent the true nature of the performance. It only represents one moment, or ‘take’ of the music, a partial representation of the music (Reynolds 2017; Schulling 2019). However, this does not present a complete understanding of the function of the recording for musicians and audiences. Alongside this perceived inadequacy, jazz musicians use recordings to create highly detailed and accurate fixed representations of their work or even an enhanced version of the live experience; these recordings serve as another mode of performance expression and form a critical part of their improvised music-making skill-set.

Jazz recording techniques have changed significantly since the classic Rudy Van Gelder Blue Note recordings of the 1950s. Van Gelder modified the famed Neumann U47 microphone so that he could place the microphone closer to the performers, conveying more detail in the recording – developing a new standard practice (Crooks 2012). For many jazz styled recordings, the ideal recording experience can be to create an accurate sonic representation of the performance (Jago 2013) – as opposed to a recording that is not reproducible live – while configuring the studio space to capture the musicians playing in a natural way. Zagorski-Thomas (2007) recalls recording jazz musicians in studio settings where they wanted to ‘play in an environment that afforded as much interaction as possible’; so the listener can hear the music as real as it could be, free from the technological intervention of the studio (p. 202).

Reynolds (2017) undertakes a thorough analysis of the process for jazz recording, production and release of the music, using extensive case studies of musicians in New York from the 1980s through to 2017. He outlines how many contemporary artists ‘use recording technologies as instruments of music-making unto themselves, which can and do allow them to make music distinct from that which is or can be performed live’ (p. 129). Saxophonist Ben Wendell notes that recording allows you to produce ‘the music in a way that you couldn’t actually recreate live, whether it be with different effects through plug-ins, whether it be through overdubbing and layering or manipulating the sounds of the instruments’ (Wendell cited in Reynolds 2017, p. 131). Artists such as Marcus Strickland, Mark Guiliana, Donny McCaslin and Remy LeBouf note varied processes for their album recordings, moving between using electronic programmed elements as bed tracks, then overlaying various acoustic instruments, samples, and other recorded parts often recorded in different places at varied times (ibid). These studio techniques, although they may appear contrary to traditional jazz recording ideals, are not new. Lennie Tristano’s self-titled album released in 1956 involves the pianist recording multiple layers of piano parts, recording new piano tracks over existing rhythm section material, and added effects such as tremolo and echo (Jago 2013, p. 3). Pianist Bill Evans’ 1963 album *Conversations with Myself* also employs multi-tracking of improvised parts, with Evans recording layer upon layer of improvised parts.

Live electronics involves transforming the performers' acoustic sound in real-time. Klein (2008) clarifies the process noting, 'the poetics of live electronics reflect a desire to extend human musical capability by transforming the performer's sound with technology' (para.30). The inclusion of electronics alongside acoustic improvisation has been present since the late 1960s, with European free-improvisation groups AMM and Music Improvisation Company often cited as groups that blended jazz performance techniques with an array of unexpected electronics sounds into the performance (Borgo 2011). Although, the free jazz approach of these groups is not comparable to the post-production capabilities of a studio or mixing engineer. Lexar (2012) considers how 'technology used in performance extends the listening experience by introducing new sounds or unheard combinations of sounds through an exploration of the sonic potential and characteristics of the employed devices' (p. 11). This is a complex task, however, as Lexar reminds us, combining electronic and acoustic sounds complicates the role of the performer in negotiating these varied sound worlds.



Figure 1 - Sean Foran (Piano) and Samuel Vincent (Bass) during a live performance

Croft (2007) presents some paradigms of how electronic sound can interact in live performance, most specifically his 'instrumental' paradigm, the 'attempt to create a composite instrument' (p. 62). Croft stipulates that the performer should play the instrument-plus-electronics in a way somehow analogous to how they would typically play the instrument alone (ibid).

Evan Parker elaborates on the notion of creativity and interaction between musicians and the electronics, noting that the 'relationship between technological affordances and creative intentions can become even more involved in the context of a group performance ... there's a kind of uncertainty about whether that was the first time that sound happened, or "Did I miss it the first time and that's a replay of a sample of the first time?"'(Parker as cited in Borgo 2011, p. 6).

### *The Role of the Jazz Producer*

Howlett (2009) defines the role of producer as one who uses the technology of music recording to mould an artists' potential song into a fixed product. Zak III (2001) identifies the common aspects of this varied role as the 'ability to draw together diverse elements and to manage the dynamics of collaborative creativity among members of the recording team' (p. 173). Anecdotally, many producers have described their role using a wide variety of descriptors in an attempt to capture this dynamic and challenging task (see Burgess 2002). In jazz recordings, the role of the producer aligns with these notions, with the elements of composing, tracking and post-production muddled (Reynolds 2017, p.135). Producers in modern jazz are using studio technologies as pathways for further creative elements, bringing in programmed effects, overdubs and spliced audio (ibid). Despite these contemporary depictions of 'extended studio techniques', historically, jazz recording in this manner was not always celebrated or considered authentic jazz (Jago 2013; Reynolds 2018). Schmidt-Horning (2013) describes a Thelonious Monk session where fundamental studio processes impede the spontaneity of an improvised recording session. The accepted approach developed by the jazz producer was self-effacing and non-intrusive to give the impression that 'studio trickery' was not employed (Reynolds 2018). Recordings such as Kurt Rosenwinkel's Heartcore – produced by hip-hop producer Q-Tip in 2003 – began to change the aesthetics of jazz production (ibid). Reynolds' analysis shows that jazz production has adopted every production tool currently available, including those of live acoustic manipulation. The jazz community can interpret recording as embodied music-making, where live performance and studio techniques are combined (Solis 2004), with producers occupying an important role in the creative process (ibid).

## *Methodology – Research Design*

Technologically enhanced performance techniques as outlined by Knowles and Hewitt (2012), consider performance and recording practices as converging towards each other in contemporary music. Studio production techniques are used in live performance, such as digital sampling, loopers and live processing; and a reverse flux is evident, with these live performance practices being re-adopted in the studio production and performance practice (ibid).

However, in this instance, the group are not looking to create a studio recording that is unreproducible live. In this case, the musicians aim to create a recording using specific modern technological performance practices live in the studio; where the studio environment can provide the best possible representation of the live music – similar to the way the musicians may create the music in a live concert setting. Throughout this research, the producer's practice involves engineering, mixing and production (excluding mastering) to create the finished recording. The producer aims to capture the recording as honestly as possible and use mixing to highlight the most interesting improvised sections of the performances.

Drawing on a practice-based approach, there is a clear focus in this research on performer reflections in and on action, as noted by Schon (1983). Bryman's (2012) approach, whereby the authors are engaged and participate in and on the practice-based research with additional participants, observe the participants in naturalistic scenarios, and use interviews and field notes to assist in interpreting the attitudes of all the participants is utilised. Further to this, the actual artistic practice – or the musical performances & recordings – carry the musical artistic representation of the research in its most complete form.

The process for this research was structured as follows:

### 1. *Planning*

This consisted of deciding how many tracks would be recorded over a single day, where the recording would occur, equipment required, and intended outcomes.

### 2. *Recording*

The recording space used was the drummer's home studio, an environment used by the band for regular rehearsals. The intention is for the recording to be created with the musicians under the same constraints – the same improvisational demands – as they would have been in a club or concert setting (Jago 2013).

### 3. *Artist Reflection - recording*

Upon completion of the recording, the musicians engaged in self-reflection of the recording process. This reflection occurred in the subsequent days to preserve each musician's thoughts from the recording session. These semi-structured interviews are improvised in nature, with the participant musicians able to draw out observations and thoughts about fluidly recording the music.

### 4. *Post Production - mixing*

After the recording session, the track 'Reassemble' was chosen by the band to be mixed by the producer in his home studio. The musicians recorded one take of this work in the studio, with no edits or overdubs recorded. The producer also completed field notes on the recording and mixing process, to be examined alongside the reflections from the musicians

### 5. *Reflections - the produced track*

After the delivery of the produced track, the band engaged in another open-ended interview reflecting on how the final work had changed from the original live-recorded sound. Parallel to this, the producer also reflected on their contribution to the finished work.

The process outlined enables the artists and producer to engage in a recording scenario that is naturally part of the participant's lived experience. Naturalistic design is 'accessible, transparent, and transferable' and gathers data through 'real experiential activity' (Gray & Malins 2016). Interviews and field notes give us a 'rich descriptive

account' to understand the context, activities and actions during the recording from multiple perspectives (Watson & Till 2010 p.7). This methodology builds a qualitative framework for us to test the agency of the producer under these new studio conditions.

### *Artist reflections on the recording process*



Figure 2 - Sean Foran (Piano) and Samuel Vincent (Bass) during the recording session

The recording environment for this session featured a carefully constructed sound setup for the performers (see Figure 2), as compared to the setup at a live performance environment, such as a club. However, the environment is a home studio, so has significant limitations in size, space and availability of equipment. The performers adjusted their headphones to hear an optimum balance between the acoustic and electronic sounds from each player. Drummer John Parker (Figure 3) articulated:

I think that because I could hear everything that was going on, I was able to mess with the effects and treat them more subtly, just like how we would play in a completely acoustic manner. We'd be able to hear all these things going on, and we would change the way that we play accordingly because of that.



Bassist Sam Vincent concurred with the importance of the sonic clarity in the recorded environment, observing:

I liked how I was really hearing dynamics. So I'm hearing someone doing something, and then I can really hear what they're doing you know, then I can get out of the way of that or I can interact with that.

Co-author Foran, notes that the songs seemed to have a strong shape to them:

the tracks have a certain succinctness when we're in the studio ... there's some more focus and care to the sounds; it's just such a different environment to the gig that I think we play differently, well at least, I do.

Drummer John Parker connects to this concept by reflecting that:

I think when I step into the studio situation, I try to play a little bit more thoughtfully or conservatively just because you're recording this and you want it to be quite pristine and correct and a little bit less crazy going for it, unlike when I'm doing a gig'.



Figure 3 - John Parker (drums) during the recording session, with Lachlan Goold (producer) at the desk

In this recorded situation, the performers have the immediacy of the live performance environment coupled with the sonic control present in a studio situation. The control the performers have over their performance – that of acoustic sounds and manipulated electronic sounds – gives them a higher degree of agency in the recorded outcome than usually encountered in the studio. As the musicians have been able to craft production effects live during the recording session, there is less need for the producer to add these manipulations later. These live electronics are creating a produced sound in the live moment.

## *Producer's Reflection Recording*

Before recording commenced, informal pre-production meetings took place between Sean Foran and Lachlan Goold to discuss the technical specifications of the recording session. *Trichotomy* is a contemporary improvising group, and the need for a formal pre-production meeting was dismissed. Additionally, Goold was not involved in the initial studio setup. Goold states '[b]eing a small "at home" facility meant there were many parts of the setup esoteric to the studio, as the studio does not usually cater for outside engineers or producers' (fieldnotes, 3/02/19). Goold's field notes also add, '*Trichotomy* is not the type of band where I would offer a lot of arrangement advice. I would more likely try and set up the best possible scenario to capture the performances live' (fieldnotes, 3/02/19).

For the recording, Goold added microphones from his collection to Parker's collection, and Parker ran Goold through the signal flow of the studio. Overall the recording session ran quickly and smoothly, but Goold reported, 'I didn't feel connected to the performances' (fieldnotes, 3/02/19). Without prior knowledge of the pieces, Goold had little emotional connection to the music as it was hurriedly recorded. Howlett (2020) argues that improvised forms such as jazz have little need for thorough pre-production. Functionally, there were other issues that will be easily rectified in the post-production phase, such as the sound of effect pedal toggle switches and the adjustment of some effect levels by the performers during the performance.



Figure 4 - Samuel Vincent (Bass) and John Parker (drums) during the recording session

### *Artists' Reflections on the Recording Session*

We've previously discussed the role of producer in contemporary jazz recording, in a situation such as this, where the band has a clear sonic sense, the producer can work alongside the band in a way that enhances the existing music. As bassist Sam Vincent mentions:

I would have thought that he [Goold] wouldn't go too crazy. I mean, yes, like you said, producers who bring arrangements and other instruments and stuff - I didn't think he was going to do that, that he would try and record us as best he could and then do some pretty subtle stuff I imagine, because of the situation where we as a band have a pretty strong idea of what we're doing.

The final mix of the work 'Reassemble' features no additional overdubs, or spliced audio from alternate takes or additional recorded material. The producer knew tacitly not to add material, or change elements, but rather to use their experience and best intuition to craft the recorded sound into a finished work. The band noted that the final produced track was "much clearer" (then the sounds they heard in the performance) and that the instruments had a greater sense of space and clarity around them - the detail in the parts played by each musician was clearly audible throughout the track. Additionally, some electronic elements could be heard that were previously lost in the live sound. The structure and interaction between the acoustic sounds and electronic sounds have not changed, and from the perception of the musicians, it did not need to. The producer in this situation has not altered the musical elements, but rather, clarified and improved the musical result that the musicians had constructed.

Instrument	Artist applied effects	Engineer post-production technique	Final sonic outcome
Drums	<ul style="list-style-type: none"> <li>• Delays added to the snare drum.</li> <li>• Looped and layered drum parts with delays.</li> <li>• Distortion on drum kit.</li> <li>• Time stretching of drum loops.</li> </ul>	Add additional delays to create a wider delay image.	More depth to Parker's improvised delays.
Bass	<ul style="list-style-type: none"> <li>• Flange style effect on melodic bass lines.</li> <li>• Looped bass phrases.</li> <li>• Time modulation to looped phrases.</li> <li>• Pitch modulated looped phrases.</li> </ul>	Reamped the clean Bass Di with an amp simulator to create a warmer, larger sound than what was captured in the studio. I then replicated all of Sam's effects and blended that with the live performance.	This created a fuller sound.
Piano	<ul style="list-style-type: none"> <li>• Gesture controlled harmonic filtering.</li> <li>• Looped piano phrases (layered).</li> <li>• Additional reverb.</li> <li>• Cascading delays.</li> <li>• Reversed piano samples.</li> <li>• Time modulated piano samples.</li> <li>• Pitch shifting.</li> <li>• Phaser.</li> </ul>	I automated the volumes between the acoustic piano sound and the Ableton/Hardware outputs.	This created scene changes in the parts.

Table 1: Effects utilised by performers and producer.

As seen and heard in the video recording (see QR code), many of the subtle electronic sounds that for the musicians were originally lost in the live moment are now clearer and carry a new sense of prominence in the music. The artist's intention at the moment is more fully realised, and through the work of the producer, the greater potential of the music is constructed for the listener.

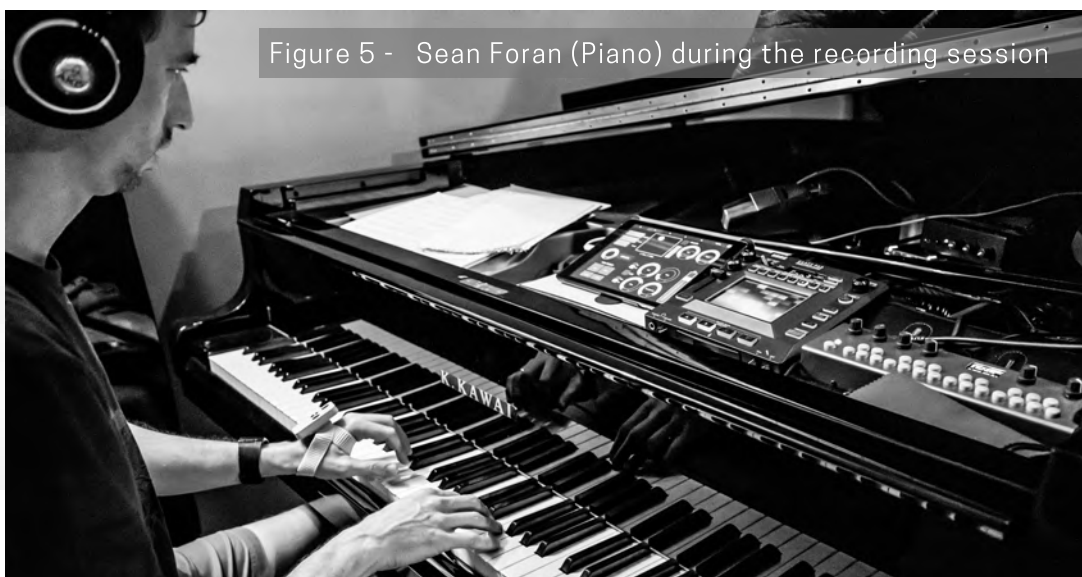


Figure 5 - Sean Foran (Piano) during the recording session

*Producer's Reflection on the Mixing Process*

Anthony (2017) posits that 'mixing is more than the sonic refinement of audio signal – it also involves a creative process (mixing as a performance) that satisfies the mixer's musical and emotional connection to the song' (p. 1). From a mixer's perspective, Goold found a connection to the recording through the mixing process, stating that:

[o]verall, I enjoyed mixing more than recording and engaged with the track better. I used the effects the band generated at a "starting point" and tried to allow the artist's effects to take the lead. (Fieldnotes, 3/03/19)

In that same manner that Solis (2004) postulates, Goold was enhancing the sound created in the recording. The performers live sound already had been heavily manipulated, and the mixing process was looking for more clarity and depth. To do this, Goold used a combination of effecting the performer's effect track further, or mimicking the effect track on the clean acoustic tracks, thereby replicating the artists' intention with a more considered result.

As noted in Table 1, the production on the drums involved adding delays to the existing delay tracks to provide greater width to the stereo field. However, the bass required a different approach as Goold's field notes state: '[t]here always seemed to be a compromise between hearing Sam's [Vincent] effects and the bass sounding good' (fieldnotes, 3/03/19). Due to this, Goold mimicked Vincent's effects on the acoustic microphone tracks. There is a considerable amount of drum spill into this microphone, but Goold felt this added to the overall effected and manipulated nature of the recording - an unintended benefit from this approach. Similarly, Goold preferred the acoustic microphones on the piano, as opposed to those that were manipulated by Foran through Ableton. Goold's fieldnotes elucidate that he was 'favouring the clean mics when there were no effects, and then turned up the effects [tracks] when Foran was manipulating the sound (fieldnotes, 3/03/19). We believe that this combination of adding to the performer's effects, recreating their effects, and changing the balance between the effected

and uneffected tracks created a unique balance. As a mixing engineer, Goold had more agency over the production in the mixing process as opposed to mixing the song without being involved in the recording process. Additionally, despite the artists being able to treat, manipulate and 'live produce' their recording, the ability to craft a well-balanced mix goes beyond the knowledge scope of these artists.

## *Conclusion*

In creating this recording the musicians have been able to quickly and efficiently create a 'produced' sound in a live context. This process can also create a strong 'artist controlled' production perspective, which is generally the goal of recording, but a producer is often required to facilitate this process. The same artistic outcome can occur without the musicians implementing the effects live and is required for those inexperienced with technology in the studio. Leaving the process of sonic manipulation solely to the producer in post-production would take more time, but potentially craft a more controlled result with a greater variety of sonic possibilities not available to the musicians live. The inclusion of the effects live in this instance, however, lends itself to the improvised nature of the music, and for a modern jazz recording, represents an authentic recorded outcome; a true live recording of the music, but with post-production styled elements embedded into the performance. Replicating the same setup in a professional studio with more time would be the ideal scenario and potentially create a heightened degree of sonic control, enabling greater improvised options for the musicians in the tracking process and a wider variance of acoustic and electronic interactions in the music. In this scenario, while the producer is relegated to a technical role during the recording process, the mixing process enables the producer to embellish the performer's pre-manipulated sounds and extend those to create an artefact beyond what the artists could achieve in isolation.

**Dr Lachlan Goold** is a recording engineer, producer, mixer, popular music educator, researcher and lecturer in Contemporary Music at the University of the Sunshine Coast. His research focuses on practice-based music production approaches, theoretical uses of space, and the music industry, specifically relating to government legislation. In his creative practice, he is better known as Australian music producer, Magoo, a two-time ARIA award winner. Since 1990, he has worked on a wide range of albums from some of the country's best-known artists, achieving a multitude of Gold and Platinum awards.

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**Sean Foran** is a composer & pianist active in jazz and improvised music styles. He works primarily with the groups Trichotomy and Berardi/Foran/Karlen and has received the prestigious Brisbane City Council's Lord Mayors Emerging Artist Fellowship, AMC/APRA Award for Excellence in Jazz & APRA/AMC Professional Development Award for Jazz. His research focuses on practice-based approaches to the intersection of acoustic improvisation and live electronics in performance and production scenarios. He is currently Head of Music at JMC Academy Brisbane, Doctoral Candidate at Griffith University, Board Member for the Wangaratta Jazz Festival and Jazz Councillor for Music Australia.

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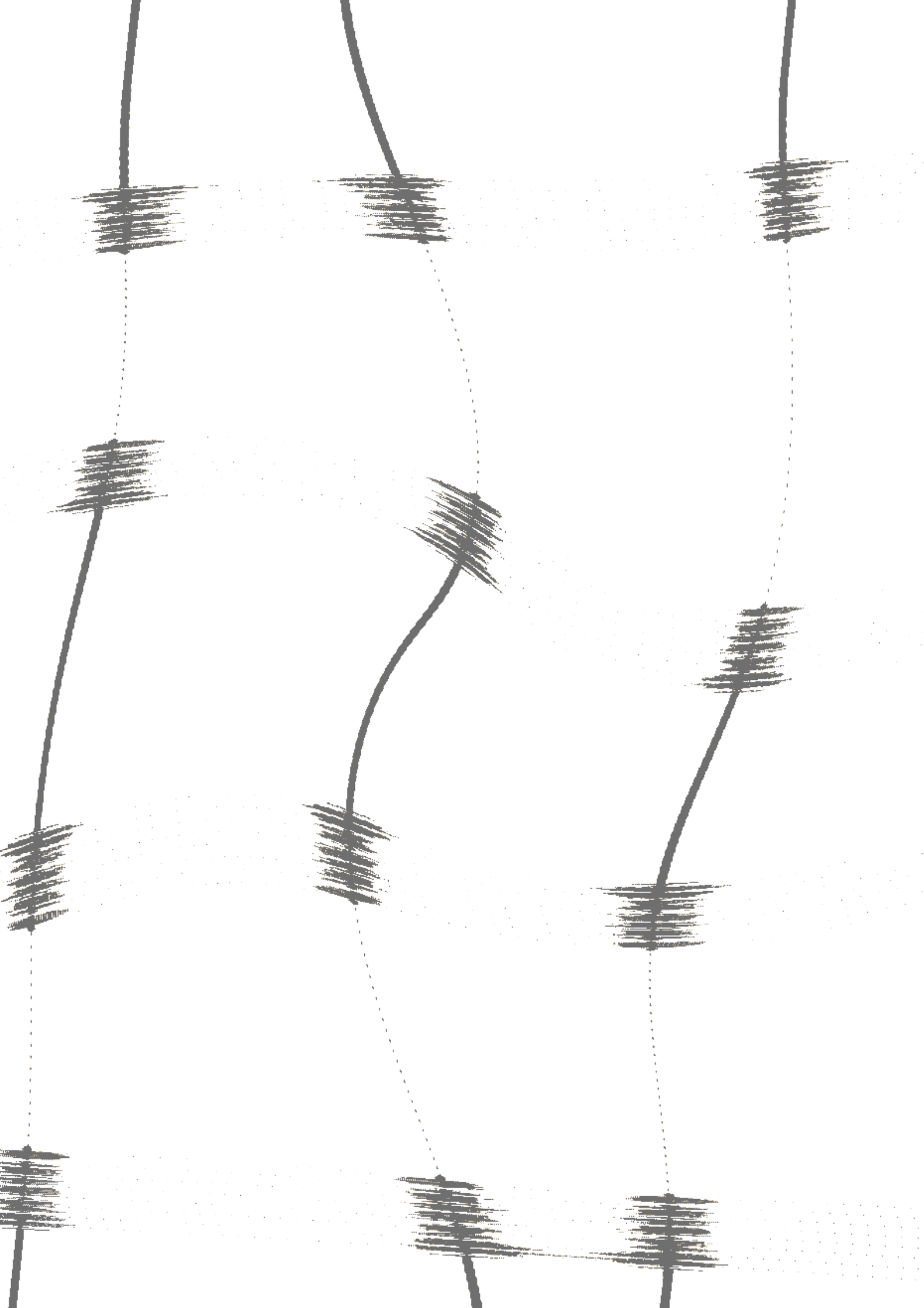
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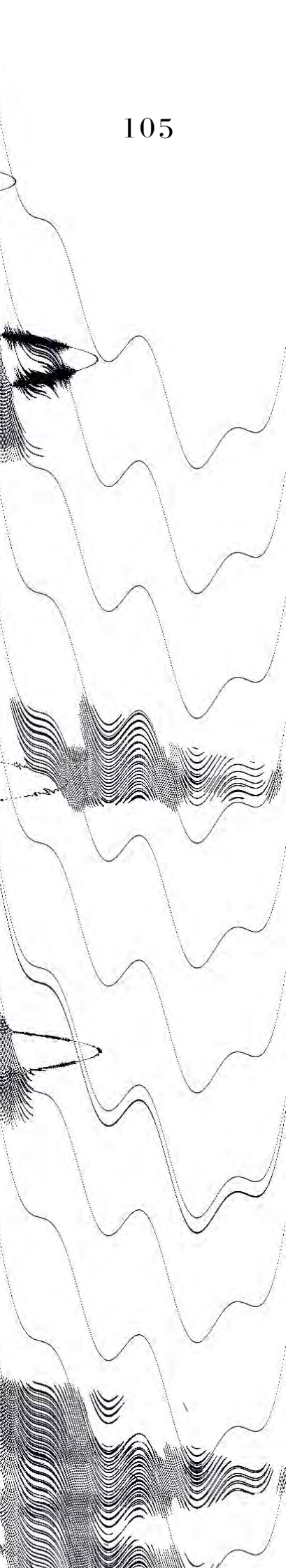


# LULLABY-SONIC CRADLE

Supriya Nagarajan

## *Background*

Lullabies have fascinated me; the pulse, melodies and the restful mood they evoke. In South India where I hail from, lullabies play an important role in both families and in the wider society through religious practices. I grew up in Mumbai where I had access to multiple languages and musical traditions. Therefore, I had access to traditional lullabies from different parts of India and they held a special place in my heart. Throughout my classical musical training in India, I would try to capture the nuances of lullabies sung in a variety of languages and I was always fascinated by the varied textures that different languages brought to the singing. Every time I visited rural South India, one of the important rituals every night at our family temple was “Shayanam”. During this ritual, lullabies are sung in order to complete temple activities and to shut the temple doors for that day. Symbolically, this meant that the gods had retired for the night. I was obsessed with the nature of scales (or ragas) used during this process, which to my ears did seem highly soporific. These interludes planted the first seeds of the Lullaby project.



Much later, in 2014, it was during a visit to my ancestral temple in a village in South India that I had the opportunity to spend an evening in the very rural, lush agricultural farmlands. I was once again inspired to revisit the lullaby effect. I was passing by some paddy fields where the women were at work, while children played and infants slept in makeshift cradles tied on trees as slings. As dusk approached, the women continued to work, but as the children began to get restless I noticed they would take it in turns to sing lullabies. I watched and listened for almost two hours, captivated by the way the women used their voices in soothing, repetitive rhythms to guide the behaviour of their children who were comforted by the sounds.

What is it about lullabies that creates this bond? Is it the sound of the mother's voice or is it the rhythm? This was my primary inquiry that formed the beginnings of my journey into creating *Lullaby-Sonic Cradle*. The project is a study of lullabies across the world and an attempt to answer that question.

#### *What is Lullaby-Sonic Cradle?*

*Lullaby-Sonic Cradle* is an immersive audio-visual music/installation performance which aims to put the audience to sleep. The various elements of the performance include a soundscape created by sound artist Duncan Chapman that combines nighttime sounds from across the globe with our collection of over 300 lullabies, collected from various cities and countries. Collection of lullabies took place in "Lullaby booths" – cosy spaces set up in various locations as the project travelled. These included libraries, metro stations, shopping malls, schools, office blocks and music venues. Members of the public were invited to come and talk to the artists and share lullabies that they were familiar with. The stories and songs collected were then woven into the soundscape.



Within this soundscape is live singing and instrumentation. During live performances of the project, I usually sing Indian lullabies, with an occasional Norwegian or Japanese one thrown in. The flexibility of this performance means we have worked with a wide range of instrumental artists from across the world playing saxophone, violin, harp, piano, flute, cello and even the Theremin. We have also invited local artists in every country to join us, and have had the pleasure of performing with French horn players, Kantele artists from Finland, and singers in Oslo and Portugal. Accompanying the audio is a special program called Lumisonic, created by Prof Mick Grierson (University of Arts, London) which provides a visual focus. Concentric circles form and grow with the music. Lumisonic was created by Dr Grierson initially for children with hearing disabilities so they could experience music, and this program was later adapted for our project. After performing over forty shows across the world, we can say that the combination of the audio and Lumisonic has resulted in over sixty percent of our audiences falling asleep. These figures have been

compiled from the photographs and audience feedback obtained at the performance venues.

Audiences have ranged from 0 -100 years of age. We have performed to both family audiences as well as completely adult audiences, and the performance has had a similar impact on all age groups which has been a surprising result.

### *The Journey*

There have been two elements to the journey of the project. Firstly, the performative element and secondly the outreach element. One is closely linked with the other as our outreach feeds into the performance through the soundscape.

Reflecting upon the project, I discovered that the tonality and rhythmic structures in Scandinavian lullabies mirrored what I'd heard in the paddy fields in India. This inspired me to consider and investigate how lullabies can connect people across the world. The first part of my journey took me to Finland, where I worked closely with the Metropolia University to incorporate lullabies into the Early Years teacher training curriculum. The work comprised workshops during which we explored the intercultural musical language of lullabies from the point of view of communities resident in Helsinki, and walking that bridge as teacher trainees to facilitate the travel of music backwards and forwards between cultures.

For the next phase of the journey, which mainly involved installation performances, I devised the concept of "lullaby booths". These booths were located in prominent locations around the area where any performance was scheduled, and sometimes well in advance



Excerpt from *Lullaby Live* album



Helsinki 2016

of the show dates. For example, one of my earliest commissions was from the Ultima Festival in Oslo. I visited Oslo eight times in the twelve months leading up to the festival where I interacted with members of the public in “lullaby booths”, inviting them to donate and share lullaby and related memories which would potentially go into the soundscape that framed the installation/performance. The booths attracted over 200 lullabies from the twenty-six distinct cultural communities who have made their lives in Oslo.

The installation/performance was unveiled in September 2016 to an audience of over 350 children under the age of five and their families. This was the first time the multifaceted aspect of the show came to life. Family and adult audiences were equally enthusiastic in their reception of the show. An audience member who was a kindergarten teacher noted that the performance offered: “One hour of quiet in my very busy life. Enchanting” An accompanying grandmother said: “I loved the calm soothing tones of the songs and it didn’t matter that I didn’t understand the lyrics”.

The show has since travelled to eleven countries in a variety of settings. From composing two lullabies for the Iceland Symphony Orchestra and performing with them, to staging the show in the Salmon Bothy in the furthest corner of Scotland, the show has travelled widely. York Minster (UK), Huddersfield Contemporary Music Festival (UK), Casa da Música in Porto and Riverside Theatre in Parramatta in Sydney (Australia) are just some of the locales to which we have ventured. The younger audiences have always been absorbed by the Lumisonic



Oslo 2016

circles, and I have therefore begun to research the phenomenon of “unconscious listening”. At the start of every concert we see the younger audience members moving around and “listening” to the music physically, but as the performance progresses we have noticed them settle into a quieter mode and on many occasions fall asleep. The South Indian classical music which forms the core of the performance is of a complex nature, but combined with the visuals it has the capacity to reach out to our youngest and oldest members of the audience in a similar fashion.

I have recently worked with senior members of the community in Batley in West Yorkshire. They could clearly recall lullabies from their childhood, and the depth of their bond with the lullaby was clear. I have informally liaised with neuroscientists in the University of Brisbane (Australia), where I have explored the phenomenon of lullabies evoking memories in people suffering final stages of dementia, and have conducted



Hepworth 2017

few workshops in Brisbane working with people in care homes. The initial findings from these various projects indicate that recall of lullabies is one of the strongest of childhood memories. Another incidental finding (which is being investigated further) is the extended lucidity period caused by the singing of lullabies in particular. All this work has informed both the main show as well as our extended outreach and engagement activities. Some of the most poignant moments have been the stories shared in the lullaby booths by people from all corners of the world, many of whom having either migrated or been forced to leave their homes. Participants have crossed boundaries to listen to each other and in doing so have become united under a common, shared memory – that of being a carefree child somewhere, sometime. My overall aim is to find new

routes to engage with families and communities, and to find out how lullabies connect people in different communities across Europe and around the world. I believe lullabies can help build a cultural bridge that unites communities.

## *Future Plans*

*Lullaby-Sonic Cradle* has recently toured the UK with the assistance of Arts Council England and reached into communities all over the North of England, partnering with venues like The Sage Gateshead (Newcastle), National Centre for Early Music (York), Settle Victoria Hall and Middlesbrough Town Hall, as well as The Point in Eastleigh.



*Lullaby* is intended for a longer tour in 2020/21, both nationally and internationally. The shows in the pipeline include a day at the Imagine Festival at the Southbank Centre (London) followed by a tour in the UK, currently being put together. International festivals in Greece, a return to Portugal and an extension of the work in India are being planned. An album is also due to be released in September 2020, capturing the essence of our lullaby work so far and including some of the artists who have worked with me on the show.



The most important revelation has been the intergenerational nature of the project. Having the presence of an audience from the ages of 0 to 100 plus in the same space enjoying the same music has been truly liberating. As a musician I am keen to explore this aspect of music that transcends age, gender, ethnicity and cultures.

**Supriya Nagarajan** is a South Indian classical Carnatic vocalist/composer based in the UK who has performed internationally. She collaborates with artists from other genres creating new musical vocabulary & constantly widening musical boundaries.

### **Key successes:**

Nov 2006: Commissioned by Yorkshire Sculpture Park to create music responses to sculptors **Andy Goldsworthy, David Nash & Peter Randall-Page**.

2009: Cultural Olympiad project exploring the poetry of Simon Armitage through Indian classical music.

2011: "Shivoham" a multi-sensory experimental music work in collaboration with acclaimed artists **Shri Sriram and Ben Castle**.

2015 : Multi-faceted exploration of the theme "Lullaby" initially funded by PRS Foundation later working with Ultima Festival, Norway; Metropolia University of Applied Sciences Helsinki , Vuotalo Cultural centre Helsinki, Casa Da Musica Portugal, Riverside theatres Sydney and Jaipur literature festival, India.

Nov 2016: Composed an evensong for the prestigious choir at York Minster using Indian music which is a first for the Minster resulting in an invited performance at Lambeth Palace in the presence of the **Archbishop of Canterbury**.

April 2017: Commissioned to compose & perform two lullabies by the **Iceland Symphony Orchestra**.

Aug 2017: Invited to a residency at New Brunswick, Canada as part of an exploratory Project working with bees and artificial intelligence.

Sep 2017: Devised a participative installation using human voices titled "Festival of Conversations" which toured at the BEAST Festival in Birmingham.

Oct 2017: toured a brand new music work fusing Bollywood and Jazz which was a resounding success with appearances on BBC Look North and received several accolades from music critics.

Nov 2018: Composed a large scale experimental choir work presented at the prestigious **Huddersfield Contemporary Music Festival**.

June 2019: Commissioned by **Jarvis Cocker and Jeremy Deller** to compose a piece to launch their National Trust "Be Kinder" project.

2020:: Currently touring a large immersive music performance/.installation "Sound of Tea" across the UK.

Supriya also is a keen mentor of emerging musicians and one of the directors of the Yorkshire Sound Women Network. She was nominated for the Diversity award by Microsoft in 2012.

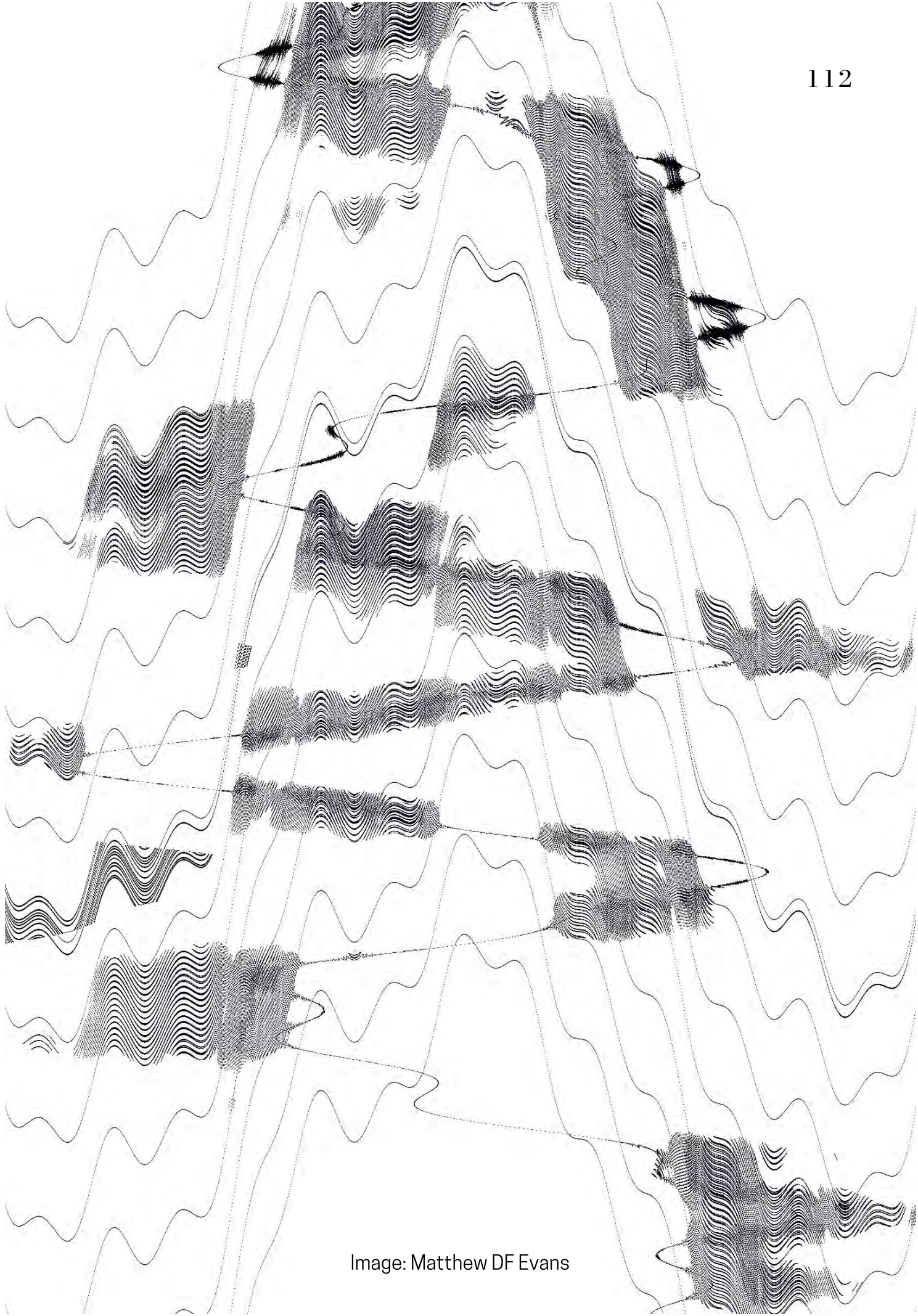


Image: Matthew DF Evans

# Riffs

## Experimental writing on popular music

*Riffs: Experimental writing on popular music* is an innovative and challenging journal based at and funded by the Birmingham Centre for Media and Cultural Research (BCMCR) at Birmingham City University. *Riffs* provides a platform for the publication of experimental pieces on popular music and was launched in February 2017. The contributions are made available Open Access through the journal website ([www.riffsjournal.org](http://www.riffsjournal.org)) and a limited edition print run.

*Riffs* has a strong DIY and experimental ethos. We aim to push the boundaries of popular music research, communication, and publishing. The next step for the editorial board at *Riffs* is to develop a creative and experimental space for not only publishing finished pieces, but also offering an online forum for thinking through the ways in which we analyse, understand, and communicate.

As one of the largest centres for popular music research, the BCMCR at Birmingham City University offers a wealth of global networks and potential readership. Our editorial team and wider researcher community expand our reach further, with active participation in a range of international research networks to include IASPM, MeCCSA, the Punk Scholars Network, Subcultures Network and the Jazz Research Network. Beyond academia, *Riffs* is keen to develop relationships with industry, particularly in Birmingham, through events and collaborations. Through these connections, we aim to develop an international and active readership.

## Contributor Guidelines

*Riffs: Experimental research on popular music* welcomes pieces from all disciplines and from contributors from academic, industry, or creative backgrounds. Each issue will be based on a prompt, but responses can vary depending upon the contributor's interest and experience. As the journal title suggests, we are most interested in pieces that take an experimental approach to the consideration of popular music. For examples of previous interpretations, please visit our journal website.

Abstracts submitted to *Riffs* will be considered by the editorial board, with full submissions subject to peer review.

**Word Limit: 2,000-4,000 (excluding references)**

Please do not submit full dissertations or theses. All contributions should respond to the prompt and take an experimental approach to undertaking and/or communicating research on popular music. We also welcome shorter written pieces, audio, and visual pieces to include photo essays.

**Abstract:** Please provide an informal, blog-style abstract (under 300 words) and a profile picture. This abstract will be hosted on our journal website and social media platforms. As ever, links to external websites and the use of images, audio and video clips are also welcome, subject to guidance which will be issued at the point that your abstract is accepted.

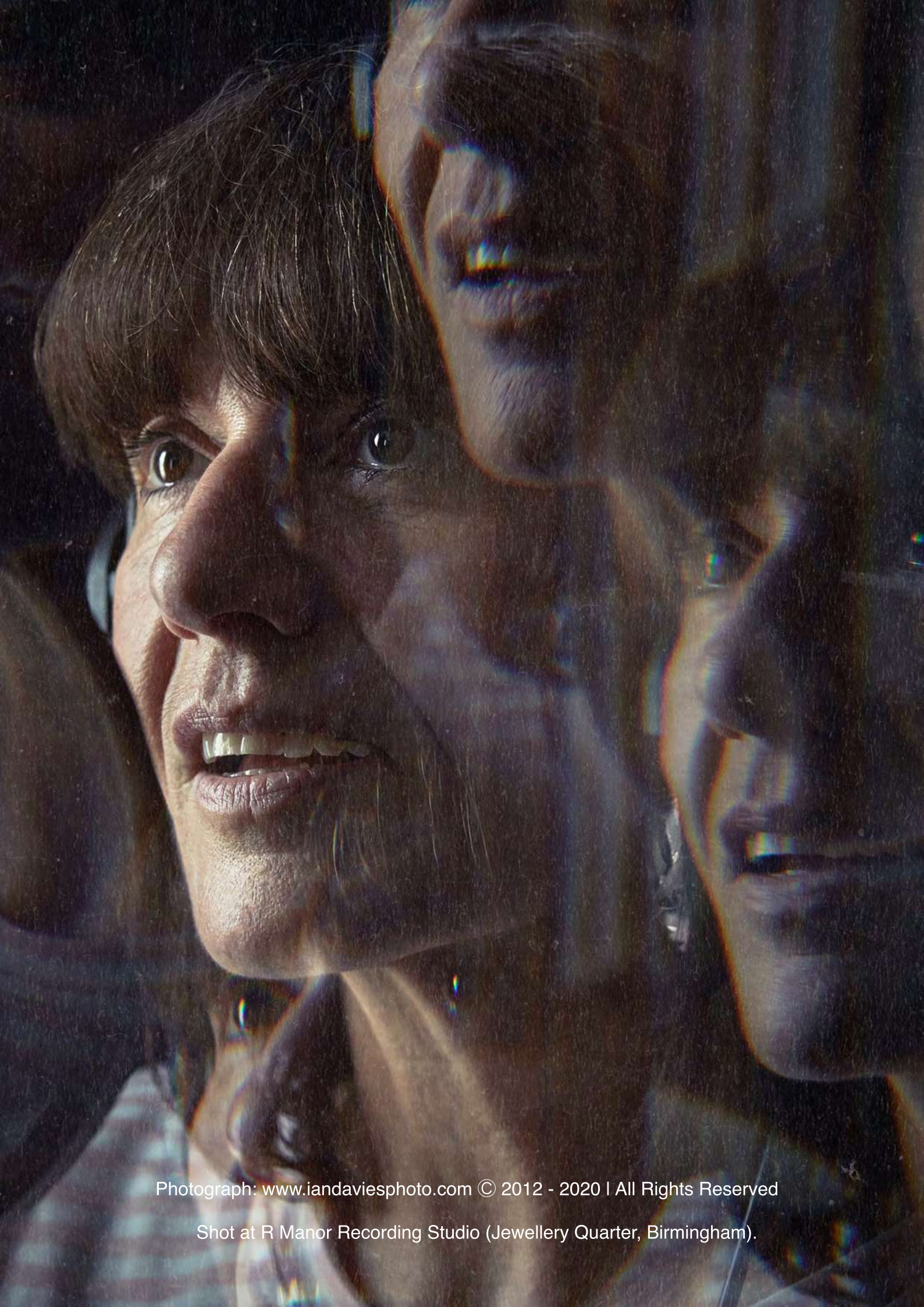
**Format:** Please email submissions as attachments to the editorial contact given below. All articles should be provided as a .doc or .docx file. All images and web-ready audio or video clips should also be emailed as separate files, or through a file-sharing platform such as WeTransfer or Dropbox.

**Bio:** Please include a short (up to 300 words) bio with your name, institutional affiliation (if appropriate), email address, current research stage within your article, and other useful/interesting information, positioned at the end of your piece.

**References:** If you refer to other publications within your piece, please list these in a 'References' section at the end. All clear formats of referencing are acceptable. Discographies and weblinks can also be detailed at the end of your contribution. Please use endnotes rather than footnotes.

**Submission:** Abstracts for our bi-annual prompts should be emailed to [info@riffsjournal.org](mailto:info@riffsjournal.org)

**Please note:** *Riffs* shall be entitled to first use of the contribution in all the journal's different forms, but the author remains the copyright owner and can re-publish their contribution without seeking the journal's permission. *Riffs* reserve the right to decline to publish contributions if they are submitted after the agreed deadline and without the assigned editor being informed (and agreeing to) a new submission date.



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Shot at R Manor Recording Studio (Jewellery Quarter, Birmingham).

Experimental Writing on Popular Music

## Music and Technology

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