HEADPHONICS : MOBILE MUSIC ON THE METRO

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RÉSUMÉ

Cet article présente ma recherche concernant le paradigme de l'utilisation de l'appareil portable (smartphone ou tablette que j'appellerais désormais «mobiles») dans le contexte de la musique électronique et de la performance (dénommée «musique mobile»). Il s'agit d'explorer les dispositifs mobiles en tant qu'outils et modes d'expression artistique, et de ce fait, de placer la pratique de la performance au centre de la méthodologie. L'objectif est de montrer comment la mobilité implique des relations multiples entre un musicien, sa situation et son environnement. Je propose d'abord un aperçu du cadre théorique et pratique de la musique mobile, en m'inspirant des théories de l'oralité médiatisée, de la pratique de la marche, et des environnements urbains ou naturels comme sites de performance musicale (dénommée «headphonics»). Comme ça, je voudrais remettre en question les limites des espaces associés à la musique électronique – où elle est faite, où elle est écoutée et vécue.

1. INTRODUCTION

Imagine an electronic musician in the process of creating sound. With forefinger and thumb, the musician moves four circular icons across the x and y axis of a screen. There is a process of listening intently as each movement adds or subtracts to a variety of time delay and reverberation effects. The sound being created is a mosaic of rhythmic textures, sine tones and loops of human voices. Our musician seeks out to make constant adjustments to the sound being created, taking spontaneous decisions about numerous variables; dynamics, textures and frequencies are in a continual state of flux. And each sequence of events will never be repeated.

If we step back from this scene, we can see our musician's surroundings are not a recording studio or a programming suite. There is no mixing desk, no racks of electronic equipment, keyboards, or near-field monitors. Instead, it is a train carriage on the Paris Métro. The musician is holding an iPad, yet to all outward appearances is simply another passenger wearing earbuds, staring at their mobile device. The physical gestures are the same as everyone else's: tapping, pinching and scrolling down a screen. No one is aware the electronic musician is inscribing this performed event as a fixed recording; it is a private, internalised experience of mobile music. The only time an audience might view or hear this music is when it is shared afterwards via YouTube or micro-blogging platform [1].

In fact, I am the electronic musician in the above example and this article will be an autoethnographical account of an area of my research that focuses on headphone-based music performance. To describe this process, I am using the term 'headphonics' as a new model of interaction.

My practice-based research investigates the mobile paradigm in the context of electronic music, sound, and performance. It explores mobile media devices as creative tools and modes of artistic expression in everyday contexts and situations, working in dynamic and unpredictable conditions. The intention is

[1] https://steranko.tumblr.com/

to question the spaces commonly associated with electronic music – where it is made, where it is listened to and experienced. I consider the idea of mobile as a lens through which a new model of electronic music performance can be interrogated. In this article I hope to show how mobile music has the potential to change the experiences of making electronic music, create a novel form of music, and consequently generate a new kind of performer identity.

2. BEING MOBILE: BACKGROUND, CONTEXT

To put these questions into context, my own experiences of electronic music production have historically been situated in a recording studio environment, a place designed for recognisable, manageable, understandable and unproblematic scenarios. However, my assumptions of music making were challenged when I began attending music improvisation workshops held at the Église Saint-Merry in Paris, under the direction of Frederic Blondy. Playing with a broad mix of musicians – from amateurs to conservatoire students, hobbyists to seasoned veterans of the Paris free improvisation scene – I found it frustrating always being positioned away from the group, sat at a table obscured behind my laptop screen and an array of cables, mixing desk and loudspeakers. To counteract these vexations, I wanted to discover a new lexicon of electronic sound that did not involve a laptop, digital audio workstations or desktop computing interfaces of a QWERTY keyboard and mouse.

At this time, I was often travelling between two similar, but very different geographical sites – the UK and France. It was vital therefore to have light, portable and resilient equipment that could be easily carried. This led me to exploring the potential and limitations of generic mobile devices and commercially available apps as a music performance system, to address the gap in knowledge on how mobile music presents real challenges to the assumptions and expectations of electronic music beyond the studio.

Another significant reason driving my decision to use generic devices stems from my background rooted in electronic dance music and DJ culture. The history of modern dance culture is founded on artists experimenting and reinterpreting technologies in ways other than they were intended. From DJs misusing variable-speed turntables to mix and scratch vinyl records at dance parties, to Roland's TB-303 Bass Line accidently becoming the definitive sound of 'acid house', dance music culture is inextricably intertwined with commercial and often overlooked products and systems, wrestling out possibilities in ways that manufacturer would never have envisioned.

Over the course of my research, I have examined a wide range of situations for mobile music making, from organising concerts for the mini festival *Mobilise* [2] in conjunction with IRCAM and De Montfort University (DMU), to developing a performance for groups of players carrying portable loudspeakers for the arts organisation Locus Sonus, to my somewhat precarious membership in Paris' free improvisation scene. However, in this article, I wish to focus on a group of works using earbud headphones, an approach that brought about a singular, but richly rewarding experience of making music.

2.1. FRAMING THE FIELD: MOBILE MUSIC STUDIES

Before I look specifically at examples of headphonic performance, I must consider briefly how portable auditory devices have shaped subjective experience. The precursor of this practice is the introduction of lightweight, high-fidelity headphones and the Sony Walkman. Mobile music studies can be traced back to Shuhei Hosokawa's theories on the Walkman Effect. Hosokawa describes the use of the Walkman ('musica mobilis', as he calls it) transforming the act of walking into a form of secret theatre: "With the appearance of this novel gadget, all passers-by are inevitably involved in the Walkman-theatre, as either actors (holders) or spectators (beholders)"

[2] https://carryprinciple.wordpress.com/

(1984: 177). Hosokawa critiques the assumption that personal stereos would lead to a disconnect among listeners, using their headphones to seclude themselves from the outside world. Instead, he proposes the affordance of a secret theatrical experience, forging new relationships between a listener, inconspicuous by-passers, and their surroundings.

Mobile media scholars such as Michael Bull similarly argued that personal stereos were employed as a way of managing the stresses of urban life. Having a musical soundtrack while negotiating everyday practices created a "cinematic experience" for the user. These changes in our listening modes, spatial relations and perceptual habits have been explored by many sound artists, among whom Janet Cardiff has been perhaps the most influential. Brandon LaBelle's identified the notion of 'headscapes' (2015) to describe Cardiff's audio walks and mobile mediated soundwalking, arts practices that highlighted the discrepancies fostered by wearing headphones.

Another cornerstone of this field is research exploring a smartphone's capacity for creative musical applications, and the physical act of mobility as a performance paradigm. Mobile music as a specific genre was first identified and theorised at the Mobile Music Workshop (MMW), a series of events organised by a collective of researchers, artists and academics including Lalya Gaye, Frauke Behrendt and Atau Tanaka. The MMW group were integral in promoting the idea of mobile music as a form of new media practice that encompassed music activities, sound art and community-based projects. Mobile music was classified as a term that: '…covers any musical activity using portable devices that are not tethered to a specific stationary locale… thereby leveraging novel forms of musical experience.' (Gaye et al. 2006: 22).

An important canonical work for music performance with mobile phones is *4 Hands iPhone* (2009-11) by Adam Parkinson and Atau Tanaka. Tanaka had been exploring the application of mobile technology in collaboration with Petra Gemeinboeck in a 'multi-media mobile artwork' *Net_Dérive* (2006), but 4 Hands iPhone shifts the focus of the smartphone beyond simply a consumer icon to something closer to an expressive musical instrument (Tanaka, 2010). For their performance system, Parkinson and Tanaka used open-source Pure Data (Pd) ported over to the generative audio app *RjDj.* RjDj was promoted as a new genre of 'reactive music', with interactive versions of existing music recordings using a device's internal microphone to alter the audio by triggering a set of digital signal processing (DSP) filters.

Kate Crawford's essay, *Four Ways of Listening with an iPhone* describes RjDj as producing a sensation of *meta-listening*. Listening to the environment through the app's reactive scenes creates a displacement in the real-world – 'listening to a place in the present, but strangely modified' (2014: 216). The in-ear style of mobile earbuds ushers in the surrounding environment with unusual closeness, while at the same time transforming perceived sounds through DSP. On a final note, Crawford considered that the option to record individual scenes with RjDj offers a tantalising glimpse of an *a priori* impossible opportunity; to hear another's listening. She asks: 'Can one make a listening listened to? Can I transmit my listening, unique as it is? That seems so impossible and yet so desirable, so necessary too'. Using the inbuilt mic of a mobile device and DSP becomes a form of digital immersion, producing an almost hallucinatory listening experience.

A decade later, the paradigms of music production made with mobile sound apps had been classified as *Situated Composition* (Thulin 2017). Situated Composition is an approach that entails multiple relationships between a practitioner, their situation and their surroundings. These past studies and illustrative examples provide the grounding for this article, situating mobile-mediated listening as a strategy for extending the boundaries of musical agency, and as a phenomenological approach to expanding our subjective experience of the world.

3. EXTENDED FIELD RECORDING

In 2013, RjDj's developers Reality Jockey closed its website, removing its apps from circulation. Yet the exchange of open-source materials for programming mobile apps continued; *Libpd* [3] was used to build PdDroidParty [4] for Android devices which directly inspired the iOS app PdParty [5]. A deluge of sound and music apps began to appear on Apple's App Store, taking advantage of the advanced processing and screen-based interactions of the iPad with its larger screen. Quite by chance, I stumbled upon a novel way of combining field recording and electronic music using DSP apps to process audio captured by the iPad's inbuilt microphone; its fidelity optimised for close range recording as well as capturing background noise from longer distances. Another reason for concentrating on an iPad's mic and DSP apps was the ability to overcome the often-prescribed sounds of mobile apps. Utilising a mic to capture the sounds of my immediate surroundings meant I was not confined to an app developer's embedded choice of synthesised sound.

Xtended Field Recording: Corsica Soundscape [6] is an example of this fieldwork I termed as 'Xtended field recording', with the intension of going beyond field recording. It features *Samvada* [7], a simulation of a Sitar instrument, but here I am only its accompanying drone function. Audio from the iPad's mic is passed through a comb-filter system and controlled with a simple set of slider GUI objects. Holding the device horizontally and using two or three fingers of one hand, I repurposed the app's slider controls into performance control gestures. In Figure 1, the top right-hand slider (Samvada Mic Mix) shows the dry/wet signal used to shift between the mic input and the processed signal. On the left, the tone, sustain and pluck sliders are used to alter the texture of the pitched signal, while a simple reverb adds a wider spatial element to the mix.

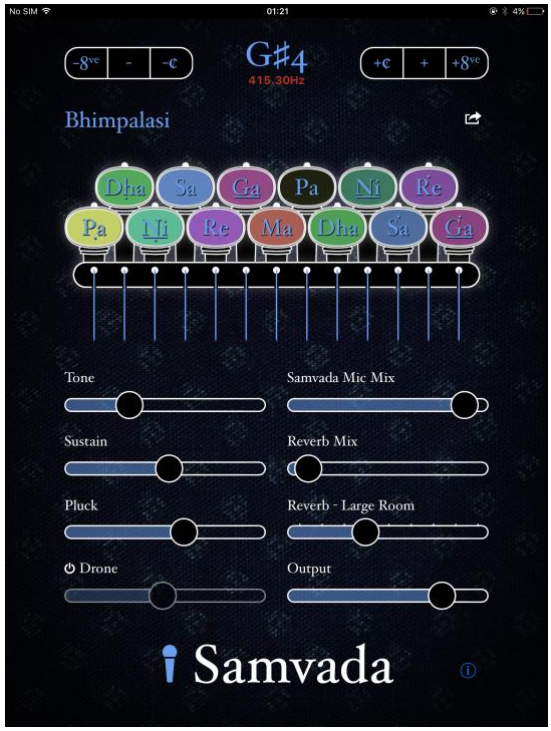

Figure 1: Samvada's slider GUI objects. Screen grab.

The key and harmony settings at the top alter the scale of the pitched filtering, modulating across harmonisations based on classical Indian raga tuning. In this way, the app is no longer used as an imitation of an acoustic instrument, but instead is employed as a multitouch signal processing system. Hidden away in the app's settings is an option to record a stereo Wav file direct to the device. In this recording, I was able to wade in the shallows of the sea while processing the audio. The ability to be so close to water while making electronic sound was a revelation. There is even a moment when a group of passers-by ask for a light for a cigarette, unaware I was playing, recording or performing. It was a lightbulb moment.

Samvada was one of the few apps that allowed audio to be recorded, otherwise I carried a separate hard disk recorder to capture the results. I began examining app interconnectivity as a method of reclaiming agency over standalone apps. *Audiobus* [8] is an

[3] https://puredata.info/downloads/libpd
[4] https://droidparty.net/
[5] http://danomatika.com/code/pdparty/guide
[6] https://bit.ly/2CrgcoH
[7] http://iotic.com/samvada/
[8] https://audiob.us/apps/

IOS third-party app that does not generate sound itself but acts as an inter-app routing system. Audiobus uses the Inter App Audio (IAA) protocol that allows apps to announce audio input and outputs to each other. Like this, separate apps can be partitioned into input, effects and output slots. IAA allows single purpose apps to be chained together, like a guitarist patching together a series of effects pedals to create unique sounds. Now the signal stereo output could be recorded internally, thus eliminating the need for an additional audio recorder.

Figure 2: Audiobus partitioning apps into input, effects and output slots. Screen grab.

Figure 2 demonstrates how Audiobus allows individual apps to be partitioned and fed into each other. In this example, Samvada is the signal input processed through *Echopad* [9], a multi-delay effect and sound on sound looper. Echopad's motion looper automates effects and stereo panning, with layered loops sampled on the fly represented as vinyl records (see figure 3). Patched to the output is TwistedWave Recorder, abbreviated as *TWRecorder* [10]. TWRecorder records either mono or stereo files as Wav or MP3 files, and I found it to be the most reliable of the iOS audio editor applications.

Although having access to one app at a time onscreen, I could move around while cradling the iPad under one arm, interacting with the screen without monitoring it visually. The added element of freedom allowed me to experiment with mobile audio processing in places that previously would have been out of bounds. The interconnectivity of apps promised to be a way of regaining a sense of ownership when constructing a performance system out of existing systems. *Sounds of the Valley* [11] is an example using this system, a sound study of south-east France including church bells, crowing cockerels and flowing water. Where before I would make field recordings and take them to the studio to develop new material, now I was able to compose directly, in situ.

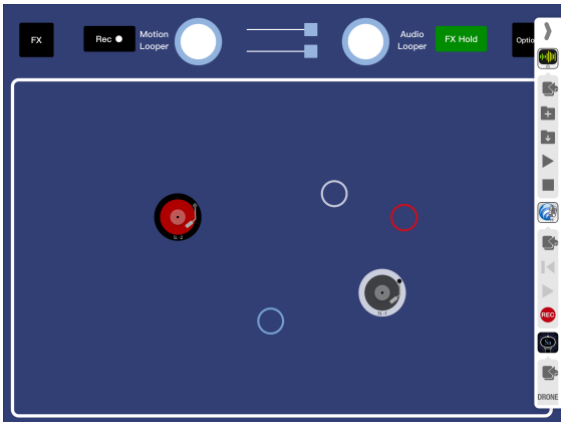

Figure 3: Echopad's looper GUIs with Audiobus controls as a vertical strip r/h side. Screen grab.

The combination of meta-listening, walking and musical creation draws heavily from Hildegard Westerkamp's practice of soundscape composition and soundwalking – listening to the environment while exposing our ears to every sound around us. Westerkamp's soundwalks can be defined as an invitation to explore a soundscape through movement: "…an embodied method of personally connecting with the soundscape through focused listening while physically moving through space" (1974: 81). Field recordist Andrea McCartney expands on this definition, proposing that soundwalking can be a practice that involves both listening *and* recording. She refers to Westerkamp's non-

[9] http://www.holdernessmedia.com/home/ios-applications/music/echo-pad
[10] https://twistedwave.com/
[11] https://soundcloud.com/steve_jones/larisse-bells-cockerels-and-echo-pad?in=steve_jones/sets/soundstudies-skatepark

intrusive style of field recording, suggesting the composer was learning about the Canadian soundscape 'with an immigrant's displaced ears' (McCartney 2014: 220). Westerkamp herself describes the microphone as a 'moving ear' (1994:19). In addition to recording audio, the microphone serves as an extended method of listening, acting as a prosthesis. The difference between my work and a soundwalk is I am engaged in an augmented soundwalk, hearing electronic sound augmenting the soundscape of my environment.

4. ON THE MÉTRO

Aiming to discover out how far extended field recordings and augmented soundwalks might be taken technically and physically, I shifted my research area from rural settings to urban environments. Particularly public transport systems. From a practical point, a busy, noisy environment like the Paris Métro provides rich sonic material to excite an app's DSP processing parameters. I was based in the city at this time and trying to devise a workable, repeatable technique for mobile music using headphones.

Figure 4: Playing Turnado on the Métro. Screen grab.

Headphonics: Metro #02 [12] is an example of these sustained investigations, that demonstrates my preferred system of an iPad loaded with Audiobus, *Turnado* [13], a multi-effects app, and TWRecorder. I had also started using a GoPro camera clipped to my belt to document the onscreen interactions and show the movement and the setting of the recording (figure 4). It was now an autonomous performance system combining real-time signal processing with audio and visual data capture. I would carry my iPad while travelling the Métro, processing sound during the entire journey. Sometimes I held the device at my side, sometimes holding the device in front of me when sitting down. I would strive to get a balance between processed audio and the sounds of my immediate environment; the rise and fall of the train's engine, the hiss and squeal of brakes, the automated announcements of each approaching station and the familiar warning tone before the train doors close. It is this overlapping of realworld and synthesised sound that I am calling headphonics; selecting which sonic events to develop, which to omit and embracing chance proceedings as they happen.

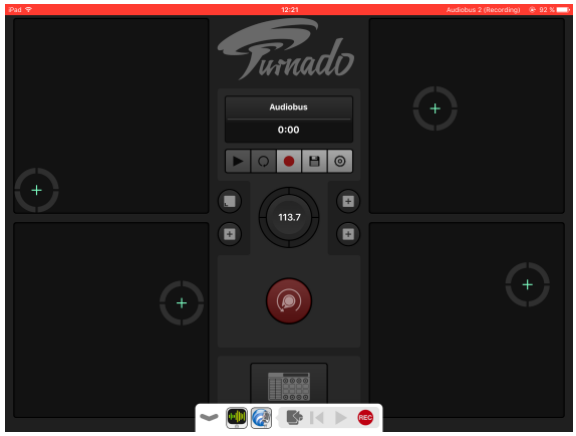

Figure 5: Turnado's operating GUIs. Screen grab.

For a design perspective, figure 5 shows the 'performance' page of Turnado's graphic user interface (GUI). Four large, circular icons are mapped to various audio effects – in this instance a combined pitch control and delay, an arpeggiated filter, a stuttering looper effect and a reverb unit. The four squares in the center provide the option to either fix the position of the icons or let them return to their starting point. The BPM counter allows the overall tempo to be set by tapping or touching the surrounding edges while red knob in the center is a reset button for all four circular icons. The overall GUI design is clean and simple,

[12] https://youtu.be/BRk8JE0hMCU
[13] https://sugar-bytes.de/turnado-ipad

Turnado can be played almost without any visual references and the video demonstrates how rapidly the app responds instantaneously, a single gesture instantly altering a processing effect.

Gradually I learnt to develop a muscle memory with the app, remembering the positions of the processing icons like the frets of a stringed instrument or the fingerings on a piano keyboard. But note in the video how efficient thumbs are for making rapid movements across the screen's x and y axis.

In stark contrast, the interfaces of Turnado's other control pages are much smaller and more detailed, and difficult to operate in a performative manner. In the video, for example at 01:24s, we can see me struggle to change the parameters, pinching and tapping the screen. This is most likely because Turnado was originally a desktop plug-in and suggests the problems in porting established DAW designs over to iOS touchscreens. Its designer Sugar Bytes states 'Turnado's primary focus is on beat manipulation'; the app was intended as a VST plug-in using pre-existing audio files, rather than an autonomous signal processing unit. The bar above the BPM counter with its file, play and record icons shows how the app is meant to be used for playing audio samples. However, I hope this is a small demonstration of app interconnectivity as a method of reclaiming agency over blackboxed systems, with Audiobus allowing a sample playback plugin to become a powerful music instrument.

In the video we can observe my attempting to balance the indeterminacy of the situation – what sounds are available for processing, which person might enter or exit the train – while trying to consider the overall compositional process. I considered this not as improvisation, but as curating serendipity.

Quite by chance, we see a young man enter the train and immediately appeal to other passengers for spare change, food or luncheon vouchers. It was (still is?) a regular occurrence on the Métro, with homeless and obviously desperate people having to beg on the underground system. Was my sampling and manipulating his rehearsed speech a way of shutting out an uncomfortable situation? Or does this blur the otherwise clearly demarcated boundaries between spectatorship and musicianship?

4.1 THE SECRET THEATRE OF HEADPHONICS

What is the significance of this experience of simultaneous observing and music making? How can it be a performance when unannounced to an audience, who are unable to hear the music. Pieter Verstraete argues a fundamental aspect of headphone mediated listening is its affordance of a secret theatrical experience. The user experiences listening and moving as a 'secret theatre', an experience that forges new relationships between the user, by-passers and their surroundings (Verstraete 2017:2). Verstraete's use of the term secret theatre is taken directly from Shuhei Hosokawa's investigations on the changes in listening modes, spatial relations, and perceptual habits afforded by the Sony Walkman. As we saw earlier in chapter 2.1, Hosokawa suggested that headphones allowed the mobile user to experience walking as a secret theatre, to become a secret listener as well as an actor to the outside world. This chimes with Brandon LaBelle's description of headphonic space, a space between the ears that forces the listener out-of-sync with the exterior world. Wearing headphones, LaBelle suggests, 'define[s] a very different acoustic reality to that of our physical position' (LaBelle 2015: 225). It is in this in-between, headphonic space that a user becomes a secret listener as well as an actor to the outside world.

I would also eavesdrop on other passengers' conversations; at the time I was still learning the French language. As a native English speaker, my understanding of other languages was relatively poor, and it was in public spaces that I was beginning to pick up phrases and idioms of spoken French. Theorist Michel Chion proposed this mode of listening as 'semantic listening': deciphering spoken language or learning to decode a message (1994: 28). Chion's three modes of listening is in reference to the 'audiovisual contract' in cinema, but in this context, I would argue all three modes – causal, semantic and reduced

listening – align to Michael Bull's notion of the cinematic experience afforded by mobile auditory devices. It could further be linked to Westerkamp's non-intrusive style of field recording, learning about a soundscape with an immigrant's displaced ears.

There is perhaps something voyeuristic using a concealed GoPro for. documentation, a practice that harks back to the tradition of Walker Evans's still photography of New York subway passengers made between 1938 and 1941. It conflates the position of the spectator with a fellow passenger. When I first watched back the GoPro footage, I found it reminiscent of the confrontational scene shot on the Métro in Michael Haneke's 'Code Inconnu: Récit incomplet de divers voyages/Code Unknown' (2000). Johan Andersson argues that the static camera should not be understood as an absence of point of view, but rather as an additional presence. It introduces the perspective of a third person, the audience as fellow passenger: "…the spectator of Code Unknown becomes personally implicated in the ethical question of whether one has a moral obligation to intervene and protect a fellow citizen but also in the refusal to look up and acknowledge" (2012: 702).

Elisabeth Weis refers to the privileged listener as the *écouteur* (the eavesdropper, from French écouter), equivalent to the voyeur. Weis terms écouterism, equating the pleasure in aural stimulation to that of voyeurism. For her, this phenomenon is central to the cinematic experience: "In every case the eavesdropper acquires some form of knowledge […] a self-knowledge that the listener would not otherwise have recognised" (Weis 1999: 85-6). Verstraete extends this concept to mobile music situations that produce a cinema for the ears. The invisible mobile musician blurs the separate 'roles' of actor, eavesdropper, voyeur and audience.

In the Headphonics: Metro #02 video, notice also how none of the other passengers appear to be aware of my actions. Through listening on my earbuds, I am sharing the same space as everyone, yet somehow occupying another reality to the rest of my fellow passengers. To all outward appearances, there is little to distinguish headphonics as an identifiable form of music performance. The earbuds I wore were identical to those used by most of the other passengers in the carriage. The set of physical gestures I employed to control the sound processing – tap, swipe and scroll – were like those of my immediate neighbours as they scroll through social media or play video games. This lack of obvious outward visual signs throws up a conundrum: if no one is aware a performance is taking place, does it count as a performance in its traditional sense?

4.1.1. *Headphonics as a new model of interaction*

If there are no identifiable elements to mark out headphonic performance; no culturally understood gestures associated with music making, no traditional performance venue, no one can hear the work except the performer. It raises questions about the status of performativity itself. Mobile musician Martin Koszolko cites my own research when he describes the challenge to artists using IOS devices, in their forcing the artist to redefine assumptions of what constitutes a musical instrument as well as perceptions of music practice (2019: 199). With this new model of interaction, performer and spectator are one and the same person; it starts to deconstruct the hypothetical 'stage'.

The act of augmenting both public and private spaces with itinerant electronic sound creates a new experience of these spaces. And when music-based activities are transformed into different ways of engaging with physical places, it suggests perhaps that music activities can become closer to what Francois Bonnet describes as a 'phenomenal investigation, rather than a music of identification' (2016: 296). Using mobile apps allows music-based and audio recording practices to become something close to a phenomenal investigation of a place, a way of altering and remixing sound that intensifies the auditory perception of a location.

But can headphonic performance be broadened to a group setting? While devising a site-specific piece for Locus Sonus's *Audio*

Mobility Symposium in Aix-en-Provence [14], I had intended to use a wireless headphone system utilising the Bluetooth protocol commonly found with 'silent discos' [15]. During testing however, I discovered that DSP apps were unable to use the mic input when streamed over Bluetooth. I was limited to a set of headphones connected to a splitter, with a group of chairs for the audience. Audiobus's developers confirmed the problem with Bluetooth is it simply does not work with apps that can record from the microphone; Apple's iOS platform does not allow it [16]. When an iOS app enables Bluetooth audio, both input and output are routed through it, disabling the internal mic and speakers. Other companies such as RØDE microphones affirm this: "Unfortunately due to issues with multiple sampling rates, both RØDE Rec and RØDE Rec LE are currently unable to support Airplay or Bluetooth output" [17]. Whether it is issues with sampling rates or the need to protect listener and equipment from accidental feedback loops, this is a basic limitation of the iOS operating system. Still for now, headphonics remains a solitary, individual experience.

Yet it is an experience that can create a sense of euphoria. This euphoria seems to be due to the intense involvement in the music. But the music literally colours the visual world too. Furthermore, the outside world profoundly alters its character; it is perceived like a film.

5. CONCLUSION

I have described how the Paris Métro has been a site and stage for my research in devising a workable technique for mobile music. The intention has been to question the spaces commonly associated with electronic music – where it is made, where it is listened to and experienced. Listening on headphones to my surroundings captured by the microphone of an iPad with DSP apps heightened and expanded my perceptual range of the world. This article has considered the theoretical aspects of the research, offering thoughts on how musicians might overcome some of the limitations of digital tools to allow new creative and compositional approaches. I hope to have drawn attention to the potential of this research and suggest that there are still new avenues to explore that entail the use of mobiles and signal processing apps to transform and remix the urban soundscape.

With headphonics, there are elements of field recording, improvisation, environmental context and temporal dislocation – sound and location are thoroughly entangled. While it might have a musical focus, it is not solely about music making. Mobile music can be as much about creating a phenomenological stance, experiencing the world through the microphone of a consumer device. This model of mobile music has the potential to change the methods and experiences of making electronic music, and consequently generate a new kind of performer identity.

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[15] http://www.silentdisco.fr/index.php
[16] http://www.forum.audiob.us/discussion/201/audiobus-bluetooth/p1
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