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# PATHS OF DEPENDENCE: WELCOMING THE UNWELCOME

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## Introduction

Technologically mediated soundwalks became increasingly common during the early part of the twenty-first century. Mobile technology, locative media and the possibility afforded by portable, Internet enabled smartphones have made small digital devices more accessible and available to artists, designers and researchers (Wilken and Goggin, 2014). With this increased popularity we find a particular type of soundwalk emerging, one in which pre-recorded sound files are played back using media players or triggered via geo-located boundary markers or time stamps (Özkul, 2015).

In this chapter I argue that these types of soundwalks, though often interesting and satisfying endeavours, do not make available to audiences the process or method of making the work. Technological and compositional process are often removed from the listening experience. In recent years we have witnessed an amplification of technologically mediated artworks which provide immersive or seamless experiences for audiences. These kinds of works often execute a kind of blackboxing of the aesthetic experience (Latour, 1999). This way of implementing technology, whereby audiences are presented with a finished, fixed product is common across many forms of contemporary sound and media art (Shaw and Bowers, 2015). In my work as an artist, I am interested in revealing the technological procedure to make these processes available to audiences. It is important for me that the artistic method is open and aesthetically available for audiences to engage with, if they wish to. In an earlier project, through a collaborative artistic residency, I explored a way of engaging audiences in a technological process in a public setting in collaboration with a museum and music festival (ibid.). The walks presented in this chapter aim to highlight this issue and offer an aesthetic and technical repositioning to technologically mediated, walking-based art.

Drawing on three of my own soundwalking projects, I will present a method for conducting technologically mediated soundwalking. Each of these pieces attempts, amongst other things, to reveal the technological and compositional process of the walk to participants during the performance event. The three walks I describe are as follows:

- *Ambulation*, an extended soundwalk which uses various listening technologies to create an improvised performance with the immediate sonic environment. Audiences, who are walking with me, wear wireless headphones and receive a live mix of processed audio signals manipulated through various pieces of hardware and software.
- *Net Walk*, an extended soundwalk which broadcasts altered soundscapes and processed video to an online audience using Internet streaming technologies. Developed during the Covid-19 lockdowns of 2020 and 2021, *Net Walk* has become a method for sharing an embodied soundwalking experience to remote audiences.
- *The Rose Walks*, a performance made in collaboration with sound artist John Bowers involving the streaming of audio and video from a walk, back to a physical venue where another performer works with this material as part of an improvised performance in front of a live, physical audience.

The description and analysis that follows will open a space whereby technologically mediated soundwalks provide direct access for the audience to engage with the process, technological infrastructure and the making of the work.



**FIGURE 7.1** Ambulation soundwalk in Lausanne, Switzerland as part of LUFF 2020. Image: Francis Gendre, 2020

## Context

I will continue to use the term ‘technologically mediated soundwalk’; by this, I mean any walk which uses technology to mediate the experience of sound. I am aware of the shortcomings and ambiguities surrounding words like *mediate* and *technology*. In some cases I would argue that shoes or societal systems are indeed technologies and involve mediation (Franklin, 1989). I would like to state that I am open to what listening technology can include (sea shells, listening horns, radios, headphones, inductive coils etc.). Technologically mediated soundwalks can take many forms and do not have to include digital or contemporary technology. There are many intriguing ancient examples of portable sonic media such as bullroarers or buzz bones which I would include within this definition.

In previous writings about soundwalking practices, I have chosen to use the term ‘extended sound walking’ (Shaw, 2020). By this, I mean soundwalks that extend the possibilities of listening through various technologies which increase perceptual reach (for example amplification, underwater microphones and electromagnetic receivers). I will also use this term to describe the soundwalks presented in this chapter.

Contemporary examples of technologically mediated soundwalks include geo-located sound maps, such as the ones available and developed through the Echos<sup>1</sup> platform, allowing creators to define boundaries whereby fixed sound files can be triggered and processed by geo-locative sensors on a mobile device. The participant in this context becomes a temporary human cross-fader; their movement slowly changes the volume of a pre-recorded sound file. Online sound archives, such as the ever-growing Radio Aporee,<sup>2</sup> allow listeners to hear user generated field recordings from all over the globe. The site even offers a ‘geomixer’,<sup>3</sup> which navigates listeners through a line drawn across the map, virtually transporting them to various places around the world. With the increased availability of radio transmitters and possibilities for portable streaming, artists can now transmit sound from their local environment via various broadcast technologies (including wireless headphones and the possibilities for streaming online) (Shaw, 2020). These kinds of walks have been developed by artists and researchers and have been reported on widely in conferences and journals over the last 20 years (See Gaye et al., 2003; Carras, 2019; Allison and Dell, 2012).

For Hildegard Westerkamp, the soundwalk is an event which facilitates a listening experience, allowing us to ‘become aware of our immediate acoustic environment’ (Westerkamp, 1974). The argument I develop through this chapter is that many technologically mediated soundwalks do not facilitate the awareness of the immediate; in fact they often obtrude the proximate sonic environment by playing back sounds recorded or composed in another space and time. In the same vein, what is appealing to me about soundwalking is that it creates a heightened awareness of environmental sound, allowing the outside in (Westerkamp, 1974). The complex

soundscape thrusts itself upon the event of a soundwalk; many elements of the soundscape are indeterminate, created by other beings and actors who share the physical and sonic space. Soundwalkers can control the speed, duration and route of the walk but many other aspects lie outside of the listener's direct control. Unlike the traditions of electro-acoustic music or soundscape composition, soundwalking does not have to be made in a studio and presented in a performance space or via a recorded release. The compositional process and the performance of it happen simultaneously. Traditional roles of performers and audience are flattened, or put into question. To quote Westerkamp again: 'Listening implies a preparedness to meet the unpredictable and unplanned, to welcome the unwelcome' (Westerkamp, 2015).

To be able to welcome the unwelcome, we have to be open to it and create systems, technologies and events that facilitate opportunities to allow the outside in. Welcoming the unwelcome is not possible if we do not allow the unwelcome into our technological or listening systems. The walks described in this chapter attempt to extend Westerkamp's idea by welcoming the unwelcome. Aspects which are often avoided or ignored in technologically mediated soundwalks are brought to the fore. These include failures of technical infrastructure, materiality of networked technology, mistakes from extended field recording techniques and the characteristics of the media device and headphones. In these projects I aim to have an open and improvisational approach, attempting to flatten the process and presentation of the artistic activity within the performance event. I believe that the technological process should be (a)live and available to audiences. When we creatively engage with failing technological infrastructures, for example, we begin to understand these systems in different ways. The system ceases to be an invisible, seamless entity and begins to be something the artist and audiences can work with productively.

This deep engagement with technology allows for its material character to come through. The technology here becomes an integral part of making the work, rather than just an end product of the artistic process. By allowing technological systems to interact and interfere with the environment surrounding the work, we are given new perspectives on the environment, the technology and the practice of soundwalking.

Oliveros' 'Deep Listening' approach moves away from Western classical music traditions to consider environmental sound and holistic notions of listening as a creative act (Oliveros, 1996). Her written scores, such as *From Unknown Silences* (Oliveros, 1996), engage with the idea of sound and silence as structural forms rather than addressing rhythm, harmony or melody. The primary activity for the participant in Oliveros' work is listening, and through listening the decoupling of musical practice from virtuosic technique or harmonic theory to emphasise an engagement with sonic phenomena instead. The Deep Listening Institute promotes a 'heightened awareness of the sonic environment, both

external and internal, and promotes experimentation, improvisation, collaboration and playfulness'.<sup>4</sup>

Within her deep listening practice Oliveros also engaged with soundwalking, and a number of her text scores include instructions for walking. For example, from her *Sonic Meditations* series:

Take a walk at night. Walk so silently that the bottoms of your feet become ears.  
(*Oliveros, 1971*)

Oliveros' deep listening scores and her theory of sonic awareness resonate with my own experience of field recording and soundwalking. Her approach to composition integrates the phenomena surrounding the performance event. In her piece *Bonn Feier*, for example, she invites performers to take part in mini-rituals and events in a city, college or university environment, following a word score.

Special rituals, activities, and sights, ... are to be blended smoothly with normal city or campus activity all during the normal working day and evening. The intention of *Bonn Feier* is to gradually and subtly, subvert perception so that normal activity seems as strange or displaced as any of the special activities.  
(*Beal, 2006*)

The structure of my soundwalks supports a collective act of listening through expanded recording technology. Similar to *Bonn Feier*, it directly engages with the phenomena of the spaces it is presented within. It is simultaneously a mediation of the performance event, and the performance event is a mediation of the place. Reciprocal relations between space and sound are written about by Nina Sun Eidsheim, who discusses sound always existing in transmission and never outside of it (Eidsheim, 2015). I appreciate Oliveros' idea of having an openness to the sonic elements outside of the composer's direct control. I believe listening to the technological infrastructure of mediated soundwalks is also related to ideas surrounding Deep Listening. We listen to the whole spectrum of sound, the hiss of the tape, the noise floor of the mp3, the wind as it passes through the headphones. Through a Deep Listening practice, we do not just listen through the technology, we are also invited to listen to it.

Janet Cardiff and George Bures Miller have worked together to create site-specific audio walks for numerous galleries, festivals and museums around the world. Many of Cardiff and Miller's walks require the listener to don headphones, carry a media device and follow directions given to them from a pre-composed recording. Often using binaural sound, the works include a voice over, field recordings and added sound design, and lead listeners through a constructed aural world (Cardiff, 2005). Cardiff describes her walks as a way of 'slowing down the process of telling a story' (*ibid.*), and many of her pieces rely heavily on a text-based narrative to drive the experience.

Describing the walks of Cardiff and Miller, Charles Stankieveh argues that these soundwalks provide a complex interface between outside and inside listening. He names this phenomenon, *L'extimité*, an amalgamation of exteriority and intimacy.

This strange orientation is not due to a loss of reality but to a supplement to reality. Nor does one become lost in reality. Instead listeners enter a hybrid state where they play a dramatic role that contrasts with everyday life and which is directly interpellated into their minds by the instructional voice of Cardiff.

(*Stankieveh, 2007 n.p.*)

This form of technological mediated soundwalk is very different from the soundwalks I present in this chapter. The composition and technological system are not presented as aesthetic components within the work. Here the media is fixed prior to the point of presentation. Though, as Stankieveh comments, a curious hybrid reality is constructed through this listening space, the audience are removed from the making and technical process. These works are blackboxed and productised prior to the point of presentation.

Christina Kubisch is known for her 'electrical walks', which take a very different approach from that of Cardiff and Miller. In these walks Kubisch embeds electromagnetic audio inductors into headphones, which allow listeners to navigate their own way through an environment. Kubisch's extended soundwalks tend to take place in urban environments and encourage listeners to explore the electromagnetic fall out of cash machines, alarm systems, fluorescent lights and other electronic devices we find in our cities. This is a good example, by my definition, of both a technological mediated soundwalk and an extended soundwalk.

Kubisch's walks are a successful instance of a piece which welcomes the unwelcome. These electromagnetic waves, which are often byproducts of contemporary technical devices, are welcomed into the composition of the work. The specially made headphones provide a kind of filter, allowing walkers to listen in to sound worlds not usually available to their ears. My walks also involve a kind of filtering. My palette of technological listening devices provides me with a useful structuring element, allowing me a kind of compositional certainty when walking through diverse signals.

With the headphone walks conducted by myself, the immediately encountered sound is a live source of creative material; not framed within the recalling of memory but as an instant response to the environment. As such, rather than pre-constructed narratives these works are improvisations conducted with the uncertainty of the sonic world as it is encountered through the act of walking.



**FIGURE 7.2** Ambulation soundwalk in the Saltern of Cervia, Italy as part of Elementi Festival 2022. Image: Chiara Pavolucci, 2022

### Three walks

I will now provide detailed descriptions of three technologically mediated soundwalks developed over the last eight years. All of the walks are continuously in process and development. The nature of these projects is that they are never finished and are in perpetual evolution. The systems, technologies and tools are revisited with every invitation or incentive to walk. What I describe here are the key features and characteristics of each walk, not a definitive definition.

#### *Ambulation*

*Ambulation* is a soundwalk which has been in continuous development since 2014. With *Ambulation* I take the audience on a soundwalk whereby signals from the immediate environment are collected through various microphones and listening technologies and broadcast to a group of people walking with me. Using a small computer, I am able to live-mix, process and manipulate the signals we move through. I use a Pure Data<sup>5</sup> patch running on a BELA board computer.<sup>6</sup> The BELA board is controlled using a small midi controller which is attached to the top of my recording bag. The sound is broadcast to the wireless headphones worn by the audience via a compatible transmitter. The environmental sound is mediated through microphones, the recorder, the computer, the broadcast transmitter and the headphones. When introducing the walk to the audience, I explain the process and the system in detail. It is important to me that the audience is aware of the technological details of the work.

No pre-recorded sounds are used in the *Ambulation* soundwalk; all sounds heard by the audience are from the immediate activity of the sonic environment. The audience hears these sounds at the same time as I do.

When arriving in a new environment, I get to know the space through walking. Without any listening technology I wander through the area finding unusual and dynamic acoustic spaces. These can include shopping centres, busy streets, markets, train stations, pedestrian walkways, parks, forests, lakes, ponds, fountains, rivers, car parks and churches. A contrast of environments works best for an interesting walk. When I have decided on a route, usually lasting around 45 minutes, I walk it a couple of times to get familiar with it. Occasionally I deviate from the route, especially if something spontaneous grabs my attention during the performance. I do not use the *Ambulation* system until I perform it with the public. This means that the first time I am hearing the environments mediated through the system is when I am performing with the audience. At the end of a walk, I usually facilitate an informal conversation with audience members who want to stick around.

*Ambulation* embraces the uncertainty of the everyday environment. It welcomes the unwelcome. For example, when presenting *Ambulation* in Brisbane (Australia), locally sourced RF (radio frequency) headphones were so full of audio artifacts they became almost unusable. In contrast, in the city's Botanical Gardens, the interference of the urban environment did not impede the *Ambulation* signal as much. The interference experienced on walks such as Brisbane was an interesting problem and became something to tie in to the creative decisions when planning the walk. As *Ambulation* is about the experience of sound, including phenomena not usually within our perceptual reach, this interference felt relevant to explore rather than obstructive. Different species of 'interference' became incorporated into walks and became a part of the creative sonic material of *Ambulation*. The route in Brisbane started within the park where little or no interference occurred. Towards the end of the piece, the audience were taken into areas of interference where, in addition to the usual broadcast sonic material of *Ambulation*, various RF artifacts, audio cut outs and even the occasional taxi driver conversation could be heard. Though the exact character of such interference was beyond my control, a route can be shaped around how much or how little interference is desired and when. The walking route in these instances was built around the quality of possible broadcast, and moved through areas of 'compositional ambiguity', in which it would become unclear what was being performed and what was incidental to the walk.

At the time of writing, *Ambulation* has been performed at 34 festivals, events and conferences around the world. Being able to present this work in different environments has been very important to its development. The *Ambulation* system is one I can take to different contexts and perform with different audiences. The system and technologies change depending on the context I am invited to present the work within. This versatility of the work is important to me. It does not have a fixed, predetermined audience. For example, I have conducted *Ambulation* soundwalks to elderly people in a community centre, to eight-year-olds in a primary



school, and after a nightclub programme at a festival. Though some sites are more successful for this kind of soundwalk than others, I am always interested in challenging myself to present this piece in different circumstances. Locations have ranged from ancient forests to brand new shopping centres, from heritage places to construction sites.

A full technical and aesthetic description of the *Ambulation* project can be found in an earlier paper (Shaw and Bowers, 2020). The system for the *Ambulation* soundwalk is available to download and modify for free via my personal website.<sup>7</sup>

### ***Net Walk***

*Net Walk* is an augmented soundwalk which broadcasts altered soundscapes and processed video to an online audience using Internet streaming technologies. Developed during the lockdowns of 2020 it has become a method for sharing an embodied soundwalking experience to remote audiences. In *Net Walk*, I take a walk with microphones and a digital video camera (usually a smartphone) and broadcast the streams of audio and video to the Internet. In this walk, sound and image are entirely mediated through these audio-visual technologies.

I take a walk alone, carrying a collection of listening and sensing technologies that allow me to collect and extract different elements from the immediate environment. I mix and process this material through a BELA board computer (the same microcomputer I use for *Ambulation*) and send the result to a smartphone-compatible soundcard connected to a smartphone. The phone is connected to a portable hotspot which allows the device to connect to the Internet via a cellular connection. Various Video Conferencing tools were experimented with during these walks. I was re-appropriating Zoom<sup>8</sup> for soundwalking purposes, which was a contrast to how it was used for many people in Europe during the lockdowns of 2020. On the other hand, expecting people to spend more of their attention on Zoom beyond the working day was a big ask. Twitch<sup>9</sup> ended up being a good alternative to Zoom as it was simple to connect to and could be easily embedded onto a webpage.

During the walks I build up and down the layers of the composition using signals encountered during the journey. Ambient soundscapes, electromagnetic energy and hidden resonances are collected and incorporated into the developing composition. Moving through different architectures and landscapes, the mobile Internet becomes patchy and sometimes completely unavailable. This meant that freezes, glitches and dropouts occasionally transpire. Though at first I considered these as failures, in time I decided to embrace these nuances as a way of creatively understanding the topology of the cellular networks of the various places I was moving through. The work embraced the technological infrastructure as an active agent. With this in mind, I started planning the walking route as a way of playing with this. Navigating through underground car parks or lifts would significantly reduce the strength of the cellular connection. In previous works I have explicitly worked with network latency and the limitations of broadcast media for creative

purposes (for example Shaw et al., 2015). This project became an extension of those artistic interests within the context of a soundwalk.

As with *Ambulation*, *Net Walk* works with field recording as a live performative act. With *Net Walk* the audiences are not walking with me but rather access the work remotely from their own environments. It works with the limitations of the technology it uses, folding latency, dropouts and freezes into the piece. As the pandemic intensified and many cultural spaces remained closed during 2020, artists and musicians took to live streaming performances. The purpose of *Net Walk* was not to re-present a physical soundwalk to an online audience, it was to create a soundwalk especially for an online experience. *Net Walk* was developed as part of a residency at the Digital Art Studios in Belfast, UK. *Net Walk* has been presented eight times in collaboration with We're All Bats and The Walking Festival of Sound both in 2021. Documentation material can be found via the dedicated project website.<sup>10</sup>

### ***The Rose Walks***

*The Rose Walks* is a collaborative project between artist John Bowers and myself. It was presented in the Østra performance venue in Bergen as part of Píksel festival in autumn 2021. During the performance I took a walk around the streets of Bergen, starting from Østra, and streamed processed video and sound back to the performance venue. The video was projected onto a large screen at the back of the space. The sound was routed through a mixer and played through the venue's large sound system. Bowers was situated in the performance space and could process the incoming sound using a collection of feedback networks he had hand coded. Sound from the outside world was mediated through my walking system and broadcast to the performance space. This sound was simultaneously re-mediated through Bowers' feedback system, responding to changes in the broadcasts soundscapes and the acoustics of the performance space.

We began the walk with an introduction from inside the venue; my performance system was already broadcasting video. I explained to the audience the details of the system and what they could expect to see and hear as I walked around the city streets that evening. John then briefly introduced his performance system and talked the audience through the binaural listening head that the room sound would be processed through. After the introduction I lifted the fader of the streamed audio, and because of the latency you heard the final sentence of explanation being amplified through the main sound system. As this was then feeding into the microphones a feedback loop emerged.

I then left the performance venue and took my journey through the busy streets of Saturday night in Bergen. I pushed through crowds of people stood outside bars, past Kebab shops and city traffic. I picked up ambient sounds, electromagnetic fall out and the resonance from street objects. There were a few dropouts during the performance, once due to signal loss because of the connection of the hotspot and once due to a drunk person unintentionally pulling out the power

cord for the smartphone broadcasting the video. During this time the screen in Østra either froze or went blank. After the show people commented on the dramatic effect this created; when the screen froze, people speculated about where I might be when it unfroze. As I walked the streets of Bergen, John provided ambient sonic support, creating textures and gestures using some of the places I walked through.

The performance concluded with me returning to Østra. As the audience could see where I was with the projected camera feed, there was a small group of people looking eagerly towards the door as I entered the upstairs room. Gradually, due to the latency, the feedback loop returned. This accumulation of noise gradually intensified and eventually became the end of the performance. *The Rose Walks* is an exploration of a soundwalk in connection with another, non-walking performer. Dropouts, freezes and latency caused by the technological infrastructure are incorporated into the performance aesthetic and become part of the creative material.



**FIGURE 7.3** Ambulation soundwalk at Lokal-int art space in Biel, Switzerland. Image: Chri Frautschi, 2021

### Observations and reflections

What unites these three walks is that they all allow the technological system to incorporate uncertainty and indeterminacy; no pre-recorded sound files are used in any of the walks. In each of the pieces, I hear the mediated sound at the same time as the audience; there is no pre-fade listening. The pieces unfold in the moment.

The soundwalking systems I have developed allow for a generative approach whereby sound, space and non-audible signals are folded into one another. Each walk is open and improvisational, and decisions are made on the spot. I do not have the composer's privilege of producing something in the safety and warmth of a studio. I am listening, recording and broadcasting the walk simultaneously with the audience. Technological interferences, handling noise, noisy peaks and mistakes are incorporated into the work. Sometimes the technological failures can be the most interesting element of the performance, and create new meanings and contexts for the pieces (for example the audio artifacts in Brisbane, as described earlier).

Below I describe four key findings which have emerged from the practice-research conducted through developing these walks. It is important to note that these findings emerged from the practice. I have discovered these themes through performing the walks multiple times in various contexts. These concerns were not preloaded prior to making the work.

### 1. *The liveness of media*

With the soundwalks presented here, I am interested in the media itself having a liveness. The liveness is made tangible in different ways. I am literally live-mixing between different live-signals; I am not conducting this activity in a studio prior to the event, but on foot, with the audience, within the environments we are listening to. There is also a liveness to the technological infrastructure. As we move through electromagnetic signals, I not only sense them using inductive coils but they also impose themselves onto the radio frequency headphones we wear. These signals also inform the 'quality' of the cellular connection in *Net Walk* and *The Rose Walks*.

These walks deal with the act of field recording as a performance activity. They engage with soundscapes as a live phenomenon, ever changing and geographically specific. The making of the work is conducted in close correspondence to where the sound originates, and does not involve the moving of material from one environment to another, but rather the processing of and engagement with sonic material in situ. Like Burtner's *Ecosonics* (2011), *Ambulation* engages with sound and site as part of the making process. The composition is not pre-made, but unfolds with the audience as a live improvisation. It also responds to the unpredictable nuances of the immediate environment.

This way of conducting technologically mediated soundwalks is very different from that of Cardiff and Miller, for example. Though there is a liveness to their work, with the pre-recorded file being unfixed by the unpredictable environment it takes place within, it does not incorporate the technological system as part of the work itself. Rather, in their work, the media becomes an invisible facilitator for the experience of recorded sound.

From the interferences in *Ambulation*, through the network dropouts in *Net Walk*, to the more human, cable-pulling drunk man in *The Rose Walks*, the chaos and unpredictability of the public space become accepted and incorporated into the structure of these works. The media is not a vessel which carries information

from one place to another, rather it becomes a medium for understanding one's environment differently. The media here becomes part of the environment itself.

## 2. *Situated improvisation and interfaces*

The unpredictability of the sonic environment and its potential for musical expression are discussed through the soundwalks presented in this chapter. The walks are approached through a practice of improvisation; the uncertainty of the sound worlds are fundamentally tied into the pieces. Unlike the walks of Cardiff and Miller, which draw on fixed audio recordings and linear narrative structures, these walks work with the spontaneous soundscape as a creative, live agent. Improvising approaches to the media allows for unpredictable outcomes to occur. In his monograph *Improvising Machines*, Bowers discusses electroacoustic improvisation through 'responsive action', focusing on activities that fold in the productive characteristics of place, structure and technology. For Bowers these are productive features and not 'problematic obstructions' (Bowers, 2002). My soundwalks accept these unpredictable features and use improvisation as a *thinking through making* process (Ingold, 2013), extending Bowers' account of electroacoustic improvisation to the form of a performative soundwalk.

There is also a sense in which the technologies I am using are part of an *Aesthetic Interfacing* (Shaw and Bowers, 2020). The making of the work, the presentation of it, the thinking behind it and the perceptual-aesthetic experience are all intertwined. This offers a different orientation to 'site' from applications associated with locative media whereby pre-made sound files are abstractly mapped onto physical space. In the walks presented in this chapter the perceptual-aesthetic experience of the pieces emerges from multiple resources in juxtaposition, the site, the sounds, the technologies which are implemented, and the audience's attention. The interfaces here do not bring about a particular effect but rather work together to creatively respond to affective agents in the contributing soundscape. Working in this way demonstrates how sonic materials are composed with, translated and manipulated during the act of recording and how this practice blurs the line between studio and situated listening.

In his talk for The Walking Festival of Sound, Barry Truax describes soundwalking as a practice which 'combines the roles of composer, performer and the audience into one integrated activity'.<sup>11</sup> This flattening of roles offers new, interpersonal dynamics between those involved in the artistic activity of the soundwalks. Some technologically mediated soundwalks do not embrace this integration of roles. In these walks, the composition is made in a separate time and space and the artists are often not present at the point of presentation. In this type of walk the traditional role of the composer is maintained.

## 3. *Designing for uncertainty*

Artists have long worked productively with technological uncertainty. The experimental media work of Cage, Schwartz and Moholy-Nagy, for example, draws

on randomness, change and unpredictability to create sound, video and print. Many technologically mediated soundwalks, do not incorporate uncertainty. When we facilitate the experience of technological failures within infrastructures, we begin to understand them differently. For anthropologist Brian Larkin, ‘infrastructures produce the ambient conditions of everyday life: our sense of temperature, speed, florescence’ (Larkin, 2013). When these infrastructures begin to break, they straddle a space between ambient experiences and more assertive ones.

In *Net Walk*, the cellular telecommunication infrastructure supports the streaming and reception of audio and video. Not only is the walk about responding to the immediate environment, but it also productively explores the interconnectedness of the infrastructures that surround that environment. When walking through the old town, with its narrow streets and densely packed walkways, we experience dropouts and freezes. Entering a lift in a train station provides a temporary Faraday cage, resulting in the electromagnetic waves of the cellular network not being able to permeate the hungry technology. Dark spots are not avoided but creatively folded into the composition of the walk. Engaging with these communication technologies, through a walking, streamed performance, gives us a deeper understanding of them.

As with most soundwalks, these pieces happen outside, and are subjected to the weather conditions of the environment we are walking within. I have performed these walks in all weathers and do not tend to cancel events because of rain or other weather. During one *Net Walk* performance, while it was raining, drops of water got into my MIDI controller and began to make chaotic connections between the electronic components. The fader sensor on one of the channels began to behave erratically. This resulted in a sound being faded in and out of the mix very quickly. Though at first this was a shock, I began to find it very interesting. The humidity from the rain was imposing itself onto the system of the walk. I began to improvise with and respond to this new autonomous aspect of the system. The uncertainty of the water within the electronics became its own element of the performance. It certainly played the fader in a way I was unable to. Electronic engineers will tell you that water is a circuit’s worst enemy; it seemed here water had found a voice in my performance system. By letting the water in I was literally welcoming the unwelcome into my technological system. Thankfully, when I returned home and dried out the MIDI controller, the water ceased to speak.

These walks productively feature the uncertainty of the environments they are presented within. This ranges from the electromagnetic artifacts of the broadcast equipment to the metrological conditions of the performance environment.

#### **4. Embracing anti-solutionist and unfinishedness approaches in technologically mediated soundwalking**

In *Discourse on Thinking*, Heidegger talks of the different modes of human thought and specifies two types of thinking, meditative thinking and calculative thinking (Heidegger, 1966). For Heidegger, calculative thinking is concerned with

planning, research and can be used to ‘count on definite results’ (ibid., p. 46). On the other hand, he describes meditative thinking as something which transcends problem-solution scenarios. It is ‘in flight-from-thinking’; it takes its own path and functions within the limits of the individual’s mind. Heidegger says that meditative thinking is no good for dealing with business or economic models. It cannot be used to carry out practical affairs, but it is essential to ‘dwelling’ in the world, to reflect, to take time and to ponder. Heidegger applies these models of thinking to our approach to technology. Meditative thinking ‘enables us to keep open the meaning hidden in technology, *openness to the mystery*’ (ibid., p. 55; emphasis in orig.). New meanings emerge from reflecting and meditating on our complex relationship with technical devices but also through non-solutionist approaches to technology. For Heidegger, meditative thinking must be practised alongside calculative thinking to allow our relationship with technology to ‘flourish’.

My approach to the technological aspects of making these walks has affinities to Heidegger’s meditative thinking. This has also been channelled through Ingold’s writing in his distinctions between hylomorphism and morphogenetic ways of thinking (Ingold, 2013, p. 22). In *Ambulation*, alterations to the system, the choice of microphones and listening devices continued to change in different instances of the work. I respond to the material qualities of the space I was presenting the work within and reflected on previous instances of the walk in order to develop it. In *Net Walk*, limitations in the technology are foregrounded as creative materials of the work. The artwork attempts to reveal the hidden technological processes and to support a meditation on how it shapes the dynamic of the work. In all of the ways I have used technology, I move away from the idea of technologies being understood as mere tools. For me, technology is an artistic material, a material that can be approached through meditative rather than calculative thinking.

Many approaches to technologically mediated soundwalking take a calculative approach, whereby an idea is formed in the artist’s head and technology is employed to realise it in the world. In *Pandora’s Hope: Essays on the Reality of Science Studies*, Bruno Latour also discusses ‘blackboxing’ as a way in which ‘scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity’ (1999, p. 304). Latour argues that it is through the opening of blackboxes of science and technology that we can understand the link between different elements of the technological process and the social dynamics that surround these technologies.

The walks described in this chapter work with the act of field recording as a live performance activity. Instead of simply moving sound material from one environment to another, these projects use recording technologies and signal processing to create a direct response to the immediate soundscape. Through a variety of self-built technologies and artistic strategies, I have developed methods for conducting technologically mediated soundwalks and approaching the collection of sound material as a live activity. The performance systems and sound technologies I use are constantly changing and are revisited in response to the

environments I choose to present the walk within. This work uses field recording technologies to improvise within a shared soundscape. *Ambulation*, *Net Walk* and *The Rose Walks* approach the spatial and contextual character of sound in situ, and the liveness of this work comes from an engagement with the immediate environment in which it is presented. This places these works on a different terrain from that of other soundwalks, for example, whose narrative-driven sound works attempt to abstract and fictionalise the immediate environment through Foley audio and text-based ‘storytelling’.

## Conclusion

As described in this chapter, technologically mediated soundwalks are often presented in a way whereby the audience is separated from the process of making the walk or recording. I argue that these methods frequently separate making and presentation process, and the technology used to employ these walks is instrumentalised for particular effect, ‘immersing’ the audience in a particular virtual environment or creating specific boundary markers for the playback of geo-locative sound files. Authors of such walks commonly make invisible the artistic or technical process, creating clear distinctions between audience and performer, composer and listener. In my walks there is a *liveness to the media*, the media is not fixed or determined before the point of presentation.

In *Ambulation*, *Net Walk* and *The Rose Walks*, I respond directly to unexpected sonic material created as a consequence of the technological byproducts of urban activity. These artifacts are not limitations but have productive potential for the performance of the work. By adopting an open approach, through *situated improvisation*, this work adapts to environmental phenomena and change and remains responsive to the different places I present it.

The walks described address the central role that field recording has within my sound art practice by configuring it as a live, collective and perambulatory performance. Though the pieces work heavily with uncertainty and chance, they rely on a system which allows this uncertainty in. I have discovered, through multiple performances of these soundwalks, that *designing for uncertainty* is something key for presenting work of this nature. The technologies implemented into the work are in continual development. With these walks I am not presenting a finished, technical product to an audience, rather an unfinished and open system in process.

Though I do have control over the system, and I have composed the technological apparatus which make up the walks, I allow the components of the work to interact with elements of the environment outside of my control. There is a useful *unfinishedness* to the work which allows these elements in. These walks embrace technological failure as part of the procedural, aesthetic and perceptual aspects of the projects; they are an attempt to welcome the unwelcome.

This unwelcomeness also extends to the technological infrastructure surrounding the performance event, the radio frequencies of different countries, the environmental conditions of the performance space and the network



topology of the built environment. The environment and its relationship with technology are intertwined, the surroundings enact themselves onto the technological infrastructure and vice versa. The soundwalk becomes an event which folds together listening, technology and environment, which walk together on a Path of Dependence.

## Notes

- 1 <https://echoes.xyz/> (accessed 20 March 2022).
- 2 <https://aporee.org/maps/> (accessed 12 May 2022).
- 3 <https://aporee.org/maps/work/geomixer.html> (accessed 13 May, 2022).
- 4 <https://www.deeplisting.org/> (accessed 11 February 2022).
- 5 <https://puredata.info/> (accessed 18 May 2022).
- 6 <https://bela.io/> (accessed 18 May 2022).
- 7 <http://tim-shaw.info/projects/ambulation/> (accessed 11 July 2022).
- 8 <https://zoom.us/> accessed (20 March 2022).
- 9 <https://twitch.tv/> (accessed 20 March 2022).
- 10 <https://net-walk.net/> (accessed 24 April 2022).
- 11 [https://www.youtube.com/watch?v=h\\_Ih02cJ7IY](https://www.youtube.com/watch?v=h_Ih02cJ7IY) (accessed 24 April 2022).

## References

- Allison, J. and Dell, C. (2012) AuRal: A Mobile Interactive System for Geo-Locative Audio Synthesis. NIME'12, May 21–23, 2012, University of Michigan, Ann Arbor.
- Beal, A. (2006) *New Music, New Allies: American Experimental Music in West Germany from the Zero Hour to Reunification*. Berkeley, CA: University of California Press. p. 210.
- Burner, M. (2011) EcoSono: Adventures in Interactive Ecoacoustics in the World. *Organised Sound* 16(3), 234–244.
- Bowers, J. (2002) Improvising Machines, Ethnographically Informed Design for Improvised Electro-Acoustic Music. Available at: <http://cid.nada.kth.se/pdf/CID-195.pdf>
- Cardiff, J. (2005) *Janet Cardiff: The Walk Book*. Thyssen-Bornemisza Art Contemporary. New York: Walther Koenig.
- Carras, C. (2019) *Soundwalks: An Experimental Path to a New Sonic Art*. *Organised Sound*. Cambridge: Cambridge University Press.
- Eidsheim, N.S. (2015) *Sensing Sound Singing and Listening as Vibrational Practice*. Durham, NC: Duke University Press.
- Franklin, U. (1989) *The Real World of Technology, CBC Massey Lectures*. Canada: CBC.
- Gayle, L., Mazé, R., and Holmquist, L.E. (2003) Sonic City: The Urban Environment as a Musical Interface. In *Proceedings NIME*, Montréal, 22–24 May 2003.
- Heidegger, M. (1966) *Discourse on Thinking*. New York: Harper & Row.
- Ingold, T. (2013) *Making: Anthropology, Archaeology, Art and Architecture*. London and New York: Routledge.
- Larkin, B. (2013) The Politics and Poetics of Infrastructure. *The Annual Review of Anthropology* 42, 327–343.
- Latour, B. (1999) *Pandora's Hope: Essays on the Reality of Science Studies*. Boston, MA: Harvard University Press.
- Oliveros, P. (1996) *Four Meditations for Orchestra*. Kingston, NY: Deep Listening Publications.
- Oliveros, P. (1971) *Sonic Mediations* [musical score]. Baltimore, MD: Smith Publications American Music.

- Özkul, D. (2015) Mobile Communication Technologies and Spatial Perception: Mapping London. In R. Wilken and G. Goggin (eds.), *Locative Media*. New York: Routledge, pp. 39–51.
- Shaw, T. and Bowers, J. (2015) Public Making: Artistic Strategies for Working with Museum Collections, Technologies and Publics. In ISEA Vancouver.
- Shaw, T. and Bowers, J. (2020) Ambulation: Exploring Listening Technologies for an Extended Sound Walking Practice. *Proceedings of New Interfaces for Musical Expression*.
- Shaw, T., Piquemal, S., and Bowers, J. (2015) Fields – An Exploration into the Use of Mobile Devices as a Medium for Sound Diffusion. *Proceedings of New Interfaces for Musical Expression*.
- Stankieveh, C. (2007) Headphones, Epoche, and *L'extimité*: A Phenomenology of Interiority. *OFFSCREEN* 11(8–9).
- Westerkamp, H. (1974) Soundwalking. *Sound Heritage* 3(4).
- Westerkamp, H. (2015) The Disruptive Nature of Listening (keynote at ISEA2015), Keynote Address International Symposium on Electronic Art, Vancouver, BC, Canada August 18, 2015. [https://www.hildegardwesterkamp.ca/writings/writingsby/?post\\_id=11&title=the-disruptive-nature-of-listening](https://www.hildegardwesterkamp.ca/writings/writingsby/?post_id=11&title=the-disruptive-nature-of-listening)
- Wilken, R. and Goggin, G. (2014) *Locative Media*. London and New York: Routledge.