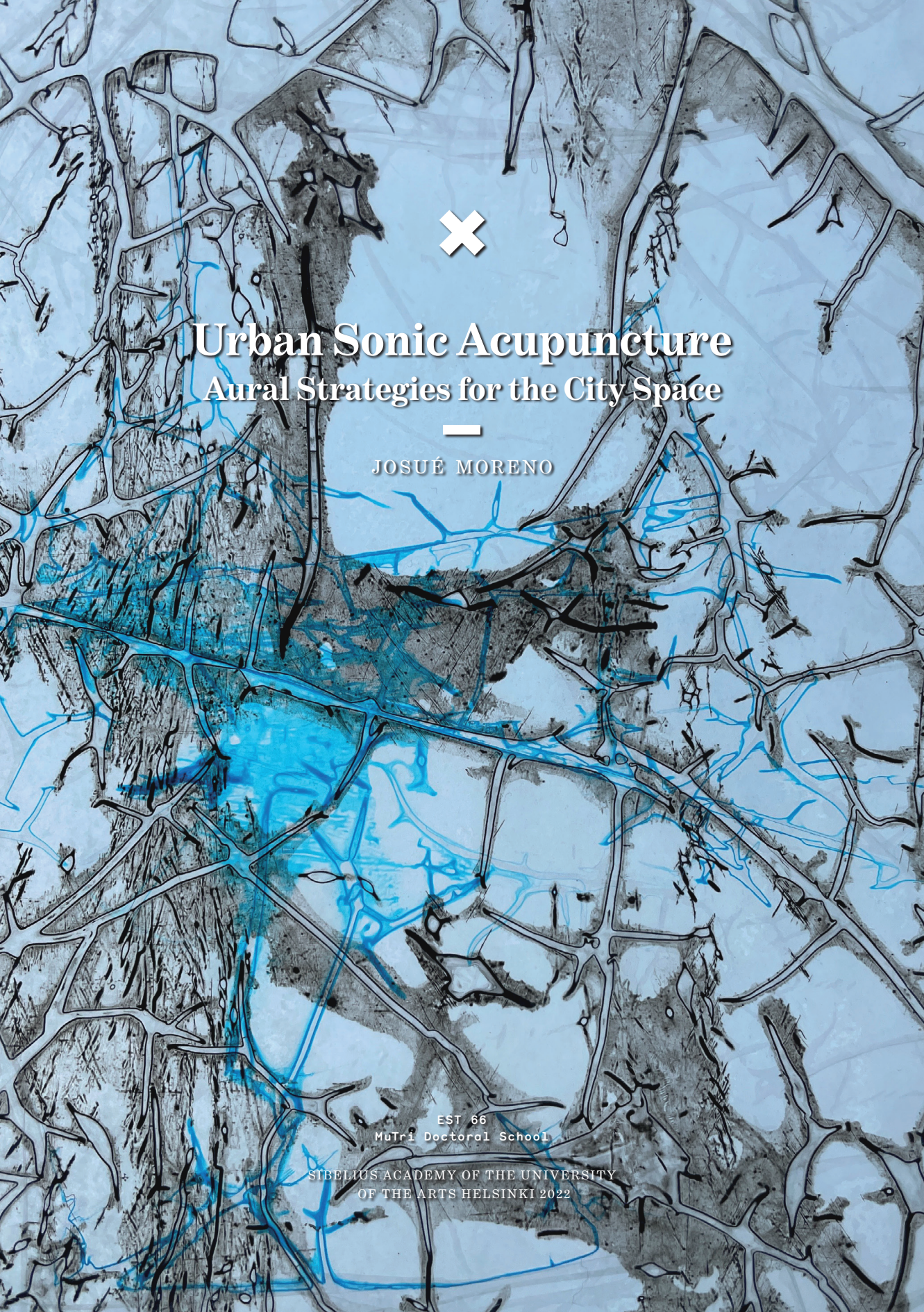

# Urban Sonic Acupuncture

## Aural Strategies for the City Space

JOSUÉ MORENO

EST 66
MuTri Doctoral School

SIBELIUS ACADEMY OF THE UNIVERSITY
OF THE ARTS HELSINKI 2022

# Urban Sonic Acupuncture: Aural Strategies for the City Space

Josué Moreno

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EST 66
Sibelius Academy of the University of the Arts Helsinki 2022

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# Abstract

This thesis accompanies the artistic projects I have implemented during my doctoral research as a reflection and summary. My practice ranges from traditional music composition to other forms of music-making, such as electroacoustic music, live electronics, generative art, and sound installations.

*Urban Sonic Acupuncture* is an artistic practice that intervenes in public urban spaces with sound composition elements that aim to alter the atmosphere of a place through subtle, almost imperceptible resonances, textures, and other forms of sonic infiltration. The practice consists of applying sonic pressure points to sites that affect the aural awareness and attention thresholds of the listeners. Interestingly, these altered attention thresholds remain in effect even after the listeners leave the site where the acoustic intervention happens.

*Aural Weather* exists without the need for an acoustic intervention, as a pre-existing acoustic atmosphere, upon which the urban sonic acupuncture practitioner acts. We can also understand *Aural Weather* as an organising principle: placing sounds in space rather than time. This principle promotes a listening mindset where the audience takes responsibility for the temporal narrative. The development and implementation of my the different *Urban Sonic Acupuncture* art-works build on this crucial concept.

Between 2016 and 2021, four artistic projects and several parallel test cases were carried out to explore these notions, illuminating aspects of public and urban spaces through sonic interventions. The first project was an indoor public space sound installation in a winter garden, the second one took the form of a museum concert promenade and resonance installation, the third project was an outdoor installation inside an underpass tunnel, and the fourth project presented a sonic perception exercise as a radio programme.

Within the processes of making these works, I found that the best results often arose from invisible, non-object-based interventions. Combined with 'lowercase' ambiguous sounds that blend with the environment, this approach helped me to achieve non-disruptive ways of infiltrating daily urban life and influencing site perception.

The projects sparked conversations among the general public, passers-by, and the local art scene. This non-disruptive approach to sonic public-space interventions has been shown to be an effective means of infiltrating daily life. Now aware of the existing aural weather, the transient audience is invited to a conscious urban sonic dwelling.

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To the aware listeners, conscious urban dwellers, and avid question searchers.

# Acknowledgments

This is a long list of acknowledgements and heartfelt thanking words. It is a rare work that is achieved in solitude; usually a community is needed. I am not only talking about creation ex-nihilo, but also the many people that need to believe in your work, trust your skills, and let you have space to dream. The members of this enabling community are sometimes challenging to identify, as one can benefit from a decision made by someone years before, but that was nevertheless key to realising a specific project. And, most of the time, the broader resources and opportunities are created indirectly from the person that takes up the challenge of doing a specific project. Finally, the teams assembled for each project are often large and can extend over a long time, making it very difficult to acknowledge everyone fully. Bearing this in mind, I would like to say a big thank you to everyone who helped my work in any way, and at the same time apologise if not everyone is included in the following list.

I will start with what seems cliché: to thank my wife, Ana. I want to thank her for closely accompanying me in every step of the project. She has been crying alongside me and also joyfully sharing my happiness. Her opinions and insights spared me many struggles; she even became a direct collaborator in some projects. There are no words to express how thankful I am to her. I would also like to thank my daughter Aitana for keeping me grounded, and for the inspiration and companionship she gave me. One of the illustrations in this work is, in fact, a collaboration between us.

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is the first of many projects working together with him.

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It would need an entire chapter to list the number of friends and colleagues —including my students— that have helped my process over the years. Apologies for not mentioning all of them. I would like to thank Emeritus Prof. Matti Rautiola for his friendship, inspiration, and unbelievable facilitating skills. I have learned from him that there are so many things I want to be, and he became a living example of how I want to behave. Sam Auinger appeared in my life as the person doing what I would like to do. However, the friendship developed over time has become so deep that he taught me —myself— to be the person I would like to be; thank you, Sam. A big thank you to Marco Casagrande for introducing me to the practice of Urban Acupuncture, and for his attitude

towards creation, encouragement, and openness in believing in me. Among the deep companionships and inspirations I acquired, I have to thank Dr. Mareike Dobewall for her understanding of things and for not giving up, and pushing me into deeper questions. Her work and our conversations directly inspired projects like "walk slowly, drift, listen". Finally, a profound thank you to her for designing the cover of the written dissertation with artwork expressing the very concept of my sonic practice.

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A word of heartfelt thank you should go to the Foundations and Institutions that supported and hosted my projects and my research. Apologies for not mentioning them one by one. The exact institutions and foundations are dutifully acknowledged in the accompanying project's documentation.

Finally, a big thank you for the commitment and engagement displayed by my proofreader Christopher TenWolde —I did not provide this sentence for proofreading.

# 1

# Preamble: Fictional Recreation

Imagine this for a moment: there is a site nearby your home that feels un-inviting and lame. You pass through it daily as quickly as possible. The cars seem to be louder and faster, making it feel

unsafe. A couple of years ago, there was some news about the city council's plans on redesigning the whole neighbourhood, including this passageway. When the economic crisis struck, the city budget shrank, and not only did they not redesign the neighbourhood, but they also seemed to have stopped stewarding it altogether.

Today you forgot your headphones at home. When crossing this area, you could not avoid noticing that there was something different in the atmosphere. You do not feel as unsafe as you normally do. Furthermore, you feel more compelled to stay a little longer in the place for some reason. You feel intrigued. Everything seems to be the same, and yet you wonder what it is that feels different, better now. The size of this area seems to be more human-scale, and as you walk, you feel drowned in the details of the surroundings.

You realise that sound might have something to do with the new atmosphere of this place. Everything sounds more harmonic in a way, and the sounds relate to each other. Nothing sounds out of context; instead, it feels integrated. Still, by no means does this makes the soundscape dull, but rather multidimensional. When there is no traffic or machinery, you can hear and listen to many more details than before, and when loud sounds occur, they become an exciting and colourful event. Sound never seemed to be relevant here. You have to continue on your way before you are late!

On your way back home, you decide to wait a little longer in the passageway to check whether the change persisted. The site still sounds so natural, but as the night fades in, sounds connect differently. Something similar might have happened to other usual passers-by since they are all there observing, some of them commenting and sharing their experience. Many say that realising that the change was intentional took them a few days. You can even see some people walking backwards or

zig-zagging through the space.

After some time, you hear some strange sound. Unable to tell what might have produced it, you decide to pay attention and follow how similar sounds evolve, and how they come from many corners scattered around the site. You are now listening to them more closely. Sound starts to feel like some sort of shower. Still, the moment you decide to focus on something else, these sounds seem to disappear. *Could these sonic pressure points, placed in key spots, be responsible for the change in the perception of this site?*[i]

[i] This is a fictional recreation based on the feedback received from visitors to the projects that I will introduce in this thesis.

# 2

# Introduction

This thesis is a report on the development of the unique sound practice of *Urban Sonic Acupuncture* through the implementation of several projects that constituted my research. Therefore, the framework and statements I will present arose intuitively from realising these artistic works. Through

my doctoral studies, I developed the practice of *Urban Sonic Acupuncture*, a parallel to public space acupuncture (Lerner, 2014) in the aural architecture field (Blesser & Salter, 2007) . Aural architecture deals with how sound behaves in spaces. Since it considers both physical acoustics and cultural acoustics, it also deals with how humans understand sound and its behaviour. This understanding of sound is far from universal and varies greatly depending on where we are. Aural architecture assigns four essential functions to sound: social, navigational, aesthetic, and musical spatiality. Sound and its behaviour within sites[i] is usually a result of many decisions, mostly economic and political, and also socio-cultural constraints, that have nothing to do with how a particular space sounds —the space's acoustics— but nevertheless have a strong impact on it. Therefore, unlike visual architecture, the aural architect is not one person but a social force.

In order to define what *Urban Sonic Acupuncture* is, we can start by defining *acupuncture* as a local action using a pressure point on a key spot that has the power to change the situation globally, beyond the local area in which the pressure point is applied.[ii] Hence, sonic acupuncture consists of applying sonic pressure points on key spots that affect the global sonic situation.

[i] To explain what I mean when using the word 'site', I will use the words of Joanna Demers:

> "[...] site, which entails not only the environments in which sound propagates but also those that listeners physically and metaphorically occupy. The terms at play in discussions of music and site are space, place, and location. [...] When talking about those terms together, I employ the word site, which can refer to acoustics, source origins, or cultural associations of sounds."(Demers, 2010)

[ii] *"Traditional Chinese medicine practitioners believe the human body has more than 2,000 acupuncture points connected by pathways or meridians. These pathways create an energy flow (Qi, pronounced "chee") through the body that is responsible for overall health. Disruption of the energy flow can cause disease. By applying acupuncture to certain points, it is thought to improve the flow of Qi, thereby improving health".* `https://www.hopkinsmedicine.org/health/wellness-and-prevention/acupuncture` *[all urls are accessed 27.3.2022].* Notice, however, that my usage of the concept by no means deals with healing, but with global impact

In developing this practice, I coined the concept of *Aural Weather*, a key element in the research. *Aural weather* points toward a different way of organising sounds, placing them in space(Blesser & Salter, 2007) instead of time, fostering a more landscape-like listening experience in which audience agency is responsible for the temporal dimension of the sounds. As John Cage stated, *"I was to move from structure to process, from music as an object having parts, to music without beginning, middle, or end, music as weather." (Cage, 1991)* By using the metaphor of weather(Ingold, 2008) and the implied organising principle, I am differentiating this practice from other composers and sound artists who relied heavily on long, sustained tones or loops to create music in which the time dimension becomes secondary —Max Neuhaus, for instance.

In addition to its structural organising and time-detached principles, *aural weather* creates links with atmospheric practices in architecture and design that foment peripheral perception and light Gestalt. Gernot Böhme claims that objects and spaces have an ecstatic nature;(Böhme, 2014a) that is, the objects radiate outwards, contributing to the space atmosphere more than they drive attention towards their inner structural feature. I believe sound is the most atmospheric material, and effectively affects the emotional relationship to sites. Sound is ideal for exploring all of these practices, reminding us constantly that we experience the world in an immersive way.

### 2.0.1 Disclaimer: what this thesis is not about

I contribute to sites with tailored sonic to raise questions or contribute with my sonic voice. Thus, this thesis does not explain the practice within a healing context.

This thesis aims not to develop a universal theory on sonic interventions. It relies on local experiences of the sites where I implemented my projects —mainly Finland and Northern Europe, where

most of them happened. In other words, western culture and European cities.

This research implies a personal interpretation and generally Western European views on urban living. I believe that by tackling sound and urban activity locally, we can understand the sonic and spatial culture better, making our predictions and observations more accurate. I encourage other sonic practitioners to take up my research as a process suitable for adaptation to any further sonic research, taking into account the particularity of the local communities where the research happens. To illustrate my point, I will quote Salomé Voegelin's words:

> What does the artist do in a town that she does not live in - how to relate to the economic and socio-political reality and aesthetics of place without inhabiting it? Is this the artist as ethnographer or as a missionary, as translator and instigator encouraging a local audience to re-consider their locale, or is indeed the audience somewhere entirely different, the town but a backdrop, an almost arbitrary stage to perform art whose context is elsewhere?(Voegelin, 2013)(Voegelin, 2015)

This thesis mainly deals with public spaces. Even though some projects happened under indoor conditions, this thesis does not deal with indoor acoustics specifically, or physical acoustics.

The projects described in this thesis —excluding a few exceptions— consists of invisible, non-object-based sound art installations. The interactivity tends to be about proposing psychological immersion and atmospheric perception. However, some level of real-time analysis and envelope following of incoming audio signal occurs in some projects, most notoriously in *"Tunnel Piece"*.

Finally, I would like to point to the non-solutionist attitude that drove the projects in my research. (Holmes, 2020) This attitude informed the processes I would follow when developing my projects. I would not take for granted that important aspects of a site qualify as problems automat-

ically. I would avoid reaching for obvious implementations as a first step. Importantly, I would try not to define complex matters as solvable without ascertaining that they certainly were. These aspects of my initial processes stem from recognised issues with landscape solutionism. In the words of Rob Holmes, *"... I am not arguing against solutions, but solutionism, the recurring temptation to see landscape design through the prism of known solutions*.(Holmes, 2020) Holmes formulates a fundamental question: *How can designers engage a complex landscape without presuming to solve it?(Holmes, 2020)*

### 2.0.2 How this thesis is articulated

The following chapters will introduce the concepts, processes, tests cases, and projects that form my research. In chapter 3, I will discuss the concept of *Urban Sonic Acupuncture*, its context, its strategies, how it came to be, and how to develop it further. In chapter 4, I will discuss *Aural Weather*, a key element coined while doing my research. I will introduce the different aspects of the concept from an operational perspective. Also, treating the concept as a phenomenon opens new perspectives on urban sound. Chapter 5 will introduce the four projects and the test cases I pursued during my research. I will explain their aesthetic and technical antecedents, their context within the research, their main characteristics, and how they influenced the following projects. Chapter 6 will illustrate the things I learned while researching and implementing the projects. This chapter will have a non-linear form, and presents these findings as a mosaic from which to extract ideas and experiences collected over the years. Finally, chapter 7 will deal with the research questions, my attempts at answering them, and what new questions I discovered. I will then present my conclusions, and possible future openings for other practitioners and my own future artistic path.

# 3

# Urban Sonic Acupuncture

In this chapter, I will attempt to define the practice of *Urban and Public Space Sonic Acupuncture*. Doing so will illustrate where the practice takes its inspiration from and what pre-existing vocabulary and approaches from fields like aural architecture informed the practice implementation. I will

discuss some usages of the term that do not align with my practice, and further specify my understanding of it. However, I want to clarify my belief that any practice derives its definition from the implemented projects themselves, and what the practitioners actually do; that is, from the practice itself. I hope that *Urban Sonic Acupuncture* will soon have so many examples that this will render any attempt at description superfluous.

The Urban Sonic Acupuncture practitioner develops sonic strategies in response to contextual site-specific factors using sound and pre-existing architecture as the primary materials. This approach emphasises the spatial dimension of sound-based composition over the temporal and narrative ones. The acupuncture metaphor in this context means a local intervention that has a global impact. Applying sonic pressure points to key spots in public spaces is a compelling strategy to facilitate engagement with the site, fostering more conscious dwelling, understanding, and engagement with spaces. An approach like this allows for embedding and installing sonic atmospheres —*Aural Weather*— into the pre-existing one, creating an inviting space for psychological interaction with the site. At the same time, this approach encourages the visitor to assume full agency for the work's spatio-temporal narrativity. This approach can facilitate new knowledge forms and understanding about these sites and their stories.

## 3.1 Main research questions:

> How can aural architecture help develop a sonic take on urban acupuncture, (Lerner, 2014), adding a sonic layer to urban spaces to foment conscious dwelling? How does considering sound art as a space-based art contribute to interdisciplinary dialogue?

Using sound in urban and public spaces can facilitate engagement with the site, fostering a more conscious dwelling. Urban Sonic Acupuncture is the proposed sonic take on Urban Acupuncture,(Lerner, 2014, Casanova & Hernandez, 2015) conceptually based on the aural architecture field. (Blesser & Salter, 2007) In the following paragraphs, I will explain where the inspiration to develop the practice of urban sonic acupuncture originated. I will review the pre-existing conceptual work that helped articulate each project, and the cultural and aesthetic context around the practice.

Sound is a powerful tool to create a sense of place, (Tuan, 2001) giving an atmospheric "tint" to our daily spaces by "colouring, accompanying and impregnating them". (Thibaud, 2014) According to Atkinson, "(s)sound in urban space is both an ordered and ordering force".(Atkinson, 2007) At the same time, everyday urban life, its processes and actions, provide us with a great deal of sonic information. That sonic information comes from the sounds that we make as a society. Understanding them and how they happen can help us better understand our society and ourselves.

In recent years, a trend in architecture and urban planning formed that utilised urban acupuncture to implement small-scale local interventions that had an impact beyond the intervention's area. In Finland, an outstanding practitioner is Marco Casagrande,[i] who introduced me to the practice. In the same way, I set out to develop the practice of *Urban Sonic Acupuncture* as the proposed sonic take on those practices.

From the beginning, this research gathered considerable attention. I opted for implementing lowercase sonic strategies; (Batchelor, 2013a) that is, very low volume sounds. This strategy makes the threshold of sonic attention shift in the visitor. From feedback accounts, this lowered threshold remains at the same level for some time after the visitor leaves the space where the sonic interven-

[i] https://www.casagrandelaboratory.com

tion happens. This sonic approach also seems to impact the sonic eco-social (Pulkki et al., 2021) awareness beyond the area in which the sonic intervention happens. Ultimately, my contribution through *Urban Sonic Acupuncture* addresses the question of how to make life in the city poetic; in other words, how to expand the city as a site for sensorial experiences.

Aural architecture parallels visual architecture in the sonic realm. It shifts the focus to the properties of space experienced by listening. This is a relevant shift, since sound is always an immersive experience, an experience that we cannot obliterate by closing the ears as we do when closing our eyes or looking somewhere else.

Listening is a reliable tool in perceiving some physical aspects of sites that are challenging to sense otherwise, such as spatial/Euclidean volume. Aural architecture deals, on the one hand, with purely spatial acoustics related to the physical properties of sound and its behaviour within a site, its shape, and materials. On the other hand, the field deals with cultural acoustics, or how the listeners experience sites and how this affects their relationship with the site and other listeners. Given this, we can classify sounds happening in a site according to different aspects or functions: social, navigational, aesthetic, and musical spatiality. Considering all the ways mentioned above in which aural architecture uses sound as a tool to understand the many interactions between spaces and the self, it seemed like an obvious choice to use this field to articulate my sonic parallel of urban acupuncture.

Helena Casanova and Jesús Hernández outline and illustrate with test cases the three main approaches to Public Space Acupuncture in their book (Casanova & Hernandez, 2015): Time-based strategies, citizen participation, and place-making. For a sonic practitioner, these categories are stimulating. Each category includes several subcategories, in the following way:

- Time-based strategies: Short-term strategies, mutating strategies, long-term strategies based on

temporary interventions

- Citizen participation: Co-management strategies, co-creative strategies, co-production strategies
- Place-making: City as stage, city as an event place, city as an art-scape

This outline extracted from the book's chapters perfectly summarises the available approaches. It is somehow natural that a sonic practitioner can imagine a sonic take on many of those strategies. In my research, I dealt mainly with place-making strategies, and explored time-based strategies to a certain extent. However, as we will see in the following sections, once we introduce aural strategies, many new strategies can be developed, as well as many other types of classifications. As an example, I will cite the acoustic territories and sonic figures suggested by Brandon LaBelle: (LaBelle, 2010)

- Sonic Figures: Echo, vibration, feedback, rhythm, silence, noise, transmission
- Acoustic Territories: Underground, home, sidewalk, street, street, shopping mall, sky

Please note that these classifications are not isolated boxes. Their boundaries are not defined, and it is in the transition from one place to the other where it is interesting to dwell. Other interesting forms of classifying sonic interventions in public space come from Jordan Lacey. He lays out many effective ways of categorising methods for intervening with sound in the urban space in his book "Sonic Rupture"(Lacey, 2016b) and his article "Sonic Placemaking: Three approaches and ten attributes for the creation of enduring urban sound art installations".(Lacey, 2016a) Finally, when discussing classifying sounds and sound effects in the urban space, we need to talk about the extensive work carried out at CRESSON[ii] and published in the book "Sonic Experience: A Guide to Everyday Sounds".(Augoyard & Torgue, 2005)

[ii] Le Centre de Recherche sur l'Espace Sonore et l'environnement urbain (CRESSON) https://aau.archi.fr/cresson/

Some usages of the term *Urban Sonic Acupuncture* link to projects that do not reflect my practice and proposals. In the project *"Beyond the noise: Open source soundscapes - A mixed methodology to analyse, evaluate and plan "everyday" quiet areas"*(Radicchi, 2017) (2016-18) by Antonella Radicchi, among the possible methods and tools for planning the urban space, the author suggests the use of open-source digital multi-layered maps and 'sonic acupuncture'. These methods and tools are proposed within the project context of "planning quiet areas in the city".(Radicchi, 2017) I oppose the idea of holding some sounds as better than others. I always understood noise as a matter of context. Therefore, making a map of the most pleasant —silent— areas of urban space deprives the users of the opportunity to discover interesting sonic situations. An attractive alternative might be the map that Sam Auinger created for the city of Bonn in 2010 for the Bonnhoeren Festival.[iii] The map developed by Auinger displays interesting sonic effects in a map without judging the quality or how pleasurable they are.

Jaime Lerner proposed that the street musicians are sonic acupuncturists affecting the atmosphere of the urban spaces in which they perform, in the chapter "Acupuntura pela Música" of his book *Acupuntura Urbana*.(Lerner, 2014) Even though I agree that the atmospheres of places are affected by the music that street musicians, boom boxes, and other music sources. e.g. those that come from windows and cars. I believe that musical structures are not the most suitable means of sonic acupuncture for two reasons. First, musical structures tend to link the listener strongly to time-passing modes, especially music in which the rhythm is regular and easy to follow; second, music's aesthetic nature and discourse tend to be cultural, even emotional. It is my understanding that it is more effective to use more abstract sounds, devoid of musical temporal structures, the sonic prop-

[iii] Listening Sites in Bonn by Sam Auinger (2010) http://www.samauinger.de/Data/other/hoerorte/hoer_orte_bonn_english.pdf (accessed 22.3.2022)

erties of which blend with the pre-existing environment, making it difficult to discern whether that sound is happening on purpose or is a by-product of the sonic situation. In this way, these weather-like, evolving atmospheric sounds infiltrate the consciousness of the transient audience, so that once they notice them they also start to notice other minuscule sonic details in other areas distant from where the sonic intervention happened.

In implementing my *Urban Sonic Acupuncture* projects, much testing and composition happened on-site, while building the definitive version. Still, some adjusting occurred after the installation had been running for a few days. I do not claim that my practice has any healing properties, nor that it provides life-changing experiences. My practice mainly consists of, once I have studied and "sensed" the place, I then contribute to it with sounds that I tailor in a purely intuitive manner and through the diffusion techniques that I consider most appropriate. As our very presence affects the atmosphere and perception of the site we are in, I contribute my sounds primarily as active acoustics, but sometimes using live processing/passive acoustics. By no means does this choice reflect any notion of it being better than others, but it is my choice to do so. I feel inclined to reveal something that is present or raise awareness about something that is missing. However, I end up inclining myself towards adding sonic colour in an intuitive manner and enjoying the many questions that are raised by this new layer I just added. On the one hand, I enjoy scientific processes and algorithms, but I also have a side that strongly believes in intuition and on-site improvisation, and during these research years, this has been the winning side in most of the projects.

## 3.2 Processes and methods

I opted to follow "reflective practitioner"(D. Schön, 1984) practice-led processes. This way of making, and assuming a non-solutionist attitude, (Holmes, 2020) was an enticing option perfectly aligned with my earlier music-making practices. To me, *Urban Sonic Acupuncture* is about tactics. Thus, these tactics helped in envisioning and approaching every project. I opted to group these processes and methods into 'musically inspired' and 'borrowed from other disciplines'. Other possible ways of grouping the methods and techniques would be by the ones that use the site's sounds, or the ones that use sound to affect the site's sounds; also, we could group them by the phase in which they are useful, either the analysis or the implementation, for instance. I will start however by explaining a key concept to the practice.

### 3.2.1 What do I mean by sonic pressure point?

There is a matter of scale from the micro-decision of which direction to place a loudspeaker when looking to create a resonance, to the macro-decision of where in the city to place the entire sonic intervention. We can use active acoustic objects or passive acoustic objects. When using active acoustics I tend to prefer placing the loudspeakers or transducers in such a way that the materials of the architectural space have a say in the final colour of the sonic content. I do this by pointing loudspeakers in specific directions and avoiding having the loudspeakers point at the passers by heads. I can also use transducers —contact loudspeakers— in materials that are specific to the site in order to add a certain contextual colour, like the century old glass in a winter garden.

Finally, the sonic content of the pressure points is key. The main idea is to intuitively place

sounds that stretch the range of sonic possibilities in the site, that stretch our acceptance. In a way, this integrates more sounds, making everything sound intentional. A good example is the sound of the pigeons in the railway tunnel, which many people thought at first were the result of a very sophisticated synthesis process. Similarly, in the *VUSAA* app, the traffic noise evolved through a generative processes into a very interesting harmonic texture, while when walking through a quiet park the app would react by simply playing back the sounds of the birds, for instance, but panned in alternative places to encourage the user to look in different directions.

The creation of this sort of ambiguity does not entail, however, forgetting about safety in public spaces; one must not interfere with safety announcements, traffic lights, or create any other possible source of sonic misguidance for the visually impaired, for instance.

### 3.2.2 Musically inspired processes

Soundwalking. To further explore a site's sensory characteristics, soundwalking (Westerkamp, 2001) and psychogeographic drifting (Debord, 1955) have been used in this research for analysis and evaluation, but also as a methods for implementing enhanced sonic walks, as in the case of *"VUSAA: Virtual Urban Sonic Acupuncture App"*.

Terminology. It is good to remember that most words and terminology used to describe sound come from sight, touch, and taste. However, a significant amount of terms to used to refer to sonic experiences in the urban spaces are available from Aural Architecture, (Blesser & Salter, 2007) the

World Soundscape Project, [iv] and the Sound Effects catalogue. (Augoyard & Torgue, 2005) The World Soundscape Project developed qualitative methods to deal with the relationship between humans and their environments from a sonic point of view. At the same time, they developed different approaches to mapping sound environments that can be useful to the *Urban Sonic Acupuncture* practitioner. Other terminology comes from sound-based composition and electroacoustic music, such as spectro-morphology (Smalley, 1986). For a terminological reference, please refer to Appendix A.

Computer-assisted Composition and music information retrieval tools. Even though not extensively used in my projects, I still have them ”at hand”, since traditional music information retrieval tools are handy when testing ideas or prototyping proposals; and also when tuning or designing spatial transitions.

Analysis. Peter Batchelor outlines possible methods to analyse public sound art (Batchelor, 2013b). The tools, methods, and theories that the author outlines in this article became an important resource for evaluating an already completed installation —as the title might suggest— and as an analytical ”toolbox” susceptible to being used in the pre-production phase of each project.

Jordan Lacey (Lacey, 2016a)(Lacey, 2016b) and Brandon LaBelle (LaBelle, 2006) (LaBelle, 2010) offer an exciting proposal for analysing and evaluating sound-based public art. I regard these proposals as helpful in envisioning the possible strategy to implement on each artwork.

[iv] https://www.sfu.ca/~truax/wsp.html

The urban drone. As we will see in Chapter 4 on *Aural Weather*4, in order to install atmospheres –or compose aural weather– we need to be aware of the pre-existing one, that tends to be a continuous "process of becoming ".(Thibaud, 2014) However, one key element to understanding the urban atmospheres is to learn how to deal with one of the continuous sounds: the urban drone.

In "Mapping the Drone. Sonic Agents in Urban Soundscapes", (Schlüter, 2011) Fritz Schl "uter notes that fossil fuels-generated sounds shape the urban acoustic horizon. These sounds are usually categorised as noise, but it is more constructive to call them sonic agents, focusing on their agency. As stated many times in this thesis, I do not wish to define a sound by a judgement, that is, to call it wanted or unwanted. I believe that this type of classification hinders other types of analysis of the main constituents of the sounds we hear. Schl "uter points to the vitality that seems to come from an object when it emits a sound.

The drone is not a continuous static buzz. Schl "uter identifies "stationary drones —neon lights and refrigerators— and moving ones —such as a car approaching". He then continues suggesting that one should become aware of the "drone's spatial range or 'sonic coverage'".

It is their relative distance that characterises drones as discernible sonic agents. When one moves closer to a source, the horizontal level of the urban soundscape is transformed in relation to the sonic agents closer to us. Another method of discerning sonic agents is to time-stretch a recording, in order to use it as a magnifying glass, as suggested by Schlüter.

### Direct sonic intervention strategies

- Resonated traffic sounds. Direct inspiration from the work of Sam Auinger and Bruce Odland.[v]

[v] https://massmoca.org/event/bruce-odland-sam-auinger-harmonic-bridge/

- Low frequency sounds that are increasingly more present and suddenly disappear, inspired by the work of Max Neuhaus. (Neuhaus, 1994)
- Using sine waves to affect the perception of tones and sounds, inspired by the sweeping tones compositions of Alvin Lucier, such as *Music for Piano with Slow Sweep Pure Wave Oscillators* (1992)
- Envelop following / sidechaining / ducking, in direct dialogue with the site's sonic environment.
- Resonators and resonance affecting digital signal processing.
- Using regular rhythms to incite awareness of time passing, as an expressive tool for transitional spaces.
- Sound masking.
- Using isolated sonic gestures to frame life around the listener –surroundings as performers.
- I.R. Convolution Reverb, using some sounds as I.R. for the reverb of the site's sound signals.
- Maintaining a low frequency for a long time and changing it to alter the perception of the base and the harmonic relations that might have been created with environmental sounds.
- Playing a recording, or a slightly processed recording, of the site's sound environment.
- Accumulative recording and playback of environmental sound or any pre-existing soundscape. A slight variation of the previous one, much more suitable to locate sonic energy accumulation points.It is a versatile technique that can be used for the analysis or the implementation phases.

### 3.2.3 Processes borrowed from other disciplines

Site inventory. A site inventory consists of a list of the existing elements in a site. For the site inventory to be helpful, we have to make it without any creative intention, but in a relatively objective and thorough style, to prevent the author from missing important facts or details of the space. [vi]
In the previous projects, I made site inventories dealing mainly with physical elements –columns, lamps, sockets, stairs– and I used recordings to get a sonic impression of the existing atmosphere. It is important to use as many sources as possible: our own perception, and maps and architectural drawings, for instance.

There is a handy resource to implement such projects in Finland, which includes high definition architectural drawings of all buildings in the metropolitan area. [vii] Using precise measurements and drawings is crucial to designing the intervention and the placement of the acoustic elements. These can minimise expenses and avoid last-minute surprises, and we can also use these drawings to set up a map to visualise the sonic emitting elements in real-time, to be able to prototype and test while building the project (see Figure 3.1).

Noise maps. Another interesting and valuable online resource has been the European noise maps, used primarily to precisely locate where some sonic energies came from.[viii]. Air traffic acts as high-energy drone corridors connecting urban areas, and being able to locate these corridors using noise

[vi] From the notes taken during the course "Creating Site-Specific Dance and Performance Works" with Stephan Koplowitz

[vii] https://kauppa.lupapiste.fi

[viii] https://noise.eea.europa.eu

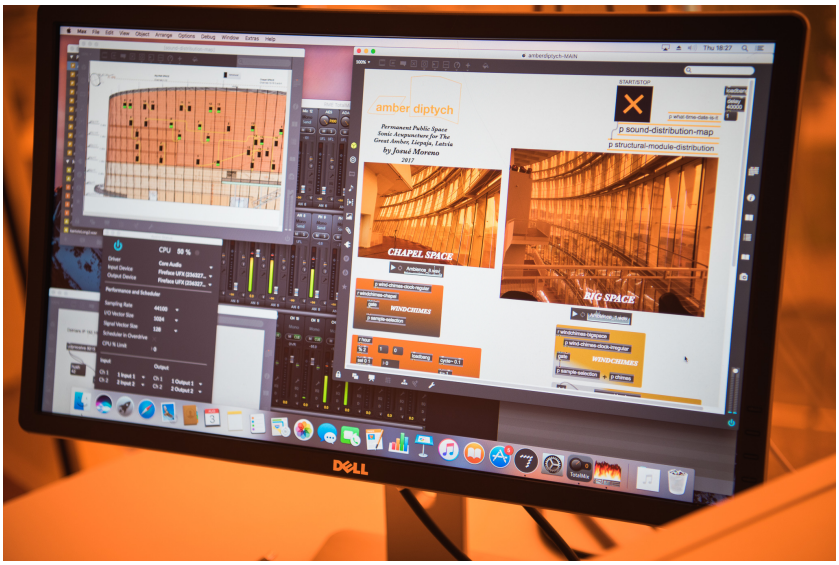


**Figure 3.1:** Main Max patch for *"Amber Diptych"* with the prototyping drawings and images on display for testing and tuning the installation. Credits: Walters Pelns 2017

maps is a useful resource. These noise maps can also be used to locate possible sites for *(*Urban Sonic Acupuncture) interventions.

Word clouds. I explored this analytical method while doing the site inventory for my *"Tunnel piece"* project (2020-21). In the Summer of 2019, I met Peter Cusack, who introduced me to his method of using word clouds (Cusack, 2018) to create sonic impressions of a city in a visual manner. I tweaked this technique for my own use: instead of obtaining the data using surveys, I made the recordings and then listed the elements offline. The bigger the font for each word, the more times the sound occurred on-site, giving me a reasonably accurate way of understanding the sonic activity of the place.

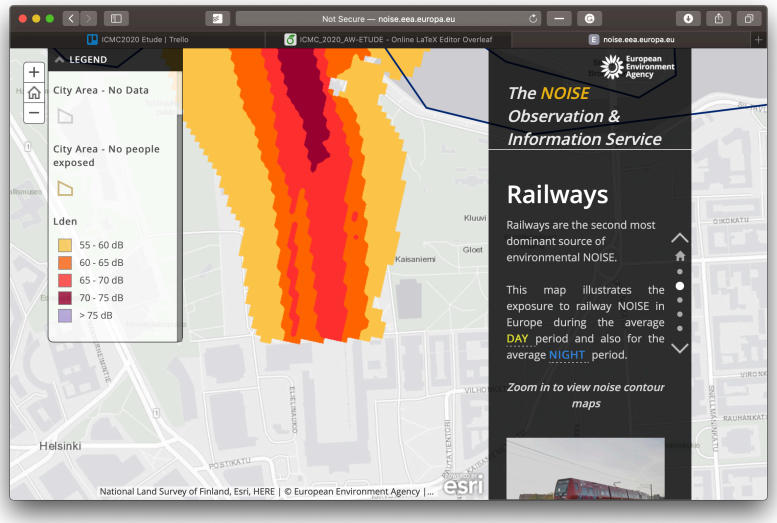


**Figure 3.2:** Noisemap for Helsinki Central Railway Station.


**Figure 3.3:** Preliminary wordcloud analysis for Tunnel piece.

I made these recordings and recollections over the course of the preceding year, during the same months *"Tunnel piece"* occurred. Later, I also used these recordings in prototyping the sound installation. By listening to extended recordings of the site at different times of the day and the year, one can get a relatively accurate view of the recurrent sound events in the site. At the same time, the recording can also be referred to in order to extract other data, such as tuning, intensity, and duration of each event, and any other salient features of the present elements.

Surveys. Throughout the process, I also survey –by conversations or online surveys– regular passers-by to collect information about their perceptions and what ideas they have about sound. I also usually ask for stories about the site. This information helps me design the installation and intuit a possible measure of the impact and reception the work can have. Collecting feedback through QR-codes placed on site was useful in *"Tunnel piece"*, as it allowed me to check the pulse of how the passers-by related to the sound installation for the 3 months it lasted.

Architectural gestural and rhythmic analysis. When walking through a site, no matter the speed, the lighting conditions and the spatial changes between our head and the ceiling have an impact both visually and sonically. We can gather architectural rhythms from the speed at which we walk; the materials and their resonant nature; how small the site sounds in different areas. We can also study the architectural gestures that we can select to emphasise, attenuate, or contrast.

**Figure 3.4:** QR-code capturing at Tunnel piece. Credits: Ana Parra

*[...] Before, my pieces were like objects; now they're like evolving [quasi-]things.*[a]

Morton Feldman (Feldman, 2000)

*And yet, these quasi-things are the only reason for the very welcome polychromy of our life world. So if we abandon the epistemological and pragmatic aversion to beings that do not respect borders[...], it is easy to discover instead that these quasi-things[...] brightly colonize a vast territory in between the [...] qualia and things in the proper sense.*

Tonino Griffero (Griffero, 2017)

[a] The bracketed word is an addition by the thesis' author

# 4

# Aural Weather

While working on my *Urban Sonic Acupuncture* projects, I soon came up with the term *Aural Weather* to illustrate how I articulate their sonic content. The term appeared to be a natural

one, and a perfect match for my understanding of sound in public space and music-making. In addition, using weather as a metaphor aligned me with specific music and visual arts traditions, such as generative ambient music. At the same time, it distanced me from the connotations of using a term like atmosphere or atmospheric in a musical context.

Initially, the term meant both an atmospheric approach to music-making and a generative non-linear sound organisation that considers time as a secondary parameter, prioritising the spatial placement of sound. I preferred to express this idea, that is, to compose *Aural Weather*, through the use of subtle, dense, and continuously evolving sonic content, adopting a lowercase strategy, (Batchelor, 2013a) or sonic subtlety. (Richmond, 2018)

After using the term for all this time, I have come to realise that *Aural Weather* is not only an operational concept. It can also function as a phenomenon to refer to a pre-existing sonic atmosphere to act upon or become aware of. In this chapter, we will focus mainly on the operational/organisational aspect of the term, and how its use informed my projects.

We can understand *Aural Weather* under an operational threefold conceptual umbrella: as a facilitator to create sonic situations as a space-based art, as an organisational principle for the sonic material, and as a musical reaction to the atmospheric turn proposed by theorists of space-based and visual disciplines such as Tonino Griffero. (Griffero, 2014)

## 4.1 Time-based art versus space-based art

Max Neuhaus was an early proponent of understanding sound art as an art consisting of placing sounds in space instead of time. (Neuhaus, 1994) In addition to Neuhaus, other well-known artists –La Monte Young or Phil Niblok, for instance– who rely on alternative uses of the musical time in

their music tended to use long, sustained notes or loops. I believe that there are available alternative means for sound-based arts to divert the focus from the time dimension. For instance, a historical example is the drawings in space with sound that Bernhard Leitner produced in his works.(Leitner, 1978) A more recent account of the possibilities for spatially extending musical forms is well laid out by Adam Basanta.(Basanta, 2015) In his article, amongst many other strategies, Basanta points to the idea of relying on the first-person experience as a form generator. This narrativisation of the spatio-temporal structure by invoking audience agency as some sort of co-production is also discussed by Olafur Eliasson.(Eliasson, 2006)

I aim to provide an immersive experience of space through *Aural Weather*, in order to surpass the perception of temporal narrative. To achieve this, I create a continuously evolving sonic complexity out of dynamic morphologies.(Wishart, 1996) These sonic complexities do not happen at a high volume. The sonic content I choose is conscientiously avoids time-passing and revealing musical structures, such as regular rhythms or thematic musical designs. I place these complexities around the space, creating areas of sonic colour. By walking, the visitor chooses where to walk and at what speed. The visitor can move or remain stationary. This visitor's agency creates a spatio-temporal narrative. In a way, the visitor is a co-producer of the sonic space. A specious present(Varela, 1999) also emerges from this agency, where distance and placement become more relevant than other musical parameters. Tailoring sounds to evoke the phenomenological experience of the specious present is key to placing sounds in space instead of time.

## 4.2 Generative music

John Cage stated about his music-making that he started "to move from structure to process, from music as an object having parts, to music without beginning, middle, or end, music as weather". (Cage, 1991) Generative music makers and theorists have often used the weather metaphor to explain their processes and the atmospheres created.(Toop, 2006) In ambient music, the atmospheric metaphor has been linked to certain forms of formal fragility: structural, dynamic, or referential, for instance. (Adkins, 2019) Brian Eno has continuously referred to generative processes within the context of ambient music for public places of large scale and duration. (Eno, 1996) [i]

In my previous music, generative or algorithmic procedures have always had a significant role in organising the sonic materials. Generative processes are essential in the creation of sonic interventions that last an entire Winter, such as *"Tunnel piece"*, or are permanent, as in the case of *"Amber Diptych"*. These large temporal scale interventions require implementing a generative process in which the weather-like evolution of the initial state retains its identity while providing space for variation and surprise. In my use of generative algorithms, they tend to be stratified such that at least two processes are going on at the same time. The algorithm chosen depends on the pre-existing sonic situation, the artwork's overall identity, and the project's length. However, the primary decision factor is intuition and prototype testing and listening.

Generative music is often associated with non-linear grammars. Attending to the sonic content generated or structured by the algorithm is important, in order to extend one's non-linear perception. The sonic material used, and the way they are perceived, has to be designed in a conscientious

[i] *Generative Music: Evolving metaphors, in my opinion, is what artists do.* A talk delivered in San Francisco, June 8, 1996 by Brian Eno.

and, at the same time, intuitive manner. To envision what kind of identity this sonic content has to have, the concept of the 'specious present'(Varela, 1999)(James, 1893) seemed to be the right conceptual tool.[ii] Keeping open for interpretation most of the sonic events perceived within a present awareness open for interpretation is what affects the linearity perception. Densifying processes and stratification have been the preferred methods in my sonic interventions. Gordon Fizzel lays out very well in his dissertation other possibilities for organising what he calls 'phi-spans' within the context of a musical theory around the 'specious present' and 'surroundability'. (Fitzell, 2004) If successful, this continuous immersion in a succession of dense, stratified materials also alters the temporal perception of linear and fixed media.

These concepts and processes were beneficial to and produced an impact on my music-making. In the next section, I will present how linking weather-like music processes with the atmospheric turn led me to understand *Aural Weather* as a phenomenon.

## 4.3 The atmospheric turn

The atmospheres theory in architecture and design is a fascinating theory to borrow for sonic and musical purposes. The proponents of this theory encourage peripheral perception and light Gestalt(Pallasmaa, 2014)(Mather, 2006) to approach architecture and design. [iii] To install an atmosphere, Jean-Paul Thibaud suggests mastering "the art of transpiring, the art of colouring, and

[ii] Also refer to https://plato.stanford.edu/entries/time-experience/ (Retrieved 20.3.2022)

[iii] A visual example of what peripheral perception might mean is the painting "Interior of a Great House: The Drawing Room, East Cowes Castle" (c.1830) by Joseph Turner. In this painting, Turner depicts an indoor space perceived with the same weather-like atmosphere as his outdoors depictions. https://www.tate.org.uk/art/artworks/turner-interior-of-a-great-house-the-drawing-room-east-cowes-castle-n01988

the art of accompanying". (Thibaud, 2014) Gernot Böme points to the concept of 'ecstasy' to talk about how objects project outwards into the general atmosphere. (Böhme, 2014a) (Böhme, 2014b) In my opinion, these ideas have a resonance in sonic and musical contexts. The atmospheric turn, as proposed by Tonino Griffero(Griffero, 2014) is very relevant for sound-based arts. Understanding atmospheres as quasi-things (Griffero, 2017)(Griffero, 2014) does makes them very close to wind or sound. Therefore, as we will see in the next paragraph, we might understand sound as an atmospheric medium to work with, or rather 'working in'.

Tim Ingold suggests that atmospheres already have weather connotations in the sonic context. (Ingold, 2008) As noted in the previous paragraph, for Ingold, we do not listen *to* sounds, but rather, we listen *in* sound.

> "[—]weather is not so much an object of perception as what we perceive in,[...]As the weather changes, [...], [it ]lead[s] us not to perceiving different things, but to perceive the same things differently."(Ingold, 2011)

Tim Ingold proposes that weather is a much better term than soundscape:

> "Sound, in my view, is neither mental nor material, but a phenomenon of experience[...] the mundane term for what I have called the fluxes of the medium is 'weather'[...] Perhaps our metaphors for describing auditory space should be derived not from landscape studies but from meteorology."(Ingold, 2007)

We can also deduce from this previous quote that *Aural Weather* might also be a phenomenon of perception, and not only an organisational principle.

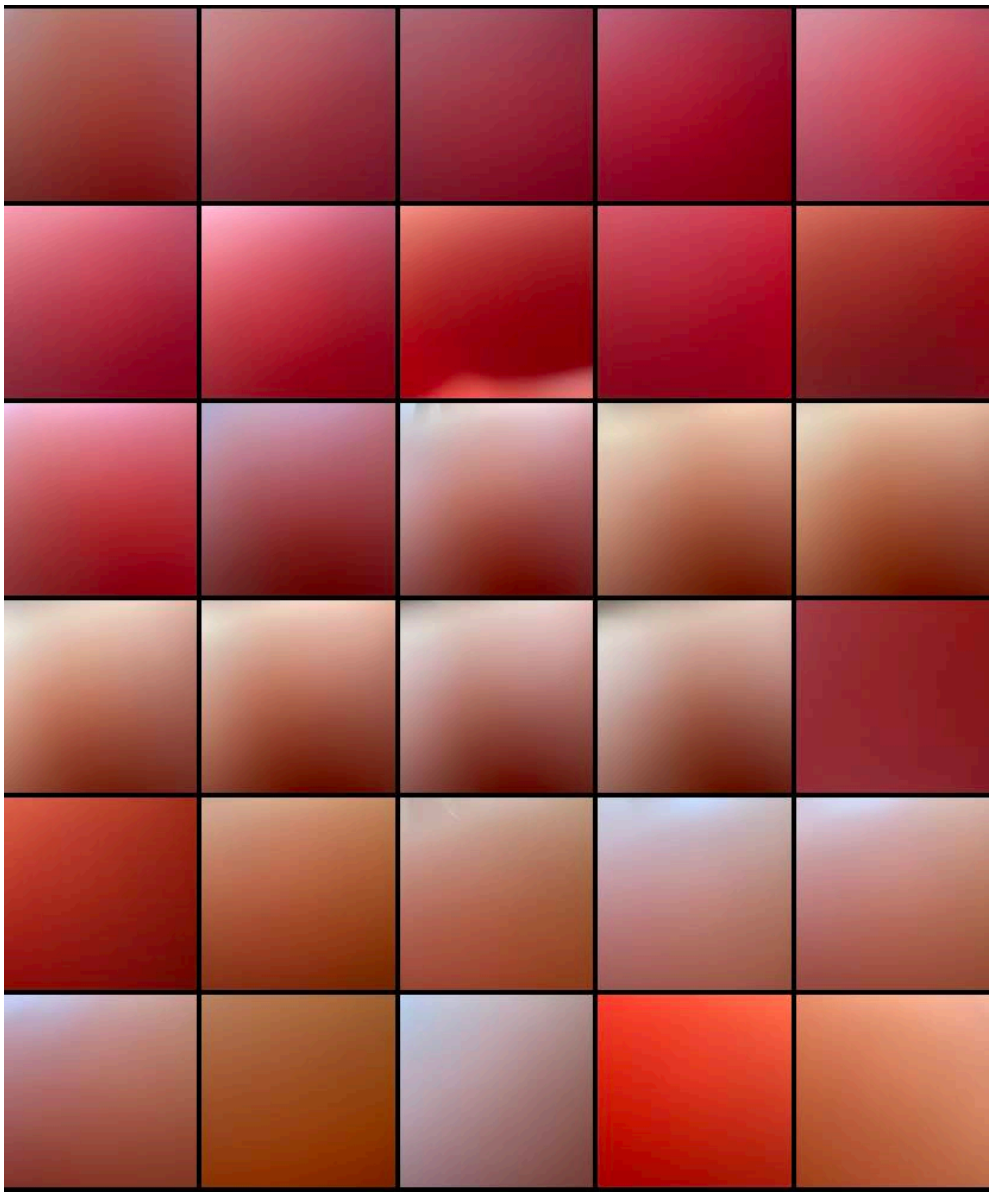

**Figure 4.1:** Atmospheric impression of the Sagrada Familia, Barcelona. The impressions were made by letting a minimal amount of light to come to the camera lens without capturing any image. The image series was then collected on a grid to generate the overall atmospheric impression. This process would be tested later on with sound.
Credits: Aitana Moreno & Josué Moreno 2019.

Juhani Pallasmaa (Pallasmaa, 2014) has proposed the use of peripheral perception as a relevant aspect of how we understand spaces. A proposed form of peripheral listening behaviours is enumerated by François Delalande within the context of sound-based composition. The three peripheral listening behaviours are as follows:

- Search for a law of organisation: search for structures, models
- Immersed listening: when the listener feels part of a context, partaking in the flow of a sequence
- Non Listening: when the listener loses interest & concentration. (Delalande, 1998)(Landy, 2007)

This idea of the peripheral perception is relevant here, as most of my artworks are experienced by an unaware and transient audience.(Batchelor, 2013a) When talking about knowing a place through sound, the concept of 'acoustemology'(Feld, 2015) comes to the fore to help us in articulating *Aural Weather* as a phenomenon. In line with this idea of the transient audience, an exciting expression coined by María Andueza is "citizen of the work", to explain a new kind of audience member and its implications for articulating the artworks that will host them. According to Andueza:

> The citizen is not a specialist viewer, nor a trained audience that approaches the artwork, but someone walking through the city that discovers the elements of the art-work and, in doing so, activates his aesthetic perception of the space. In some sense they turn into dwellers of the work. This factor provokes a new relationship of the citizenship with the urban environment and its complexity. This relationship,

> which is produced through the sounds in the area of our concerns, represents a radical change in the articulation of the artwork in the public space and also in the discourses that it generates in connection with the urban environment and in this case with the acoustic ecology.(Andueza, 2011)

How could we inform music-making within the context of the atmospheric turn? As mentioned earlier, Adkins proposes that atmosphere can be invoked by means of causing a particular form of fragility.(Adkins, 2019) However, suppose we aim at creating the conditions to install the sonic atmosphere. In that case, we need to become aware of the pre-existing atmosphere and dialogue through it with a mixture of intuitive and information-based decisions. In many of the artworks mentioned in this thesis, I have used a strategy that consists of tuning the sounds to the elements already present. That is, the electric hum, any traffic or fossil fuel burning related activity, or any other keynote sounds, sound signals, and soundmarks already present. Tuning these sounds does not have to occur only through frequency relations only. For instance, imitating the behaviour of pre-existing sonic elements is an efficient strategy. This echoing of the behaviours can happen by pure imitation, by using recordings, or by using any other source. For instance, recording the sounds that occur frequently and then using them as "ghost electronics" [iv] –as a control signal to map into other sound parameters. In addition, natural elements in the surroundings can be retrieved to control the music generation –this was the case for wind speed, humidity, and temperature at the winter garden for *"IN SITU: Sonic Greenhouse"*.

Finally, addressing the spatial transitions is important. Creating a continuity sensation at the

[iv] Please refer to the work of Morton Subotnik http://www.mortonsubotnick.com/program.html (accessed on 21.3.2022

entrance and exit points of the sound installation prevents a sonic shock that might indicate too clearly where the sonic intervention actually starts. It is my opinion that becoming aware of the sonic pressure points eliminates part of the experience.

### 4.3.1 *Aural Weather*: from public space to concert music as alternative sound organisation or sound-based composition

After my research on *Urban Sonic Acupuncture*, I started holding dialogues with inspiring musicians to further explore the possibilities of these ideas beyond public spaces. In this new collaboration series, I will test the implementation of the strategies and techniques I developed for my sound installations in public spaces, now in a purely instrumental format. It seems to make sense to start with interventions on a piano, as the body of the instrument already looks a bit like an urban space and offers the possibility of easily being excited by more than one performer or technology. In addition, it represents a look back towards the beginning, as the first test of techniques to use in public spaces was done in a piano piece: *"PIANOSCULPTURE for Mario Prisuelos"*. The direction that this music series will take is difficult to predict, and the process to follow will unveil itself as I go along. This way of working makes it intriguing for me.

Another possible development can be to continue exploring virtual environments that I can virtually intervene in through sound, or, at the other end of the possibility, the sound itself can virtually create spaces. This is something I am set to explore in a collaboration with Juan Vasquez, and the collaboration with Mareike Dobewall for YLE radio *emotionspaces*.

**Figure 4.2:** IN SITU documentation picture. Credits: Uupi Tirronen (2016)

# 5

# Projects

In this chapter, we are going to review the four main projects of my artistic research, and I will explain the techniques explored and developed for each one of them as well as the learning that re-

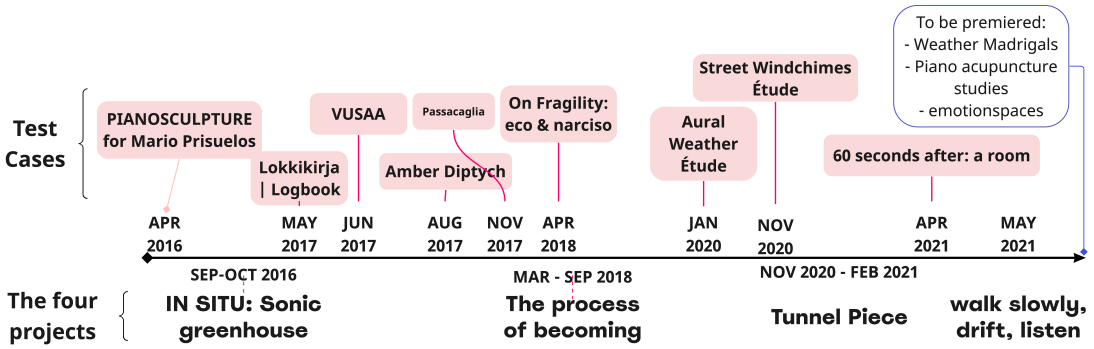


**Figure 5.1:** Timeline for the projects realised during my research.

sulted. To fully understand how each of these four projects came to be, we will also review all of the parallel projects and test cases in which I further explored and tested the ideas presented in the four main projects.

As we will see, this is not a linear history, in which every project is more extensive and complex than the preceding one; rather, this is a narrative about answering the questions raised by each project with new questions to be answered by the following ones. We will see how the concept of *Urban Sonic Acupuncture* came into being, and its initial formulation halfway through the realisation of *"IN SITU: Sonic greenhouse"*. I will relate how I explored the practice through the evolution from an indoor winter garden to a museum concert promenade, an underpass tunnel, and finally a radio program. This artistic research narrative resulted in a project in which the practice was presented virtually as a type of demo/manifesto – *"walk slowly, drift, listen"*– — and was thus fully realized as the last of the main projects instead of the first. This is because I could not make a virtual presentation of the practice without real-world experience and understanding. At the same time, using fixed media to interact with and infiltrate the listener's daily life was a distilled reaction to my

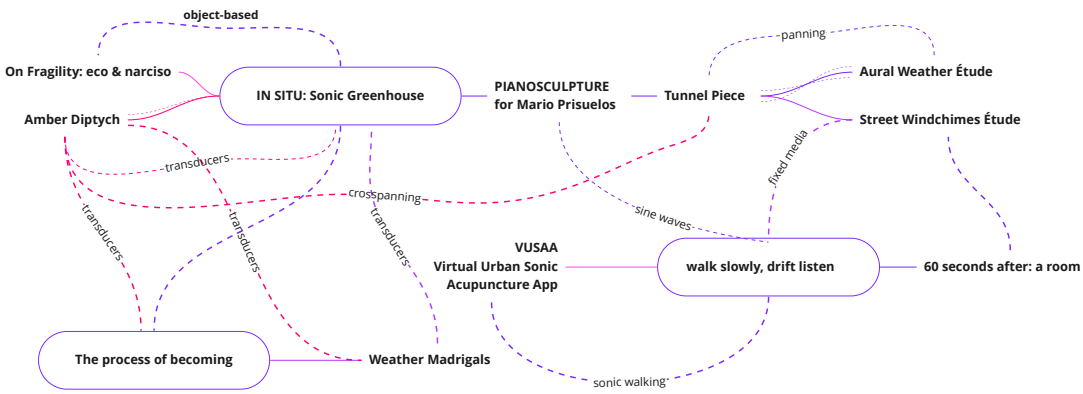


**Figure 5.2:** Map of relationships between the projects.

experience producing generative enhanced soundwalking mobile apps —*"VUSAA"*.

As I said, there is no linearity in the type of projects realised —See Figure 5.1. However, there is an accumulative line of evolution in how my understanding of the practice and its involved concepts came together –See Figure 5.2. As a result, the practice became a profound expression of my artistic personality, while also leaving many aspects and tools open for other practitioners to further explore through new projects.

## 5.1 The four projects

IN SITU: Sonic Greenhouse was a large-scale audio-architectural installation that took place in September-October 2016 at the historical Winter Garden Greenhouse in Helsinki, Finland. Approximately six thousand visitors experienced the artwork. The piece transformed the entire glass structure of the greenhouse into a multi-channel sounding object or a macroscale musical instru-

ment. Seventy structure-borne sound drivers –or vibration speakers– were used to transfer audio vibrations into the building's glass panels, transforming them into loudspeakers. *"IN SITU"* was a collaborative work with electronic music composer Otso Lähdeoja. We completed the process in parallel and in dialogue, with no specific personal tasks assigned. The resulting piece can be considered to be a duo. [i]

It was halfway through the process of implementing this artwork that I discovered the practice of *Urban Acupuncture*. Due to the scale of the site for the intervention, I could test many strategies to place sounds in space instead of time. Additionally, the large number of visitors allowed me to receive significant feedback about the project and how things were perceived. This project started my preoccupations with the communities that were to experience these interventions daily for an extended time.

Two fairly detailed articles with multimedia documentation of the process and results were published: 'SONIC GREENHOUSE - Considerations on a Large-Scale Audio-Architectural Installation', (Lähdeoja & Moreno, 2017) and 'IN SITU: Sonic Greenhouse. Composing for the intersections between the sonic and the built'. (Lähdeoja et al., 2019) [ii]

*"The Process of Becoming"* [iii] is a promenade concerto for bass clarinet, choir, electronics, and resonant sound installation that was produced in the Helsinki Design Museum on September 15th 2018, in two shows, at 1 pm and 3 pm. This project was connected to the retrospective exhi-

[i] This paragraph is adapted from the paper 'SONIC GREENHOUSE - Considerations on a Large- Scale Audio-Architectural Installation'. (Lähdeoja & Moreno, 2017)

[ii] Link to the Journal of Artistic Research article: https://www.researchcatalogue.net/view/423067/427630/0/0 accessed 22.3.2022

[iii] This text is adapted from my pre-evaluation text and program notes.

bition on the work of the Finnish designer Timo Sarpaneva. [iv] The project explored how sound contributes to architectural and design atmospheres. This second project sets its theoretical foundation on the practice of installing atmospheres, which I link to my concept of *Aural Weather*.

Why use a concert to explore public space sonic acupuncture? *Urban Sonic Acupuncture* deals with sonically penetrating a public space, thus affecting the perceived spirit of the place –the *genius loci*—. Atmospheres play a significant role in achieving that goal. Fostering peripheral perception and affecting how people relate to sites starts by recognizing and understanding the pre-existing atmosphere and its constituent elements, and developing a set of efficient strategies for using sound to install atmospheres. This project was crucial for developing my research project, as I scaled up to the urban level and incorporated outdoors situations.

*"The Process of Becoming"* consists of two parts: the live concert and the sound installation. The sound installation is the remaining sonic traces of the concert that lingered as a resonance attached to the objects that witnessed the concert. The alteration here is that the installation started six months before the concert, constituting some sort of theoretical and poetic time travel. In this way, the concert will fill the information gap present in the installation. Finally, I find it intriguing to listen to the process or manipulation of something that has not happened yet. I have explored this technique previously in my works *"for ensemble HaP"* (2010) in a concert situation, and *"Interventio 1 Part 1 / Part 2"* (2015) in an installative multi-channel setting. The idea of a concert with a sonic trace as a long-term sound installation was also explored in my project *"Missa Brevis: De las mil y una formas de echar de menos o pasar sed"* (2012).

I would like to point out that having the sound installation located in a specific spot allows it

[iv] https://finland.fi/arts-culture/timo-sarpaneva/ (accessed 22.3.2022)

**Figure 5.3:** Detail from IN SITU: Sonic greenhouse. Credits: Uupi Tirronen 2016

to efficiently work as sonic acupuncture. I have been able to see how the audience and exhibition keepers behave when around the sound installation, and observe the effectiveness of the sonic strategy. The sounds produced for the project connect with the work of Timo Sarpaneva in different ways: there is a physical connection through the use of structure-borne sound, achieved by placing 12 audio transducers in the wooden platform that supports the "Ahtojää" glass installation. The transducers transmit sound and mechanical vibrations to the glass structures, using them as filters and resonators –passive sonic objects– and imprinting wave-like sound panning the in same way as the light installation does.

Another connection to the work of Sarpaneva was in the process of the design and realisation techniques of the objects themselves, the work done by the glass blowers and other technical details. That information shaped the sonic content produced for the project. For instance, the rotating action shaped the melodic contours and sonic trajectories, while the concept of a 'super ellipse' –a squared circle– generated some of the algorithms used to create the harmonic content. Finally, the sensorial research was accomplished by observing the works for a long time, and by having conversations with Marjatta Sarpaneva about the world the designer lived, and designed and many other details on the music he listened to and what places he had visited. It is difficult to explain the direct connection with the final sonic result, but the direction of my intuitions and decisions were affected by that experience and knowledge.

I learned a great deal from these two initial projects about working in and with public spaces, designing and producing such projects, and the directions I want to follow.

*"Tunnel Piece"*.[v] This third project was produced in the underpass tunnel connecting Kaisaniemen puisto with Elielin aukio at Helsinki's central railway station between November 2020 and February 2021.

Sound layers were added to the pre-existing daily atmosphere and interactive sonic areas that responded to the daily sonic events at the place —such as trains passing overhead, people speaking, suitcases falling, or the ringtones of phones. Adding sonic colour offers a richer and more stable aesthetic experience of the site, and through it I hoped to invite people to question their understanding of this transitional space.

To install an atmosphere by adding sonic layers and light elements to the pre-existing daily atmosphere, I explored a set of tools to expand the strategies and methods I use when placing sound in the public space, including several ways of analysing the pre-existing sonic identity and a modular multi-channel aural weather generator based on audio-rate panning.

After my first two doctoral projects and the test cases that I implemented parallel to them, I wanted to go a step further. My earlier projects were set in welcoming environments and within a reasonably controlled set of societal behaviours. I wanted to test my ideas and precepts in an unforgiving urban outdoor environment. In Tunnel Piece, I faced an urban space described by most people with whom I shared the project idea as dodgy, regarding the looks of the space and the safety concerns that some of the activities associated with it entail. This challenging aspect, and the complex situation itself, was appealing to me when I decided to work on obtaining permission to intervene in the tunnel sonically. Many factors contributed to my decision to use this tunnel as the site for my next project –the size, the linear spatial narrative, the sonic properties– but the main reason

[v] This text is adapted from my pre-evaluation exam.

**Figure 5.4:** Tunnel piece ambience

was that I had circulated through this site myself for years. I felt that as an urban dweller, I could contribute my sonic voice to the perception of this space.

Working in this project's environment and under its constraints forced me into deeper considerations about the nature of sound in public space, and the very nature of my artistic research and practice. A new set of tools to learn from and situations to cope with arose continuously during the process –including a pandemic. All of these factors constituted a great learning process and a great test, not only for *Urban Sonic Acupuncture* itself but also for how much I believe in the idea and how far I want to go with it.[vi]

[vi] Audiovisual content about this project can be found in its original website https://www.tunnelpiece.com (accessed 22.3.2022)

*"WALK SLOWLY, DRIFT, LISTEN"*[vii] is a 43-minutes long piece for public radio. I further explored the techniques learned in my previous projects, while exploring new tools and approaches to foment sonic engagement with the urban space. The project also aimed at infiltrating daily life through public artworks that do not place physical objects within the public site.[viii]

This project employed a text-based narrative to provide a sense of closure to my doctoral research. The format worked as a manifesto. I explained my understanding of urban sound, art, daily life, and urban dwelling –or, rather, a way of sharing my opinions with the listener.

Using fixed media to create *Aural Weather* that will interact with live situations might seem counterintuitive. I believe that sonic atmospheres work as accompaniment, or a 'basso continuo' of everything else, including the sonic events surrounding the listener. Since the listener might encounter different surrounding conditions every time he listens to the work, the piece will interact and affect our site's perception differently. In other words, the understanding of the sonic content and its environmental superpositions will be different every time we listen to it. Thus, I fully realised that *Aural Weather* is a phenomenon, a pre-existing quasi-thing that refuses to remain within boundaries.

Again, the chosen strategy was to use low loudness levels. Therefore, playing softly, I claim all of the sounds existing in the surroundings, since the visitors cannot be sure if what they hear is part of the installation or not. [ix]

[vii] Partially based on my pre-evaluation text.

[viii] In fact, the participant audience members might not even be aware that the installation is there at all. This situation occurred when Meri Kytö was evaluating the piece in the streets using headphones. A group of kids started to follow and imitate her, becoming part of the piece's co-production and performance without being aware of it. (Story retrieved from the account written in the jury evaluation statement.)

[ix] The project was made in five languages (Finnish, Swedish, English, Russian, and Spanish). They all are accessible via YLE Areena. This is the link to the English version: https://areena.yle.fi/audio/

## 5.2 Parallel projects and test cases

In addition to the main projects of my research, as explained in the previous section, I worked on several parallel projects exploring the practice of *Urban Sonic Acupuncture*. These projects worked as test-bed for future explorations. The projects that did not belong to the main research line dealt more with the conceptualisation than any particular scale or format. Indeed, projects such as *"Amber Diptych"* are even more significant in scale and temporal development than *"Tunnel Piece"* or *"IN SITU: Sonic greenhouse"*. They served as experiments to test ideas before implementing them in the main projects; some initiated an entirely different line of work to be further explored in subsequent projects. The link to the documentation of these projects can be found in Appendix B.

*"Vusaa (Virtual Urban Sonic Acupuncture App)"* is an iOS application available at the App Store, in which I create location-based and surroundings-aware audio content for enhanced sound walks. This application was presented in the Venice Research Pavilion in June 2017 and the Tampere Biennale 2018, through shared-in-pairs sonic walks and discussions afterwards.

The application was implemented in collaboration with Vesa Norilo and was reported in detail in a peer-reviewed paper (see AppendixB). [x].

The main algorithm consists of a reactive multi-layered *Aural Weather* with no pre-recorded material. The algorithm is designed to allow for driving the user's attention towards surprising elements in the urban soundscape. In this way, the *Aural Weather* behaves dynamically and musically under complex sonic situations such as heavy traffic. On the other hand, it becomes more subtle in a

1-50837889 (accessed 22.3.2022)

[x] Text partially based on the mentioned paper(Moreno & Norilo, 2019)


**Figure 5.5:** Sonic walking in pairs with VUSAA at Tampere Biennale (2018).

more tranquil atmosphere.

Finally, a musical structure that is not based on time requires a great deal of user agency in enacting the temporal dimension, choosing the walking path, the walking pace, where to point the device's microphone, and so forth. We tried to avoid the need to interact with the screen. However, we added a slider to the main screen to let users adjust their preferred listening balance between the microphone and generated sound.

Many users opted, after a while, to place the slider in a position in which they would only listen to urban sounds without my acupuncture contribution. I consider this to be a success, in which the listener realises how interesting the pre-existing *Aural Weather* was.

*"Amber Diptych"* (August 2017) is a permanent sound installation using structure-borne tech-

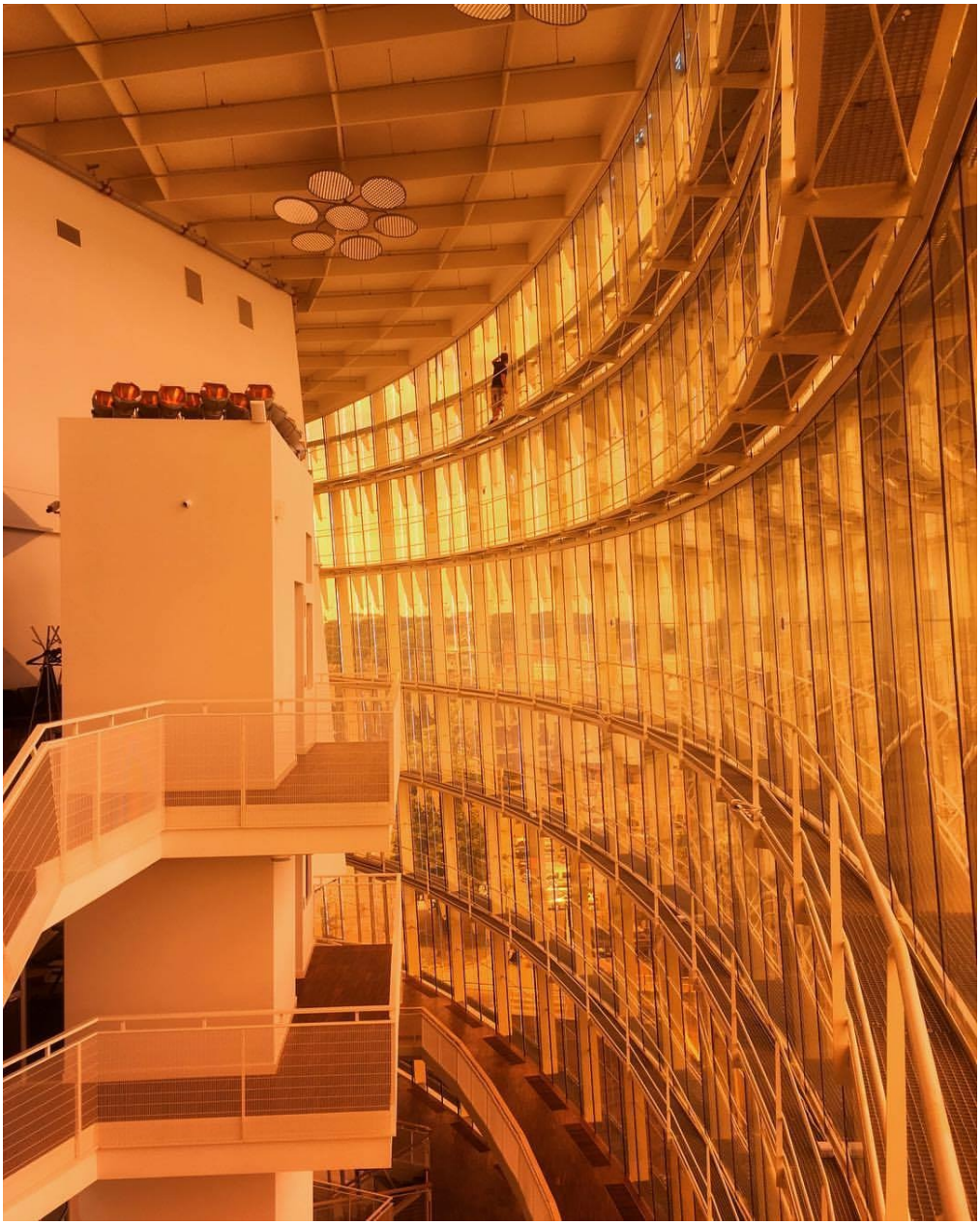

**Figure 5.6:** Amber Diptych, setting up.

**Figure 5.7:** Amber Diptych, inauguration. Credits: Walters Pelns 2017

niques to transform the glass structure of the public area of The Great Amber Concert Hall in Liepaja, Latvia, into a sound-emitting entity. Long-term audio evolution algorithm design and the design of a permanent transducer system were the main challenges to overcome.

In this installation, I tested ideas that I could not test in *"IN SITU"*. I also developed a first attempt at using panning as an expressive tool for space-based sonic interventions. The channel distribution, which split into irregular patterns and distances, allowed for covering large spaces with a significantly smaller number of transducers than in *"IN SITU"*. The panning done with this split channel system was used extensively in *"Tunnel piece"* to reveal architectural rhythms and details.

*"Pianosculpture for Mario Prisuelos"* is a piano and electronics composition that premiered at Festival Mixtur in 2016. Here, I tested the use of sine waves as sonic acupuncture to mod-

**Figure 5.8:** Logbook installation. Part of the permanent collection of the Maritime Museum of Finland, Kotka.

ulate the piano's perceived timbre and harmonic content. This technique, inspired by Alvin Lucier, would be used in many future projects, especially in *"walk slowly, drift, listen"* and

*"Lokikirja | Logbook"*. Another sonic acupuncture for a three-channel video documentary about the experience of sailing, by Kati Åberg premiered at Mänttä Festival in 2017. This chance allowed me to test ways to affect the perceived atmospheres virtually with a minimum of sonic intervention.

*"Passacaglia: On the building of Sonic Weather"* Dedicated to the late Jovanka Trbojevic—Vanja—, Passacaglia was composed at the request of Mieko Kanno to demo the Octect

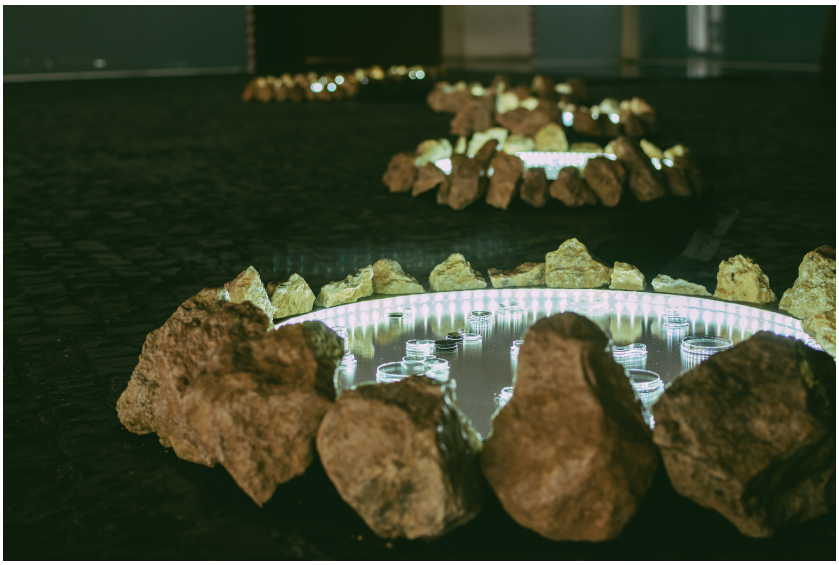

**Figure 5.9:** *"On Fragility: eco & narciso"* detail. Credits: Meraki 2018

Violin plug-in she developed.

I re-purposed and edited the violin part of a piece, to the premiere of which Vanja attended. Each bar lasted 5 seconds, and every 50 seconds the previously played music and the currently playing overlapped. This process of circular recording into a buffer, like a boomerang pedal, creates an energy accumulation around harmonic and tímbrical points unique to the music being played. This texture will eventually become synthetic through a sudden wave-substitution algorithm, while the concert hall goes to pitch black.

The piece's subtitle is "on the building of sonic weather", referring to that musical process. The same process would later be used to analyse salient features of the sonic environments in which I installed atmospheres. The premiere happened at MuteFest 2017 performer by Mieko Kanno.

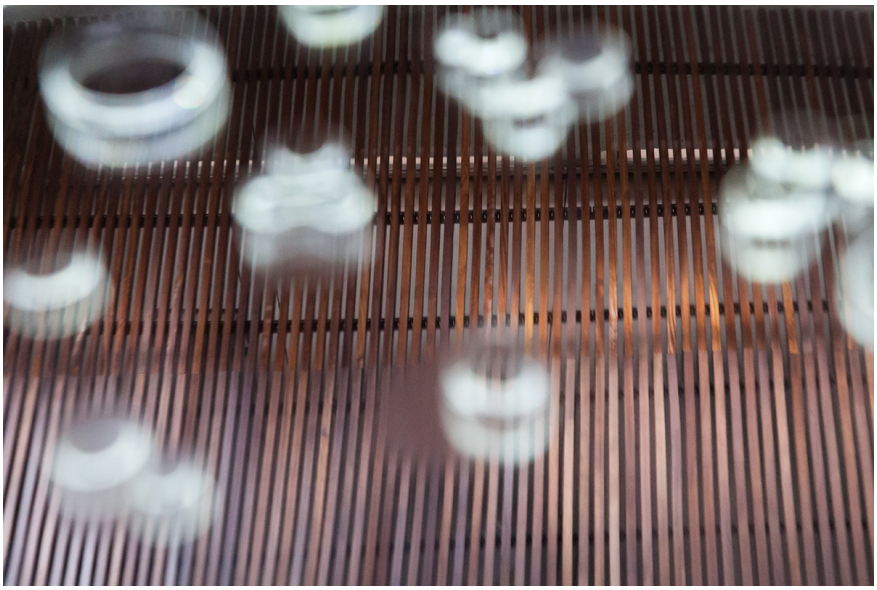

**Figure 5.10:** *"On Fragility: eco & narciso"* detail. Credits: Amparo España 2018

### *"On Fragility: eco & narciso"*

I made this installation in collaboration with curator Ana Parra for the 40th Festival Ensems at Palau de la Música in Valencia (Spain) in April 2018. I used structure-borne sound techniques to transform the well-like mirrors placed on the floor into loudspeakers. In this piece, I made a clear attempt to install a clearly emotionally charged atmosphere into a public space, since the project was a posthumous homage. I also placed such an atmosphere in order to test the limits of what a subtle sonic intervention in public space can mean.

### *"Aural Weather Étude"*

The Aural Weather Etude is a concert piece or a sound installation resulting from my collaboration with Vesa Norilo. The work deals with installing atmospheres in public spaces in a generative

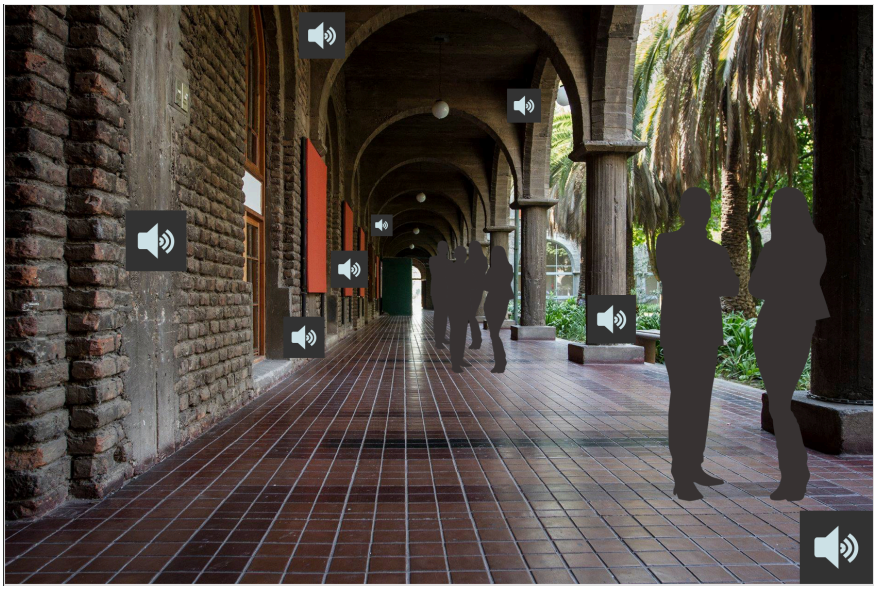

**Figure 5.11:** Aural Weather Étude, loudspeaker placement prototype.

manner, implemented in the Kronos (Norilo, Vesa & Laurson, 2009) signal processing language. This language was a natural choice, since we had collaborated earlier using Kronos.(Moreno, Josue & Norilo, Vesa, 2013) We started from the instructions given by Sol Lewitt for his Wall Drawing #118, [xi] and interpreted them in the context of multi-channel audio and rapid spatial modulation using DBAP. (Lossius et al., 2009)

[xi] "On a wall surface,
any continuous stretch of wall,
using a hard pencil,
place fifty points at random.
The points should be evenly
distributed over the area of the wall.
All of the points should be connected by straight lines." –Wall drawing #118
Wall Drawigns Retrospective: https://massmoca.org/sol-lewitt/
Realisation of the #118 http://www.ericdoeringer.com/ConArtRec/LeWitt/LeWitt-WD118.html

In this piece, we experimented with rapid panning trajectories as valuable tools in modulating the space and its perceived atmosphere, while delimiting sonic areas and distinctly pinpointing the various intersections of the panning trajectories. We set out to develop a system that was susceptible to adaptation to a wide range of spatial contexts, spanning from audio installations in gallery spaces or concert halls to urban-scale sonic interventions. I was particularly interested in producing a scalable process that can work regardless of the sonic material used, indoors or outdoors, and that is modular enough to be calibrated *in situ*. The Wall drawings by Sol Lewitt and the work of Bernhard Leitner, (Leitner, 2008) who wanted to draw in space with sound, became the main sources of inspiration.

The application was implemented in collaboration with Vesa Norilo and reported in detail through a peer-reviewed paper (see Appendix B).[xii]

[xii] Text partially based on the mentioned paper and project submission text.(Norilo & Moreno, 0 21)

*I find, then I search.*

attributed to Jean Cocteau who lent it to Pablo Picasso

*I do not seek, I find.*

attributed to Pablo Picasso

# 6

# Mosaic of experiences, learnings, reflections

In this chapter, I am going to present a mosaic of aspects and thoughts surrounding the creation of my *Urban Sonic Acupuncture* projects. I intend to create a field of association to give an impression of my artistic thought.

Some lessons are easy to share because there is a somewhat easy way to extrapolate and handle them so that other practitioners can benefit from them. However, many other lessons deal more with the things I learned about myself and my artistic practice, its context, and my very particular views. For instance, this research helped me integrate my varied preoccupations and interests, and has become the catalyst for many of my oblique approaches to music-making. I came to realise that I always composed in a somewhat "acupunctural" way. I did that because a piece's atmosphere — what I now call *Aural Weather*— was more important to me than writing music as a discourse to display my feelings. Neither was I interested in musical creations arising from a forced, unnatural extra-musical structure. To create such musical situations and sonic atmospheres, I did not need vast amounts of harmonic content, but rather a precise sonic method used in an optimised manner — a resource economy.

In the following paragraphs we will see how some of these ideas came to be, and explore the lessons I extracted from the experience of implementing the projects and participating in the discussions around them. This way of music-making came together very naturally with the idea of music as a space-based art. In each of the projects related to this research, I found an expression of the musical ideas that I have nurtured for years. Furthermore, these ideas came together as a practice during my research. Still, I would like to say that the way in which these projects materialised was surprising, and required a great deal of acceptance and trust in the process and many other external factors. While experiencing the projects during my research, I relied on the acts of listening, experiencing, dwelling, and encouraging dialogue to coexist naturally. In the end, these projects became the embodiment of my understanding of music as a social space. This musical space allows for easy transition from one activity to another without the fear of missing out or not understanding

something —or of fearlessly stating that something is not understood.

In the following subsections, I will explore these lessons, experiences, and processes in the form of short statements and stories regarding different subjects and areas of the urban sonic acupuncture practice, and sound art in public space in general. The order of these subjects is not according to their relevance. Instead, they are meant for the readers to distil their own atmospheric peripheral perception of my artistic views and the whole experience of developing these projects.

On process. I would like to say a few words about my processes and how they make sense of the achieved results despite the non-linear first impression. As we saw earlier in the project's timeline, this is not a linear history in which every project becomes more extensive and complex than the preceding one. Instead, this is a narrative about answering the questions raised by each project with new questions that the following projects will answer –perhaps with new questions. Supporting each project on the settled ground of the preceding one while exploring the ideas that I would also further explore in the upcoming projects is how I maintain a line of conceptual groundcover. However, this is agnostic of the format or resources needed for the implementation.

There is no linearity to the type of projects realised. However, the evolution in my understanding of the practice and how the concepts involved in it came together was accumulative. This process became a profound expression of my artistic personality. At the same time, this process leaves many aspects and tools open for other practitioners to further explore in new projects.

To illustrate this, I am going to refer back to how I created a virtual demonstration of the practice at the end of the research – *"walk slowly, drift, listen"*. I could not make a virtual presentation of the practice without real-world experience and understanding.

On site selection. Regarding the place selection, the approach varied in each project between a commissions and researched spaces for which I had to obtain permission to do the intervention, as it happened with the Sonic Greenhouse project. The available methods for locating possible spaces range from psychogeographic techniques (Debord, 1955) to computer algorithms used to map vast urban areas. (Miller, 2011) I also used an excel file to weigh the site's characteristics and its alignment with my artistic intentions.

On panning. [i] In my multi-channel projects and other early projects involving *Urban Sonic Acupuncture* strategies, I have intentionally avoided panning trajectories, as they seem to imply the existence of a sweet spot or an advantaged point. I gave up panning altogether, handing agency in spatialisation to the visitor/listener, expressed by walking or choosing a listening spot. In "The Process of Becoming" the panning was not produced by stationary sound emitting sources but audience moving and by walking performers carrying loudspeakers. The *"Aural Weather Étude"* project represented the first case in which I explored the use of panning trajectories to generate sonic fields, while still not laying exclusive claim to the realm of spatialisation. Rapid panning trajectories can be valuable in modulating the space and its perceived atmosphere while delimiting sonic areas and pinpointing the panning trajectories' various intersections.

Vesa Norilo and I set out to develop a system that we could adapt to a wide range of spatial contexts spanning from audio installations in gallery spaces or concert halls to urban-scale sonic interventions. A scalable process that can work regardless of the sonic material used, indoors or outdoors, a process that is modular enough to be calibrated *in situ*. In this way, we created the *"Aural Weather*

[i] From the Aural Weather Étude paper.(Norilo & Moreno, 0 21)

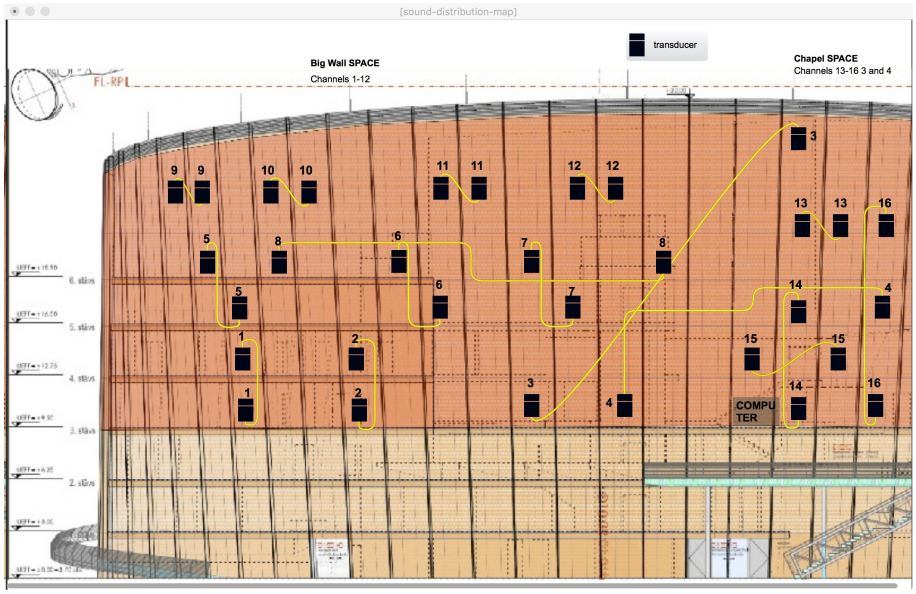


**Figure 6.1:** Preliminary cable and panning map for Amber Diptych.

*Étude"* under Kronos. Later, I implemented a similar process of audio-rate panning in *"Tunnel Piece"* under Max 8.

Earlier examples of panning explorations were seen in *"Amber Diptych"*. The use of splitting channels and panning modes occurred in *"Tunnel Piece"*. *"VUSAA"* also had a panning system designed to make the user look into different directions in order to spot elements in their environment.(Moreno & Norilo, 2019)

On impact and writing. Inspired by the words of Juhani Pallasmaa at the beginning of one of his lectures,[ii] we can regard writing and designing as the same practice. Writing also amplifies the impact of the ideas beyond the locality of the practice. It invites others to adapt and transform the

[ii] Berlin 2019 City Atmospheres Symposium.

practice. In the same way as we lose control of the sound coming off our bodies and instruments to touch others, a similar process can occur with our ideas. I include public speaking and presentations as an extended form of writing, in which the meta language and your expressive embodiment of the idea become part of the message.

I learned that expressing and sharing your dreams with others requires a certain amount of courage, like the courage of accepting being left to scrutiny, for instance. Rejection can be another possible fear. Both scrutiny and rejection primarily do mostly one thing: improving the idea –an idea that we often defend when we have not thoroughly tested it yet. Over time, the idea improves, the project implementation arrives, and feedback is received. Then we can proceed to reflect, write about it, and continue dreaming even more intensely.

It is crucial when dreaming to not think of limitations until the moment is required, which happens outside of the dreaming phase. It is essential to dream of things that do not yet exist, and not to try to entirely understand or know all the details involved. We will figure it out during the process. Nevertheless, we have to presume that there is a target far from our reach, and that we should get closer and closer to it over time.

Writing and public speaking can happen in many places. In Academia, journals and symposiums are the usual fora. However, we can make divulgation talks anywhere, even if they feel unrelated to our interests. We never know where the next key partner will be sitting, listening to our ideas, ready to embrace and facilitate them.

A final aspect of writing and speaking that has been useful in my research has been the realisation that writing does not have to be a solitary activity. Writing in tandem with another colleague, a writing partner, or a team, turned out to be highly enriching and ideal for facilitating the most

significant steps in the evolution of the concepts and processes involved in my research.

On collaborators. As I have mentioned repeatedly in this dissertation, the aural architect is a social resultant. In the same way, the urban sonic acupuncture practitioner might be a single person, but the projects are far from being one-person enterprises. Choosing the right collaborator is a matter of intuition, conscious choice, and luck. The new skills that come to the project are relevant to choosing a collaborator, but there are other aspects to consider as well, since many decisions will have to be made, and many hours will need to be spent together. Building over time, project after project, this natural reciprocal network of people who dream with you is incredibly relevant if we want to make a broader impact beyond the spatio-temporal area in which individual projects happen.

As a final word on collaborators and project partners, I would like to say that each project has its own tempo in which things happen. It takes time to build up love for the project, to support it and create the mythology around it. Sometimes these processes happen quickly, but usually, they take a significant amount of time. The collaborators during that process might come and go, as if the process itself helps to find the right partners. The moral of the fable: look around for collaborators, especially those close by, and do not force the timing and pace.

On genre. The question of genre has appeared many times when discussing my projects. I am not particularly bothered with being labelled or described as working within a particular genre. However, I might feel more comfortable if I write about the genres that influence my practice and what I have in common with them and what, in my view, makes my practice not entirely ascribe to

the aesthetic principles of the given genre.

Brian Eno stated in many interviews that ambient music washes out any instability by imposing a stable sonic situation, or "tint", that is usually realised by mainly playing loud, sustained sounds or calming loops. I do not entirely adhere to the idea of imposing ambiences. Still, I would prefer to work with the existing atmosphere by stretching it and creating ambiguities between what exists and the sounds I am adding. However, I do not entirely reject my adhesion to the genre, since I still align with recent forms of ambient music in my usage of different forms of fragility –especially formal fragility– to create aural weather.

The lowercase sonic identity of my works is also influenced by Morton Feldman and, to a certain extent, by the Wandelweiser Group.[iii]

Many of the techniques I use in my projects are directly inspired by the work of A+Ö–Bruce Odland and Sam Auinger(Odland & Auinger, 2009)–, Max Neuhaus, and Alvin Lucier.

Finally, using the technology, terminology, and aesthetics associated with electroacoustic music, live electronics, and computer-assisted composition was a natural choice for me, as they constitute my musical background.

On sonic content. *The App Store process with VUSAA, from the VUSAA paper: A reflection paragraph after some years have passed.*

When developing the Virtual Urban Sonic Acupuncture App (VUSAA), Vesa Norilo and I faced an interesting problem during the app review and publishing process. VUSAA initially worked in background mode, in order to discourage users from continuously staring at the screen only. The

[iii] https://www.wandelweiser.de

iOS App Store review team initially rejected our app because they did not find a compelling reason for the application to be accessing the microphone while it was operating in the background. After some back and forth submission-rejection cycles, we asked them for a phone conversation, in which it became clear that their notion of audio content was not aligned with ours. They clearly stated that resonant dust or softly playing background chords do not count as audio content. (See AppendixB). [iv]

At that point, it became evident that our digital platforms are products subject to corporate ownership and control, and not public services. A privately-owned platform has no space for flexibility in their interpretations, and they have all the right to reject our submissions or even ban us from the App Store. We learned that proposing an audio application that consists mainly of a complex passive sonic object was a difficult proposition for the App Store review team. We solved this by giving up on the background mode altogether. This decision turned out to have no significant impact on the app's usability during the soundwalking events.

*On environmental sonic activity acceptance.* I am going to tell a story that I believe is excellently suited to illustrating the change of mindset that needs to be practised for urban sonic acupuncture or any sound installation in public space. I was doing the final tuning of the installation the night before the opening of "Amber Diptych". Suddenly, I heard a thunderous noise coming from one side of the large glass façade. It sounded as if a transducer had been broken and was damaging the glass to which it was attached. Even worse, it sounded like the transducer was about to fall from a height of between 15 and 30 metres. I stopped all of the audio processing as fast as I could, but that did not help. The noise kept going, even increasing. I then switched off the amplifier. Still, the

[iv] From the VUSAA paper.(Moreno & Norilo, 2019)

sound was there. What was causing it? I ran to the area where the sound/noise was coming from, and I realised how loud it was. It was almost painful, and certainly not healthy. I could not spot the source due to the reverberant nature of the space. Nevertheless, I noticed an increase in energy when approaching the stairway. Then, I realised that the sound was coming from the lower floors.

I went downstairs and discovered that one of the video art projects to be exhibited during the coming months incorporated sound, and that this sound consisted of high-intensity feedback. After many days of fine-tuning the installation to be non-intrusive and subtle, it was going to be overpowered by a sound that made it seem as if my installation was going to break the building's costly glass. Obviously, this detail of sonic coexistence had escaped the curator's attention. However, I thought of just discussing with the artist whether, at some point, he could keep the volume a bit lower, or point the loudspeakers in a direction that would not interact with the stairway. The artist was incredibly kind, and agreed to keeping his work silent for the initial opening hours. Furthermore, he made me notice one crucial thing. Since my installation was permanent, it would undoubtedly have to learn to coexist with all sorts of events and disruptions. This did not make me any less disturbed, but incited me to think about giving away control and acceptance: a friendly reminder that we cannot control how others decide how to occupy public spaces. This was a profound thought, and a tremendous change for a composer taught at the conservatory to be obsessively detailed and controlling. This reflection is fascinating to me, as I believe that we can understand spaces other than public squares as public spaces. My attention tends to focus more on transitional or busy spaces not specifically devised for artistic practices. Åsa Stjerna has written on "how time, spatial (de-)stability, and artistic appropriation of a site all can play important roles in the reception of an artwork over time."(Stjerna, 2011)

To this day, I have not come to terms with how to design for my installations to withstand sonic 'intrusions'. However, I keep tuning them to the most common sounds in the space, and I have learned to accept that my sounds might not be heard all of the time, or that external, non-contextual sounds might even be attributed to my installation.

# 7

# Wrapping up

Developing a sonic take on urban acupuncture practice led to a great deal of learning about urban space, society, and sound itself. *Urban Sonic Acupuncture* is a manifestation of tactics and processes. For instance, how sound is distributed, what sounds to use, and at what level; how the sounds relate

to and interact with the site, and the symbolic associations they might trigger; how aware we want the transient audience to be about our sonic contribution. The effects of these tactics are challenging to predict. A reflective practitioner (D. Schön, 1984) approach can lead to gaining understanding while raising new questions and creating new operational modes.

I started using the term *Aural Weather* to refer to the threefold approach to organising the sonic material: placing sounds in space instead of time, leading to alternatives usages of sound panning; creating a specious present inducing sounds to affect the temporal discourse; installing atmospheres by tailoring sonic content that is meant to coexist with the pre-existing atmosphere. However, the term came to be not only an operational concept but a way of describing the phenomenon. *Aural Weather* exists before I act upon it, and my intervention incites a reconsideration of the listening attitude itself.

My projects are the combination of the awareness of *aural weather* as a phenomenon, the manifestation of tactics that *urban sonic acupuncture* enable, and my choice of using sound levels that work at the threshold of attention. This combination sensitises the audience, and therefore their threshold of attention shifts. This lowered threshold remains in place after the sonic intervention stops or the listener leaves the space. This process of sensitisation has been repeatedly reported by audience members.

## Back to the Questions

To further reflect on the research, I am coming back to the research questions posted at the beginning of this thesis.

> How can aural architecture help develop a sonic take tono urban acupuncture,

adding a sonic layer to urban spaces in order to foment conscious dwelling?

Adding a sonic layer makes the city a place for sensorial experience and enjoyment. Cultural acoustics take into account not only the physical properties of sound but the local relation to it and its psychological implications. Some of the strategies incited passers-by to spontaneously explore alternative ways of being in public spaces, making daily life more poetic, if only for a moment.

The balance between subtle, lowercase active and passive sonic objects is a powerful and non-disruptive way of infiltrating daily life. This approach impacts the sonic perception of the passers-by beyond the area in which the sonic intervention occurs. This impact occurs not only on the psychological or conceptual level, but also perceptually, by means of sonic subtlety. This subtlety allows for the appropriation of pre-existing sounds and the creation of ambiguity about what sounds are part of the installation and what are not.

How does considering sound art as a space-based art contribute to interdisciplinary dialogue?

Sound always has a spatial propagation. However, when creating sound-based projects, the spatial dimension tends not to be a priority due to the strong temporal nature of sound. Conceiving these projects as if the primary manifestation of sound is spatial can lead to a range of new ways of music-making, or sound-based art collaborations with other arts, in which Euclidean space is the primary dimension. Thinking in this way is how my sonic practice found a natural space, thus contributing to the atmospheric turn that architecture and design are undergoing. Using processes that are easily facilitated by sound in spatial contexts allows for collaborations in stabilising the emotional space around a site or object, for instance. Sonic illumination can contribute to highlighting certain

aspects of how a space is perceived. Some architectural rhythms and gestures can also be underlined effectively by using sound placed in space instead of time as well. It is my experience that some spatial architectural issues created by an accumulation of external factors can be mitigated by using a suitable aural strategy.

A specific finding in terms of technique has been the use of panning. Alternative uses of panning as a means to create non-time-based sonic fields has turned out to be a compelling way of creating a sense of place and affecting the perception of scale of the space we are in. At the same time, the generative-based approach to sound makes spaces more dynamic sonically without imposing a narrative temporal discourse; this made it easy to plan spatial strategies in large spaces that coexisted with other activities.

## Conclusion

*Urban Sonic Acupuncture* deals with tactics, while *Aural Weather* is a phenomenon.

*Sonic acupuncture* applies sonic pressure points to key spots, affecting the perceived global sonic situation by sensitising the transient audience and thus lowering their attention threshold. This tactic aims at fostering a conscious urban dwelling.

As a phenomenon, *Aural Weather* exists without any sonic intervention, but can coexist with it and will remain or evolve after the sonic intervention is over. At the same time, *Aural Weather* points towards a different way of organising sounds, placing them in space instead of time, fostering a more landscape-like listening experience in which the audience becomes responsible for the temporal narrative by exercising their agency.

The process of developing this practice and exploring these ideas often found its best output

through invisible, non-object-based interventions – that approach, combined with using lowercase sound, made for a non-disruptive public space intervention. Far from what might seem obvious, this non-disruptiveness proved to have great power to infiltrate daily life, and affected how the spaces were perceived.

My aim in developing *Urban Sonic Acupuncture* projects was to contribute with my sonic voice to public spaces. Healing or rehabilitating the space was not the goal. Still, these projects generated much discussion among the audience, passers-by, and the local art community. The resulting dialogues created a general agreement on how necessary conscious urban dwelling is. These dialogues then facilitated multi-disciplinary, multi-generational discussions about what conscious urban dwelling or conscious sonic dwelling might mean.

In contributing to the on-site dialogue fomented by my sonic intervention, I felt that I accomplished one of my personal aims. That is, to retake the *piazza* in order to inhabit it without the need to consume. *Piazza* is understood here as a public town square where one can freely exchange ideas and opinions, even though the *piazza* nowadays can be an underpass tunnel or even radio space.

# A

# Glossary

from Aural Architecture(Blesser & Salter, 2007)

– Spatial experiences in aural architecture: Allocentric (external reference); Egocentric (the per-

ceiver)

- Acoustic object: Active (Sound source); Passive (A wall: distance = delay area = intensity material = frequency content)
- Sound sources (sonic events) are the equivalent of light sources.
- Sonic illumination is an artefact of some social activity.
- Sound Mark (a church bell)
- Almost every visual embellishment has some acoustic influence.
- Curved surfaces act as sonic lenses enlarging the acoustic arena.
- Acoustic Horizon: the maximum distance at what we can hear a sound source.
- Acoustic Arena: A community can hear a sonic event. Acoustic arenas are dynamic (We can whisper or shout)
- Sound Mark (A church bell, a factory whistle,...)
- Auditory channel: The connection listener—sonic event.
- Acoustic Community. Political power and social cohesion.
- Mechanical and electronic interventions obviated the need for social cooperation in regulating the public arena.
- Spatial dimensions in aural architecture: Primary vs Slave sonic events / Localized vs Diffused sonic events / Fused vs Decoupled sonic events
- Acoustics: refers mostly to the behaviour of sound waves in solids, liquids, or gases. Listening is not required, and may not even be possible.
- The adjective “Aural” parallels visual. Spatial acoustics; cultural acoustics. Emotional and behavioural experience of the space.

– Four aspects of aural architecture: social, navigational, aesthetic and musical spatiality.
– Soundscape: the auditory equivalent of a landscape.
– Sonic illumination: is typically an artifact of some social activity. Architecture, like a giant, hollowed-out sculpture. We cannot see volume but we can hear it. Experiential region.
– Acoustic horizon: A region where listeners are part of a community that share the ability to hear a sonic event. The connection between a sonic event and a listener forms an auditory channel. A channel shared among listeners provides social cohesion.

Soundscape theory (Schafer, 1977)

- Soundscape: "a total appreciation of the sonic environment,"
- Soundscape studies: attempts to more holistically understand "the relationship between man and the sounds of his environment and what happens when those sounds change"
- Schizophonia
- Keynote sounds may not always be heard consciously, but they "outline the character of the people living there" (traffic).
- Sound signals foreground sounds, which are listened to consciously; examples would be warning devices, bells, whistles, horns, sirens, etc.
- Soundmark: a sound that is unique to an area. "Once identified a Soundmark, it deserves to be protected, for soundmarks make the acoustic life of a community unique."

Bernie Krause, soundscape elements in terms of their three main sources:(Krause, 2013)

- Geophony refers to the soundscape sources that are generated by non-biological natural sources such as wind in the trees, water in a stream or waves at the ocean, and earth movement, the first

sounds heard on earth by any sound-sentient organism.

- Biophony is all of the non-human, non-domestic biological soundscape sources of sound.
- Anthrophony is all of the sound signatures generated by humans.

FROM EA MUSIC

- Spectro/Spatio-morphology
- Sonic agents as “all active contributors to a given universe of sound.”

# B

# Publications and documentation

## B.1 Peer-reviewed articles

– Norilo, V. & Moreno, J. (2020-21). *Aural weather etude: Installing atmosphere*. in Proceedings of the International Computer Music Conference

- Moreno, J. & Norilo, V. (2019). *Vusaa: An augmented reality mobile app for urban soundwalks*. in Proceedings of the Sound and Music Computing Conference
- Lähdeoja, O., Moreno, J., & Malpica, D. (2019). *In situ: Sonic greenhouse. composing for the intersections between the sonic and the built*. Journal for Artistic Research.
- Lähdeoja, O. & Moreno, J. (2017). *Sonic greenhouse - considerations on a large-scale audio-architectural installation*. in Proceedings of the 14th Sound and Music Computing Conference.
- Moreno, J. & Norilo, V. (2013). *A Type-based Approach to Generative Parameter Mapping*. In Proceedings of the International Computer Music Conference

## B.2 Project's documentation

The documentation for the projects realised during this research can be found at an archive presentation in Research Catalogue: Josué Moreno Prieto, 'Urban sonic acupuncture: sonic strategies for the city space', Research Catalogue (2022) https://www.researchcatalogue.net/shared/1410f2c5a69b0720b6a678136b20ffe8 [accessed 21.3.2022]

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Urban Sonic Acupuncture is an artistic practice that intervenes in public urban spaces with sound composition elements that aim to alter the atmosphere of a place through subtle, almost imperceptible resonances, textures, and other forms of sonic infiltration. The practice consists of applying sonic pressure points to sites that affect the aural awareness and attention thresholds of the listeners. Interestingly, these altered attention thresholds remain in effect even after the listeners leave the site where the acoustic intervention happens.

Aural Weather exists without the need for an acoustic intervention, as a pre-existing acoustic atmosphere, upon which the urban sonic acupuncture practitioner acts. We can also understand Aural Weather as an organising principle: placing sounds in space rather than time. This principle promotes a listening mindset where the audience takes responsibility for the temporal narrative. The development and implementation of my the different Urban Sonic Acupuncture art-works build on this crucial concept.

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