Expanding the Potential of Sound Design in Science Fiction

Creative Strategies for Reimagining Sonic Worlds

Master Thesis Sound Design

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Abstract

This thesis analyses and investigates possible strategies in designing sound for a science fiction film. I have studied various sonic approaches from the likes of Delia Derbyshire and Walter Murch, whose innovative methods have provided an invaluable reference for applying a similar ethic to sound on the film *Planet Hora*, practical examples of which I will outline in greater detail. The context of my research has its basis in the complex and continuous process of listening and reciprocity, that which is shaped by circumstance or a sonic landscape that expands and extends beyond merely the functional aspects of sound design. This creates an evolving multiplicity of possible worlds, temporal spaces and unexpected occurrences from which I can speculate, extract, reconstruct and articulate a coherent and creative sonic vision. I will highlight practical compositional and sound design examples from *Planet Hora*. I will also discuss more subjective modes of creation in my own personal practice and how this relates to sonic interpretation and aesthetical choices. The central motivation of this research is two-fold, to propose a non-linear paradigm for thinking about sound in film and to advocate for a more intersectional methodology in sound creation.

1. Introduction

When enrolling for the Masters in Sound Design at the Zürich University of the Arts, my main motivation was to get to know as much as possible about the various functions and applications of sound design. Before this, I was not interested in drawing a clear division between the differentiation between the pursuit of sound design and music for instance, or between a so-called technical and a creative job. Owing partially to my education as a musician, I tend towards a view of sound design as highly creative work which involves compositional thinking and a dramaturgical understanding. Vice versa, music and scoring to picture can benefit a lot from a sound designer's perspective and modes of listening.

After committing to work on the film *Planet Hora*, I initially thought of all of my different jobs as separate roles. They include the preparation, location sound recording, dialogue editing, sound design, music, mixing, and so on. Be that as it may, it soon became clear to me that this film was atypical, as was the process and the team I was to work alongside. Rather than let the unusual circumstances faze me, I saw it as an invitation to embrace intersectionality, to explore and exploit interconnectedness between all elements when executing the necessary sonic functionality of this film. Given the chance elements of serendipity and chaos that frequently arose during the film production, this research is an attempt to rationalise these attributes, and to see how one can effectively harness them for creative purpose, while maintaining equilibrium with my penchant for detail, precision and careful control.

In this thesis, I touch on different aspects and historical examples of sound practices which have inspired and influenced me over the last few years. I investigate the ways in which one could adopt methodology or mine ideas from different sound fields and sonic philosophies such as the works of the BBC Radiophonic Workshop and Walter Murch. I look at the role of field recording but also musique concrète for which to expand the spectrum of sound making. I will also describe a little of my own research on substantial listening and how the practice of speculation and imagination can strengthen one's creative agility. With this mixed bag of intersectional tools my

intention is to approach the artistic work with a more encompassing, progressive mindset, one that would help me create a sonic universe that would match the richness of the film narrative.

In this paper, I have carried out research and reflection reaping the benefit of artefacts, randomness and circumstantial unpredictability to enrich the potential of sound design. I am interested in developing the nascent potential of limitations and their dormant capacities in my own practice and process.

This multi-pronged way of working is not only fun, but also excavates plenty of creative ideas for designing sound.

2. Background

2.1 Context

Theater Hora makes a science fiction film, and inspires me to look back in history. By investigating in past sound design practices, I discover literally many new worlds, and creative approaches to sound in this genre.

Inspired by the working methods of other sound designers, I drew inspiration from their experiences, approaches and tools when designing the sound for the film *Planet Hora*. I focused primarily on the working methods and attitudes of two individuals, Delia Derbyshire and Walter Murch. To a large extent, both Derbyshire and Murch refer to the composer Pierre Schaeffer as a determining influence. In their own spheres, Derbyshire and Murch have significantly augmented the approach to sound and particularly sound design. Inspired by their practices, this became my intention and basis for how to reflect and create the sound design, location sound, and music for *Planet Hora*.

"Sound is half the picture"

A famous quote by George Lucas, who has used sound masterfully to convey emotion and story in his films.

Sound is fundamental to the cinematic experience. Researching on sound design approaches and techniques led me to playful and experimental sound design practices. This discipline requires an understanding of materiality, sound, and its narrative potential, as well as an approach driven by curiosity and the desire to craft - to design. I find it helpful to ask myself, "What does this imaginative world sound like?"

To create sound for Science Fiction demands imagination and a healthy dose of speculation, directed and applied in a way that will help to create sounds for never before heard objects, machines, creatures and worlds. This sonic playground can be a powerful activator of ideas. Some ideas that are useful to begin with would be to explore dimensions of space, quality, density and visibility.

Trajectory

I would like to highlight some distinct examples that exist in the broad legacy of sound design within the science fiction film genre. I am interested in how these developments have shaped and influenced its trajectory. I will give prominence to a few specific practices that could serve as grounds for reflection on the methodologies of sound design.

In particular, I would like to refer to certain innovative methods, tools and creative approaches initiated and pioneered by Walter Murch and Delia Derbyshire.

What I find most appealing about sound design is that it is constantly evolving and changing, offering many different paths and possible solutions. Hopefully, this research and the ensuing film examples will offer some illuminating insights on process thinking and creative strategies.

A few historical examples of sound design

A short trip into the past shows that the use of sound effects in theatre can be traced way back, even though it might not have been properly termed as sound design. In theatrical genres such as Commedia dell'arte or Elizabethan theatre, sound effects were produced off stage using devices such as bells, whistles, and horns.

Italian composer Luigi Russolos' mechanical sound-making devices, called 'intonarumori' ('noise-intoners'), created all kinds of sounds and noises. It was used for futurist theatrical and music performances starting around 1913. These devices were meant to simulate natural and man-made sounds, such as trains and bombs, as well as the screeching, hissing and roaring of the industrial age.

Russolo's treatise, *The Art of Noises*, is one of the earliest written documents on the use of abstract noise in theatre. After his death, his intonarumori were still used in theatre performances to create realistic sound effects.

Through unconventional usage or handling by trial and error of unusual tools, one can come up with sounds that are surprising and intriguing, because of the different accidents or artefacts that arise. This is a dynamic process which involves an

ongoing evaluation and dialogue between one's perception and unexpected outcomes.

2.2 Narratives in Science Fiction, stories told through sound

Technology and story-telling

When creating sound design, especially for the science fiction film genre, we are proposing the sounds of a possible future, which often consists of a known and an invented part. The known part is usually based on science, or could be an invented technology that hinges on existing technology. For example, cloning is currently possible in modern science. In science fiction, cloning is applied within the narrative frame but taken to further extremes. Similar with sound design, one builds new sounds based on what already exists. By processing, modifying and layering different sounds, one manages to draw the connection to a possible future and hitherto unfamiliar sonic qualities. In the end, it is not the technology or science that is in the spotlight, but the question of how it affects us humans. After all, science fiction films are made for humans and not for aliens.

In the project *Planet Hora* I am currently working on, there are several examples of "beaming". Two characters are periodically beamed to several destinations. What is striking about this is that it raises the question of human existence, physicality and transcendence, more than the technology of beaming itself.

Mixing experiences such as the real and the invented has parallels to the world of dreams. Walter Murch provides an interesting reflection on the commonalities between the film world and the dream state.

"The mind seems predisposed to do this. My hunch is that it comes from the language of dreams. If you're lucky enough to wake up in the morning and really remember a dream in some detail, and go over it, you'll find it has a cinematic quality. For instance, 'I was in a supermarket, and then suddenly I was in an orange grove picking oranges.' Those sudden transitions are cuts. If we assume people's dreams

were cinematic before the invention of the motion picture, then what cinema has done is to take the language of dreams and bring it under our control." [1]

One of the earliest ways to tell a story was oral and therefore related through sound. A story told by spoken word can become significantly enhanced by introducing sound. One example would be the radio play or the aforementioned theatre forms. On the other hand, dreams are one of the oldest, imaginative visual languages. Dreams have their own conventions and allow us to experience and do things that we often are unable to do in life. Their images and stories often exist in a zone between familiarity and alienation, and possess their own logic. Often, one is left with story fragments or simply a feeling. Sound is rarely present in dreams. By combining sound and images, the cinematic experience offers a powerful and immersive tool of storytelling. One could say it is an extension of our familiar and inherent ways of telling and experiencing stories.

In film, we only make use of two of our five senses. Sound co-creates the dimensions of spaces and the feel of the images and scenes to a large degree.

Science fiction films present us with a palette of new inventions and realities. New objects need new sounds. Similar to the language of dreams, sound design moves effortlessly between the poles of familiar and unfamiliar. Often it is through the sound that one gets a sense for the materiality, characteristic and texture of a being or creature. Qualities of a slimy or bony creature body and its spatial habitat come alive through sound design. While the image on the screen appears two-dimensional, the immersive quality of sound design envelopes the filmgoer in the actual space.

In a cinema, we are often confronted with a hidden hyperrealism through sound. Hidden because certain everyday actions and sounds, such as footsteps or drinking, to name a few, suggest an exaggerated soundscape in order to be noticed or appear credible. This is done by combining location sound, sound design and foley. Despite not being perceived consciously by the audience, they emphasise a materiality in space and direct the listeners towards a specific perspective or action. In other

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[1] Excerpt of an Interview with Walter Murch in the guardian. https://www.theguardian.com/lifeandstyle/2008/jan/26/makingvideo.editing ((all URLs accessed July 2021)

words, normality is created and asserted by recreating, designing and reinforcing real sounds.

In science fiction, sound serves as a tool to give new life to objects, robots, aliens, space crafts and perhaps even, whole new worlds. This means creating the unheard for the unseen. Nevertheless, like any creative process, designing sounds for a science fiction film naturally leads to the incorporation of habits and experiences inspired by the heritage of sound design in the genre.

Chiefly when it comes to inventing new sounds and forms of expression, an active creative process is greatly enriched by the evaluation of errors, coincidences and mistakes.

"Your perception of this strange world comes from the sound it makes. The more unusual and evocative those sounds are, the more you have a sense of being in a strange place. One of the subtexts of the movie that guided us was that we wanted a film from the future, rather than a film about the future."[2]

Looking back to the future

We trace the legacy and magic of past sound designers, in particular, Delia Derbyshire during her time at the BBC Radiophonic Workshop and Walter Murch, the 'Godfather' of sound design. Both had a major influence on the development and aesthetics of sound design in science fiction.

Radiophonic composer Roger Limb, perfectly encapsulates the sound design process for science fiction in his quote, "The trouble with the future is that you never fully know about it until you've passed it." [3]

When creating sounds for a potential future, we have the option to fall back on two qualities. On the one hand, we can immerse ourselves in our imagination. On the other hand, we can refer to other works created in this particular genre. Both attributes can be advantageous, especially when interacted. Our imagination is

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[2] Walter Murch on *THX1138* in *Sound Design and Science Fiction* p.68

[3] Roger Limb, Composer, known for his work at the BBC Radiophonic Workshop, source: https://whitefiles.org/rws/index.htm

shaped in large part by experiences that speak to us. Sometimes the connection is not obvious and one can create the illusion of something new. But there is a more critical challenge to sound design than the discourse of whether something is new or not. The decisive component is to consider if a sound and an object are coherent in conveying content and substance. What do I mean by coherent? As an example, I may examine certain properties such as the weight or density of an object, or the mood and emotion of a robot, and how these are transmitted through sound.

The creation of a distinct identity in sound design for a science fiction context involves the recombination of different elements and experiences. It is formulated from the exploration of one's imagination and perception, and an excavation of past experiences.

In William Whittington's[4] words, "In all its various forms, science fiction is a powerful activator of ideas."[5]

The science fiction genre encouraged immense experimentation with technology and creativity in sound and film. In the following chapters, I would like to take a closer look at earlier sound design practices. To effectively design sound for a story set in the future, one has to look back at the the vast history of sound work that has already been done in science fiction films.

2.3 Tape Music on the cutting edge

Delia Derbyshire and the BBC Radiophonic Workshop

The BBC Radiophonic Workshop, founded in 1958, was what could be called an experimental sound studio that extended the established radio drama with the use of sonic abstractions. The Workshop's job was to compose music and create sounds that simply didn't exist in the BBC sound library up until then. They composed numerous jingles, soundtracks and soundscapes for imagined futures and alien worlds until its closure in 1998. The sounds of the Workshop introduced generations to the possibilities of more experimental electronic sounds. Although founded in the

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[4] William Whittington is the author of the book: *Sound Design and Science Fiction*

[5] *Sound Design and Science Fiction* p.5

realm of radio, the Workshop's greatest contributions were in the area of theme music and incidental music for films. The Workshop has produced a number of significant composers and sound creators. Although the term sound design did not exist at the time, the work of the BBC Radiophonic Workshop can be considered a pioneering and a major influence for music and sound design in science fiction. There is no doubt that the compositions of Delia Derbyshire contained ideas and aesthetics well ahead of her time. She was admired by bands and influenced artists like Aphex Twin, the Chemical Brothers, Pink Floyd, Portishead and the Kronos Quartet, to name a few. One of Derbyshire's own revelatory experiences was that of a performance of Edgard Varèse's *Poème Électronique*, at the Brussels World's Fair in 1958, a "groundbreaking fusion of electronic music, architecture and visual art."[6]

Varèse was a very forward looking and innovative composer whose views were reflected in a letter he wrote to Leo Theremin, "I don't want to write any more for the old Manpower instruments and am handicapped by the lack of adequate electrical instruments for which I now conceive my music."[7]

Derbyshire who had experienced an epiphany at Varèse's performance, seemed to have found resources that could realise the expressive possibilities that eluded him.

As can be read in the following newspaper announcement in *The Times*, dated on the 24 May 1958, the BBC Radiophonic Workshop was born out of the desire and need to create "new kinds of sounds" and therefore attracted people with characteristics and a penchant for an experimental approach to sound.

"A Workshop for producing synthetic sounds, partly by electronic oscillators and partly by trickery with conventional sounds recorded on tape, has been set up by the B.B.C. at their Maida Vale studio. It is being used to provide an imaginative background to drama productions which cannot be obtained from ordinary music or from the stock-in-trade of sound effects."[8]

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[6] https://www.bbc.com/historyofthebbc/100-voices/pioneering-women/women-of-the-workshop/delia-derbyshire

[7] Glinsky Albert, *Theremin Ether Music and Espionage* .p.323

[8] This was the announcement in *The Times*, dated on the 24 May 1958

Derbyshire was working at the BBC Radiophonic Workshop from 1960 until 1973. She was part of a group of experimental composers and musical innovators who contributed to some of the most popular Sci-Fi sound works such as *Quatermass & The Pit*, *Blake's 7*, *The Hitchhiker's Guide to the Galaxy* and the iconic theme for *Doctor Who*.

Popular culture will mostly recognise Derbyshire for producing the original theme tune of *Doctor Who* in 1963. The *Doctor Who* theme was made before basic analog synthesisers were in use. It was created by using twelve oscillators and tape splice techniques. Every note was edited on quarter-inch mono tape. Tape machines could be used to create sound loops, provide reverse playback and speed and pitch changes. Reverberation and equalisation could modify the sound quality.

Derbyshire composed and edited with the tape-splicing techniques note-by-note. This required skill and was very time consuming. But the results are very impressive. Regarding not having multi tracking recording available at that time, Derbyshire explains: "We created three separate tapes, put them onto three machines and stood next to them and said 'Ready, steady, go!' and pushed all the 'start' buttons at once. It seemed to work." [9]

This method of manual tape synchronisation was a prime example of dealing with limitation and exploring possibilities. Perhaps such actions were simply a common pragmatic solution at the time. Whether specific to the Radiophonic Workshop or in keeping with the zeitgeist of that period, it seems that the desire for innovation and creation spread to all areas.

In the mid 60's, a less popular but very "modern" sounding theme called Ziwzih Ziwzih OO-OO-OO, was made for the sci-fi programme *Out of the Unknown*. Ziwzih Ziwzih OO-OO-OO featured in an episode called "The Prophet", adapted from an Isaac Asimov story. In 2012, the British newspaper, *The Guardian,* wrote about Ziwzih Ziwzih OO-OO-OO in an article about ~~old~~ early electronic music. The article referred to an uploaded YouTube interview with Derbyshire where she explains how she used the 'wobbulator' in combination with a recorded voice on tape played

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[9] https://www.openculture.com/2016/01/the-fascinating-story-of-how-delia-derbyshire-created-the-original-doctor-who-theme.html

backwards. Unfortunately, the clip is ~~not~~ no longer available.. According to *The Guardian*, Derbyshire explains, "the "OO-OO-OO" bit was done on the wobbulator and a section of the track is played backwards revealing the robot voices to be saying 'Praise to the master'."[10]

The short composition was made with the means of tape and simple electronic sound generators like the wobbulator. The latter was a sine wave oscillator that could be frequency modulated. Derbyshire's track conveys a certain rawness with a fine balance of rhythmic and sonic homogeneity. There is still something timeless about it today and it continues to possess a quality that sounds futuristic.

Derbyshire's work, "Blue Veils and Golden Sands" for the documentary series *The World About Us,* is worth a mention. For this soundtrack, she recorded a green metal lampshade which became a kind of trademark of Derbyshire's sound. She analysed the partials and frequencies and took the strongest partials to reconstruct them onto the twelve oscillators of the Workshop. The result was a synthetic recreation ~~of~~ evocative of the complex tones found in resonating bells or chimes without directly imitating them. More importantly, this gave her the flexibility and freedom to play around with the length of decay and the quality of the attack, thereby expanding the tonal palette even more. She had somehow devised her own approach toward additive synthesis.

Even though the BBC staff were not credited at the time, their work is considered as some of the most significant in early electronic music and music for drama productions. From today's perspective, the working tools may appear somewhat limiting. Nevertheless, a high degree of creativity was stimulated by the available medium. They worked tirelessly with basic equipment to create sounds that were not produced anywhere else. There was greater curiosity and joy of experimentation perhaps because of these limited resources available at the time. The creativity with which the means of sound design were developed and searched for more than 50 years ago, serves as inspiration and a practical template for me to develop my approach to sound design.

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[10] https://www.theguardian.com/music/2012/feb/02/delia-derbyshire-ziwzih-oo

Admittedly, from today's standpoint, Derbyshire and her colleagues at the BBC Radiophonic Workshop had a much smaller legacy of science fiction sounds available, but they were able to masterfully "produce sounds which convey to the listeners' imagination, the mood or the the emotional idea behind the author's theme of his radio and television drama."[11]

And despite the given limitations, there is something to her work that still sounds otherworldly and compelling today.

Sound for film has undergone a rapid development in recent decades. A blistering evolution of technical means and a rich palette of possibilities are available to us today for creative expression and workflow. It is often in this oversupply of tools that a need for reduction arises. A reduction that indicate the desire, at least on my part, to find a delicate balance between technology and creativity.

Radiophonic Composer David Cain, who worked at the Workshop from1967-73, was able to reveal some of the secrets that seem to have led into what some perceive as a golden age at the Workshop. Cain gives a beautiful reflection on the subject.

"One thing about any definition of golden age, for me, comes also within music, comes within art, comes within literature. It is the point where the desires of the creator, are greater, than the technology which is available. There comes a moment, where the technology gets closer and closer to the sort of imagination and creativity of the writer. And in the end, if you're not careful, it overtakes. And suddenly, serendipity, which before, was from your own sweat and blood, but you created something you thought, goodness me, that's great… Serendipity comes by saying, if I press one of these 397 buttons on this synthesiser, maybe I'll get something out of it. Now at that moment, the machinery is driving the creativity. And the creativity is not driving the machinery. And maybe that's where the golden age stops. Maybe."[12]

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[11] Brooker F.C. *BBC Engineering Division Monograph*, November 1963, p. 5

[12] Minute 49.40: *The Alchemists Of Sound* https://www.dailymotion.com/video/x5579ti

2.4 Substantial Listening

Substantial listening as a practice

During my master studies, I deepened my interest in the tonal properties of different materials. I am interested in materiality because aside from the broad spectrum of sonic qualities possible, I find it also a fascinating exercise to excavate sounds from different materials and objects. I am drawn to the complex and rich sonic textures of everyday objects, the 'objet sonore'.

Substantial listening is a practice, a pointed attention to a situation or object and the sounds that emanate from it, or surround it. It functions on the premise that the object and its environment merits further attention. The term 'substantial listening' arose from the desire to listen to dense material, particularly stones. I was preoccupied with the question, "How does it sound inside a stone?"

I wanted to grasp and experience the substantial quality of the sound of stones through the act of listening. The word substance refers to something that actually exists. However, substantial also stands for a lasting effect, one that be a result of the quality that emanates from a source material. When trying to listen substantially, we are confronted with a paradoxical nature of being. One could describe listening, as a passive activity, or an active pause. Or as Francesco Lopez describes in his text *Sonic Creatures*, "Sounds are not simply properties or representations of some sources, instead things in themselves all sounds are disembodied by their very nature."[13]

One sound artist who specialises in vibrational sounds that are rather inaccessible to the human ear is Toshiya Tsunoda. He often focuses on capturing the interior of objects or a particular single phenomenon, such as "cicadas heard through a crack in a window frame, a street surface recorded with contact microphones, or the sound of air in a glass bottle... Spaces that may have been dead, neutral, boring or forgotten are activated by Tsunoda's microphones and transformed into moving, dynamic environments."[14]

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[13] http://www.franciscolopez.net/essays.html *Sonic Creatures* 2019

[14] https://www.thewire.co.uk/in-writing/essays/quiet-storms_toshiya-tsunoda

Materiality

Pierre Schaeffer, who pioneered the approach of musique concrète, defines the 'objet sonore' as a sounding object that is to be accepted for the sonic qualities it carries. Schaeffer is regarded as one of the most influential experimental composers. He is referenced by many sound artists. He was a major inspiration for Delia Derbyshire and Walter Murch, but also appealed greatly to field recordists such as Francisco Lopez or Chris Watson. Schaeffer recorded "real" sounds on tape and treated them by using techniques such as reverse, splice, paste, and speed. With Pierre Henry, he co-created the first studio designed specifically for electroacoustic music.

Schaeffer is often referred to as the Godfather of sampling. In order to compose, one no longer needed to have a theoretical education or instrumental skills. Technology facilitated the process of creative expression. Practically anybody could design sound.

In my own research, I focused in particular on the question: "How does sound move through materials and which sonic properties are emphasised through different techniques?"

During the practical process, I tried out various recording techniques that have led to unique sonic results and recordings, of which I would use in the soundtrack for *Planet Hora*. My recording tools were a few selected microphones, piezo pickups and a geofon[15], the latter which I also used in the first location recording for a scene we referred to as the Alien Planet. I used the geofon to record the droning and vibrating sounds of pipes and boilers in the building on location. The deep droning and roaring conjures up the sound of spaceships. The recording of the infrastructure was not planned. I stumbled upon the pipes during the location recce[16], a day before the actual shoot.

By investigating sound transmission in different materials, I discover their compositional usability. By applying similar techniques such as pitch, filter, splice, reverse, just to name a few, my goal is to experiment with the narrative qualities of

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[15] Geofon Lom: https://store.lom.audio/products/geofon?variant=29549909442647

[16] Production term referring to a pre-filming visit to a location

modified and altered sounds, inspired to a large degree by the approaches previously taken by Murch, Derbyshire and Schaeffer.

To accept the objet sonore thus, Schaeffer suggests that we listen acousmatically. His notion is that "we should listen blindly, paying attention only to the characteristics of the sound, ignoring who might have made it, with what materials, for what purpose…"[17]

Schaeffer offers a model for listening to sounds with no consideration of their source. In a way, one can draw parallels to sound design in science fiction, where lots of sounds have nothing to do with their original source. It is true for film sound too, that the listener often does not know the source of the sound effect, and how it was created. But there is a difference between Schaeffer's model and cinematic sound design. The role of sound design in film is, the (re)consideration of its source. In a film, sound offers the filmgoer a clear connection to the object, protagonist, place or action. Sounds are designed and placed in such a way as to connect them to an object on the screen and therefore become "believable". In both models, the source material can be similar. The difference for the receiver lies in how meaning is proposed and presented. This greatly affects the perception of sound. In the case of Schaeffer's model, there is nothing else, but the sound itself. The sound is sovereign and does not serve a film narrative.

"When sounds are separated from their visual reference and inserted into a new context, we are often left wondering, What was that sound? These sonic illusions are what sound designers depend on in the fabrication of cinema sound, considerations of storytelling, genre, aesthetic impact, and personal sensibilities."[18]

Science fiction can be considered an extreme form of story telling. The sound design for this genre involves a high degree of imagination and as a direct result, a large amount of fabrication.

As a sound designer, we recycle, reimagine, reuse, reconstruct and recombine sounds. Similar to the debut of *Frankenstein* by Mary Shelley, considered the first

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[17] Seth Kim-Cohen, *In the Blink of an Ear Toward a Non-Cochlear Sonic Art* p.9

[18] *Sound Design and Science Fiction* p.4

science fiction novel, we breathe new life into onscreen characters and objects by deconstructing, layering, modifying and reassembling sounds. These are salient factors in how I go about collecting and manipulating sounds.

Field Recording and sound design

Field recording is an exercise in patience. Hours are spent listening attentively for anything that might be good material for use later or for further processing. In field recording, the possibilities for uncovering accidental sounds are much greater than in functional recording situations. Even when not all sounds are "useful", this can still contribute to a rich archive for mining sound later. Post field recording, one still has to sort through all recorded material. Here, organising the sounds requires a certain amount of substantial listening, combined with evaluative and and speculative analysis. You could say that the task of field recording is a profound journey of discovery in listening.

With sound design, one could take field recording as a discipline a step further. One technique is to create hyperreality through what Murch calls "a shimmering curtain of sound."[19] For instance, instead of recording a field of crickets, Murch recorded individual crickets up close. He then multiplied the insect sounds electronically to get an exaggerated result, something he described as "a hallucinatory clarity".[20]

Using the example of *Sensing Bodies* (see appendix), I would like to present some insights into the production process of this film. The documentary fiction takes place in public spaces in Tokyo. All the scenes were made of spontaneously filmed sequences, including the people who appear in the film. The process developed from repeatedly visiting specific locations over a period of time. From one place to the next, we kept our eyes and ears open, and our recorders running, ready to capture whatever transpired. We later excavated the material, crafted and recomposed sound and image based on what we had collected.

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[19] Michael Ondaatje, *The Conversations Walter Murch and the Art of Editing Film* p.262

[20] *The Conversations* p.262

This somewhat guerrilla approach meant that all actions were recorded and filmed with discrete recorders that witnessed and gathered everyday life in Tokyo city. Field recordings can capture very diverse environments without being intrusive, and this allowed us to gather a huge variety of "authentic" sounds.

In *Sensing Bodies*, the diegetic field recordings provided raw material for manipulating into different layers, and this in turn helped me reshape this world through sound. The film shows a real world that has been subtly altered. The images and sounds were reconstituted. Streets disappeared, parks were endlessly expanded, as did the whole soundscape, through plenty of understated detailing.

Location Sound

Speaking from past experience in the recording of location sound, it is important to find an acceptable balance between useful signal and interference. This balance could be between dialogue, in most cases, and the acoustics of a space or environment, unwanted background noise such as airplanes or a refrigerator and the elements of say, wind and water.

It is vital to be mindful of the dynamic on the location set. How to approach the protagonists before and during the film shooting, is a quality that merits some consideration. The position of the recordist in the room is another concern and can have a significant impact on the scene. A boom can cast a shadow and moving gestures can destroy the sound. By walking in unison with the camera and the protagonist, one can avoid hearing unnecessary steps in a scene.

A recording can often only be judged in retrospect. But over time, experience sets in. Some crucial components to consider for a successful sound on location can include the following: material setting, experience, values, ergonomics, responsiveness, a tactical sense and a love for sounds as well as narratives. These attributes have parallels to musical improvisation. Location sound recording also requires a certain mobility and flexibility.

It is a known fact that one can clean up an audio signal in post-production, but most of the time, "restoring" a recording does not make it better. It simply makes it sound less bad.

For the film *Isola*, we were a two person team shooting on a remote mediterranean prison island. It was a typical documentary film which required a light and portable setup. Most of the film sound was recorded with an MS microphone configuration and lavalier microphones. We wanted the MS for a stable mid signal in a classic boom setup, and at the same time, afford us the flexibility to create a wider or narrower stereo field. Since the location was a prison on an island inaccessible to the public, the overall soundscape had very different qualities than elsewhere.

Aside from filming, I had a few remarkable opportunities for offsite field recording. I captured the riveting sound of outdoor metal antennas that behaved like an aeolian harp, howling and whistling in the wind. These recordings eventually found their way to the composer who used them in the soundtrack of the film.

The opportunity to work on a film location and still find time to respond to unplanned sonic events, is a rewarding experience.

2.5 Approaches and philosophies of sound design in Sci-Fi

Walter McBoing-Boing

The desire for expression and the playful handling of boundaries can trigger latent potential that could eventually lead to a career. Whether one lives a forgotten life of loneliness or finds the expression of one's originality, individuality and passion is largely a matter of serendipity. Sometimes a teased child manages to transform his weaknesses into a unique expression, and in this particular example, into sound design. This happy coincidence is one of the parallels that Walter Murch and Gerald McBoing Boing share in their personal stories. When Murch could not find the right word as a kid, he expressed himself through sounds, as he explains in *The*

Conversations.[21] Friends would call him "Walter McBoing-Boing" and get him to make funny sounds.

The child Walter and Gerald the cartoon character, had similar characteristics by finding expression through sound. Although not quite as dramatic as the story of Gerald McBoing Boing, Murch ultimately finds his passion and success in the expression of his idiosyncratic qualities.

To give the reader more insight into the story of Gerald McBoing Boing, I would like to recount it in my words. The film won the Oscar for Best Animated Short in 1950.

Gerald McCloy was an unusual kid. At the age when other children have learnt to speak, Geralds first words where "boing boing". Instead of learning proper speech when growing up, he continued talking in "sound effects". Gerald picked up more sounds and became this walking sound library. His parents were desperate and the doctor said that he doesn't speak words, he just goes "boing boing". Gerald continued to produce animal sounds, car honks and train horns. School and friends were a failure since he confused and scared the world around him. He just didn't fit in anywhere. After McBoing Boing left home and everything he loved, a manager of a radio station shows up. He had been looking for McBoing Boing everywhere for his outlandish but exquisite talent. Gerald eventually got hired to do what he could do best, to produce special effects and sounds for a live radio show.

Walter Murch's career has ranged from being a film editor, sound designer, re-recording mixer, scriptwriter to movie director even. Murch has played a major role in shaping the cinematic landscape over the last 50 years and has become synonymous with sound design.

What is interesting to me is the constant tension between musicality and functionality within the genre of science fiction. Murch moved freely between sound production to creating montages for films. This flexibility allowed him to explore the constant tension between musicality and functionality in films and to move effortlessly between craft and art.

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[21] *The Conversations*, chapter on 'Humble Sounds'

Upon a closer look, Walter Murch's early sound work, the science fiction film *THX1138,* reveals interesting insights into his work practice. Written by George Lucas and Walter Murch, this was Lucas' cinematic debut. And with this, I hope to apply and evaluate some of the sound ideas later in my own practice.

THX1138

Before going into more detail about some of Murch's approaches in *THX1138*, I would like to give a very brief summary of the plot.

The film plays in an underground city where a totalitarian government controls emotions and free will with mind-altering drugs. Emotions, love, sexual intercourse and reproduction are outlawed and taboo. The rules are simple: work hard, increase production, prevent accidents, and be happy. 'THX 1138', the ID which a character goes by, works at a factory that produces android police officers. One day, he has his meds swapped by his female roommate 'LUH', which subsequently leads him to develop an attraction to her. LUH and THX become involved romantically and have sex. THX gets arrested and sentenced to prison. He escapes the prison and chased by the police robots, finds his way to the surface of the earth through a ventilation shaft where he gets to see his first sunset.

Similar to the composers for science fiction at the BBC Radiophonic Workshop, Murch had to create the soundtrack for *THX 1138* from scratch. Not having access to a suitable studio sound library made the role of a sound creator all-important.

"Instead of pulling a sound from a library, Murch searched out the proper noises or engineered them himself, thus customising the sounds and noises of a future, a highly technological era."[22]

Lucas and Murch decided to make use of naturalistic sounds, wherever possible. One example of an electronically created sound-source are the computer sounds in *THX1138*. Inspired by an introduction class to the Moog synthesiser, Murch "experimented with wave forms, until he came up with something that possibly

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[22] *Sound Design and Science Fiction* p.72

sounded like a computer, but not in a conventional way."[23] Considering this from today's perspective, it seems more difficult to imagine the reference sound of a computer and what this could have been in 1971, rather than creating one for a possible future. Murch explains that using naturalistic sounds as a source, corresponded more with Lucas's idea of the 'used future'. The term 'used future' is the idea that the future could present itself in a rusty and gritty aesthetic. The 'used future' shown in *Star Wars* influenced the science fiction film aesthetic dramatically. In the context of film making, George Lucas seems to have contributed to the spreading of this aesthetic.

THX1138 was made in 1971, *Star Wars* in 1977. Maybe Murch and Lucas where already leaning towards a worn and dilapidated production design without having a term for it in 1971. Murch found an interesting way to access the 'used future' sound aesthetic. By employing a raw and experimental approach, he finds the sweet spot between familiarity and alienation, to "offer a simulacrum of humanity on an auditory level".[24] When asked how he gave the human voices in *THX1138* their computerised quality, Murch explained, "They were done by hand with a ham radio."[25]

"We had one Nagra tape recorder with the clean voices on it. We ham-radioed them into the universe, received them back again as if they were coming from another country, fiddling with the tuning so that we would get that wonderful 'sideband' quality to the voices. Then we rerecorded them on another Nagra and cut them into the final sound track."[26]

Montage vs editing

Before coining the term sound design, Murch was already reflecting on sound work in films. In the early days of Hollywood, it was common that roles and tasks in the sound department were divided among different people. A rough and simplified

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[23] *Sound-On-Film: Interviews with Creators of Film Sound* p.85

[24] *Sound Design and Science Fiction* p.74

[25] Ham radio, also known as amateur radio, is the use of radio frequency spectrum for purposes of non-commercial exchange of messages

[26] *Sound-On-Film Interviews with Creators of Film Sound* p.85

delineation could simply refer to technical and creative work. Murch felt more drawn to the french word 'sound montage'. This was the production credit that Walter Murch took in 1971 on *THX1138*. Murch points out the crucial subtlety of language by explaining that there is a major difference between 'sound editing' and 'sound montage'. Editing is often associated with text editing. This involves omitting or cutting. The term 'montage' involves a much more constructive process, requiring creation and recombination. Editing, as well as montage, can communicate and illustrate an association of ideas.

Another similar idea associated with creativity is that of sound collage. Again, the French language literally refers to the gluing or sticking together sound objects. Pierre Schaeffer's first piece of musique concrète used the techniques of sound collage. He recorded the sounds of trains to create *Étude aux chemins de fer* in 1948. Schaeffer was a pioneer in the organisation of sounds on the basis of a purely musical aesthetic and is closely associated with the idea of sound montage. Interestingly enough, the first documented sound collage created by electronic means harks back to the experimental film-maker Walter Ruttmann. In 1928, Ruttmann created the piece *Wochenende* which was a collage of sounds, music and words. In the early 70's, Murch experimented with sound perspective, tape-speed modulations, audio filters and re-recording techniques, arranging an orchestra of sound objects into a symphony of musique concrète.

It is telling what the roles of Ruttmann, Schaeffer and Murch, all creating and operating at an interval of approximately twenty years, have shown. The realms of sound montage and filmmaking are fluid. The filmmaker makes use of the possibilities of sound montage just as much as the composer or sound designer. Filmmaker, sound designer and composer all seem to be interested in exploring the compositional and dramaturgical potential of organised sound-objects and noise.

According to Murch, "It is possible to just listen to the soundtrack of *THX* exclusive of the dialogue. The sound effects in the background have their own musical organisation."[27] This is by definition, a sound work that functions both as a counterpoint to the image narrative as well as a composition in its own right.

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[27] *Sound Design and Science Fiction* p.20

Sound collage and sound montage describe the artistic composite that effectively directs the pathways in sound design.

Worldizing

Simply explained, 'Worldizing' usually refers to playing back a sound through speakers in a specific acoustic environment, and subsequently re-recording it. What happens is that the sound takes on the unique acoustic properties of this space. Walter Murch may not have invented this technique but he coined the term and is renowned for experimenting with innovative ways of doing this. By worldizing something, one can also reinforce the realism of a scene, while also functioning as a narrative commentary.

Murch was perhaps most venerated for constructing his sound effects from scratch, engineering and building complex layers through recording, editing and re-recording. This is particularly evident in *THX1138*. He describes the worldizing method as allowing him to have greater flexibility and control of the sonic perspective, where he could selectively blend the source recording and the worldized rerecording. This offers the added advantage for manipulating depth and focus.[28]

Murch sometimes repeated the worldizing process in order to randomise the sound even more. He describes the outcome graphically, alluding to "a rainy mist in the background. Almost not there at all, and yet filling the space around the characters. It's the sonic equivalent of photographic depth of field."[29]

Alvin's Lucier's seminal work *I'm sitting in a room* could be read as an artwork which represents a type of worldizing performed live. He employs similar principles such as the rerecording technique with room acoustics. In Lucier's case, it starts with a real sentence spoken in the performance space proper. The phrase spoken by Lucier is picked up by the microphone, then plays out through a speaker and gets picked up by the same microphone again. This creates a continuous replay loop. Each output

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[28] *The Conversations* p.140

[29] *The Conversations* p.140

interacts with the room and with every cycle, the spoken phrase progressively degrades and blends more and more with the room acoustics.

Worldizing has become a crucial component in sound design. It may not be practiced as much these days by way of real spaces and real time rerecording. There are of late, more convenient tools such as convolution reverbs that fulfil the same function. The allure of rerecording in real spaces still has its magic. Analogous to concrete sounds, real spaces have distinctive characteristics, complex harmonics and early reflections unique to the space proper and its building material. Even though convolution algorithms offer many digital modelling tools of spaces and material options, I would apply the worldizing process, if given the opportunity.

3. Project Planet Hora

3.1 Theatre Hora

About Theatre Hora and the Band

Theater Hora is an independent theatre and performance group founded in 1993 in Zürich. The company consists exclusively of professional actors who have an IV-verified cognitive impairment. The company can look back on a long and accomplished history with a distinguished body of work that has won accolades and several international awards. In addition, individual performers have also been honoured for their performances. A few highlights include the invitation to the Berlin Theatertreffen in 2012 and the «Schweizer Grand Prix Theater / Hans-Reinhart-Ring», a prestigious theatre prize in Switzerland.

Theater Hora has collaborated with renowned directors and choreographers such as Jerome Bel and Milo Rau. Rau directed the piece *Die 120 Tage von Sodom* at the Schauspielhaus Zürich. In the press kit of *Sodom,* Rau points at some of the captivating qualities that one can experience when collaborating with the Horas.[30] He recounts vividly "this mixture of anarchy and professionalism, of coincidence and intention… somewhere between amusement, embarrassment and fun, between the unintentional honesty of the moment and the obvious artificiality of the intention."[31]

In 2004, the *Hora Band* was founded. Their website classifies their music as 'electro-folk'. Songs about mermaids, moon dust and lyrics like "I'm holding on a moonbeam" or "Heaven's shoals", however, suggest that the band explores further dimensions in sound and content than the genre would suggest.

From theatre to film

In early 2019, I was asked by Theater Hora to create music for their new theatre play *Planet Hora* which was scheduled for March/ April 2021 with the premiere in April 2021. During the course of the 2020 pandemic, the prospect of working in a team of

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[30] I will refer to the performers of *Theatre Hora* as Horas from this point on.

[31] https://hora.ch/wp-content/uploads/2019/12/Pressemappe_Sodom.pdf

30 actors and crew on a theatre stage became unthinkable. In mid January 2021, the two directors Yanna Rüger and Stephan Stock, decided to realise *Planet Hora* as a film. It was to be the first feature film of Theater Hora and its new team. In a very short time, schedules, logistics, functions, as well as content were created and readapted. Hence, my role expanded from composing music to being responsible of all sound aspects of the film. This included Location Sound, Sound Design, Post Production and Music.

The idea for the film was born almost overnight and the compass for the production got realigned. I decided to leap onto this rolling train. At a time when global travel had taken a back seat, with the Horas, we embarked on a journey far and wide.

Planet Hora - The Film
A space odyssey into the far reaches of the universe of work and play

Since its inception, the Hora Theatre has stood for a different view of the world, for a special sense of time and and a unique approach to the everyday. What happens when the Horas and their new creative team take a voyage into the future, off into the universe, and distant galaxies, star vortices and curious planets? Territories inhabited by alien bio-forms, bureaucrats, philosophers, workers, and creatures who have better things to do than 'a job'? Science fiction to the power of two, a potentiated truth by invention?

The group resolutely finds new insights into work and pastimes, but are also plowing for insights into life on distant planets with aliens, music, dance, bands, robots and many unknowns. First conceived as a theatre play, *Planet Hora* is now being realised as a science fiction film.

Planet Hora addresses the question, "What exactly is work, and why do we work?" From a utopian mind-space; an entire solar system with the most diverse planets is created. Planets, on which everything is possible, where everyone is allowed to live and work as they wish. Each planet is home to its very own life forms. But how are

these different social concepts supposed to coexist? What is the best system? Who owns my time? How does one live a fulfilled life in an overburdened society?

Planet Hora takes a close look at our existing social forms, in particular the topic of work, and proposes a space for reflection on our society.

A theatre team that makes a film may face certain drawbacks in some areas, but contrary to this, also has the advantage of being free from film conventions and codes, which creates greater access to intriguing interconnections between the theatre world and film. What implications might this situation have for sound?

Manifesting

The Hora manifesto (see appendix) was written by the Horas as a guide for the process of making this film. This has helped me a great deal to keep in touch with their values and visions throughout my work process. The manifesto has its place hanging in my studio and serves as an alternative space for reflection. Similar to the *Oblique Strategies* method by Brian Eno and Peter Schmidt[32], the manifesto can be a trigger for lateral thinking or aphorisms which are stimulating, thought-provoking and therefore enhances creativity. The Horas' input and their writings are great catalysts for thinking in unorthodox ways.

On location

On the set, I adhered to the standard practice in film sound which is to record dialogue with a boom and lavalier microphones. This setup allowed me the flexibility to blend the two signals during post-production according to different needs. Normally the boom provides a more "natural" sound, but also captures more interfering sounds. Due to its proximity to the body, the lavalier delivers a sound with more "body" and less room tone. Since the lavalier microphone is mostly hidden underneath a costume it often sounds less brilliant. The best microphone that was available to me for the whole 8 weeks was a Sennheiser MKH 40. A microphone with a cardioid pattern like the MKH 40 is not necessarily a classic boom mic choice. From

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[32] *Oblique Strategies* created in 1974, is a card based method created by Brian Eno and Peter Schmidt to promote creativity

past experience in recording location sound for *Isola* (see appendix)*,* I had acquired some hands-on knowledge regarding the qualities and limitations of different microphone patterns. Shooting the scenes for *Planet Hora* frequently had an improvisational aspect to it. The cardioid pattern can be more forgiving when having to quickly pan the microphone to follow improvised dialogue. The lavalier microphones were connected through wireless transmitters to the recorder. The costume department was very helpful in informing me about the fabric materials used and in finding solutions to prevent rustling whenever possible. It can sometimes be a little awkward to handle the process of attaching lavalier mics to a talent. But my hesitation about this disappeared as soon as I interacted with the Horas. It was a fun process to collaborate with them on how best to attach the microphones to their bodies or costumes.

Scene from the Fabrik Planet © Heta Multanen

Finalised details about the location and the scenes were given only shortly before the film shoot. For sound, it is critical to know where a scene is going to be shot. Based on this knowledge, I could decide if I wanted to add other microphones. In addition to the standard setup mentioned above, I also wanted to experiment with other perspectives. For most indoor shoots, I used a pair of DPA 4061's. Sometimes they were used as two overhead omnidirectional mics and provided a backup or room

ambience. Mostly, they were stuck to a surface such as a table or object in the space. In this case, they became pressure zone microphones.

For the outdoor shoots, I often used a large A B setup with two Sennheiser MKH 20. These two omni pattern microphones in a windshield record a 360 degree ambience. They were mounted on a stand and recorded into a separate Zoom recorder, while I could still move around with the Sound Devices Mixpre recorder.

Much of the film was recorded in this boom - lavalier configuration plus an additional static stereo pair of microphones.

One exception was the *Bandplanet.* In this scene, the Hora Band are rehearsing and playing. For the band musicians, I chose a combination of condenser and dynamic microphones. Nine of the ten channels on the Mixpre were utilised and again, I had the wide AB setup going into the Zoom recorder.

Thanks to the dynamic microphones and the rather loud volume of the music, the roads and other external noises were not audible. Unlike in other scenes, here, the band are in their original element. They played their songs, had conversations, tuned their instruments and sometimes stopped in the middle of a song. I kept the recorder running most of the time because the interaction between songs was as interesting as the songs themselves.

The microphone setup for the band was as follows:

Drums	(2x Sennheiser MKH 40 + AKG BD Mic)
Electric guitars	(Sennheiser MD 421)
Dobro/banjo guitar	(VT 500 affixed to the Instrument)
Wurlitzer organ	(Shure SM57)
Vocals	(Neumann KM105, Shure SM58)
A/B stereo	(2x Sennheiser MKH 20)

Location sound recording in a scene where all the actors were recorded with lavalier microphones and a stereo-mic setup picked up up the overall sound including the sousaphone © Heta Multanen

Although the band room was quite small, I had everything set up and wired so that I could sit in a corner with my recorder without being in the camera frame. This was the only scene where my mobility with the recorder was limited, due to cabling of the microphones across the room and the limited space to traverse.

Scene from the Alien Planet © Heta Multanen

A brief recount of location sound scenarios

The Alien Planet was the first location to be shot and was a very difficult space for recording. It was a large heating room which had a very high and constant noise floor, consisting of running burners, air blowers, pipes transporting liquid, and a cluster of whistling noises. This was anything but ideal for location sound. On the other hand, it felt as though I were in a spaceship or some kind of control room, so I decided it may be best to approach the location sound like a field recording. I knew I could use this as a step off to re-imagine the sonic qualities of this scene.

The Office Planet consisted of four gray offices built by the set designer. The set was placed in the Fabriktheater of the Rote Fabrik building. The large acoustics of the theatre space did not match the small office cubicles in which the workers sat. To get more proximity and dryness, in addition to the boom and lavalier microphones, I attached two DPA 4061 boundary microphones to the edges of the table. These mics captured the actions that took place on the table, such as writing, making phone calls, typing on the keyboard, in a more haptic way. They offered another close mic option to the lavaliers and emphasised the gestures as well as a sense of materiality. The scene was partly lit from above and I could not use the boom without casting a shadow from every position that I stood. As a result, I mostly had to assume a crouching position and point at the actors from under the table.

Whenever possible, I always recorded one minute of 'Nurton' or ambience at the end of the shoot. The room tone is of utmost importance in post-production, if we needed to create a consistent ambience for a scene.

I saw my task primarily as recording and delivering the dialogue in a solid and usable way. At the same time, I had to be open and flexible enough to redefine my ideas about process and content.

Often, it is only in retrospect that I can tell if a recording has been successful or not. On location, the main objective is to find a good ratio of interference and useful signal. I closely monitored my useful signal, mainly dialogue but also paid attention to interfering signals. Occasionally, I also recorded noises on location as a possible source of material for sound design. On many of the shoot days at Rote Fabrik, there was a huge construction site operating very close by. I traced a regular low frequency pounding sound that I heard, to a sheet pile machine. I decided to go to the construction site and record this disturbance. Heta the cinematographer, joined in to film the machine. These kinds of unwanted sounds can sometimes be minimised in post production but it felt good to give ourselves the option to introduce the 'beast' into the film and perhaps play with it. It was once again, an opportune field recording moment.

3.2 *Planet Hora* - A Sonic Aesthetic

The film project *Planet Hora*, serves as a lens to understand the role of sound design and musicality, in relation to open, exploratory, improvisational approaches to sound in science fiction. Using *Planet Hora* as an example, I would like to take a closer look at various roles within the sound department and at interactive dynamics such as chaos and control and creativity and structure.

Using the example of the Robot Planet, we examine the development and production of the scene and propose possible ways to conceptualise the sound for it. The background given earlier illustrates specific practices and methods which I hope to implement on this project.

The beginning

Planet Hora is a science fiction film of many sonic possibilities and directions. Due to its genre, the question of authenticity, as with a documentary or a film with a historical setting, does not arise at first. Sound design for science fiction can be anything that can be shaped into an extension, variation or augmentation of what is familiar. *Planet Hora* offers me the unique possibility to design all sound layers as a "one-person-mix". This allows me to design the different sounds in a complementary and coherent way. During the early phases of planning, the small production team of *Planet Hora* engaged in several stimulating exchanges. This was a platform for bouncing off ideas which led to fast, direct communication. To prepare, we watched and referenced a few classic science fiction films. From there, we developed a more concrete idea for a visual and sonic aesthetic. We had relatively limited means for the production and this forced us to be creative and resourceful. The constraints of time, budget and location had a great impact on the sound aesthetic.

To achieve the required aesthetic, I would combine three main approaches. Recorded location sounds and studio dialogue recordings would form part of the sonic vocabulary.

Sound design that would parallel the visual language of a newly created space is another approach. An example of this is perhaps a soundscape that has to mimic a huge wide space, one that is much larger than the actual filmed location.

The third approach is to be open and responsive to surprises, artefacts, and incidental sounds that could offer a richer narrative and a more varied material resource.

During picture editing, the production team and I had many discussions regarding the aesthetic of the film. What was clear to us, there was not a single aesthetic. Rather, the film is made up of many diverse sections which on the one hand, borrow heavily on cliches but alternately, break or deviate from them again. We agreed at this point, not to be afraid of interweaving incongruous layers of sound. One could say that the concept we arrived at, was to follow no concept.

Tuning in

I was informed that the first location was going to have a lot of background noise. Arriving there a day before the actual shoot, I was both fascinated and shocked by the noise level on set. The scene of this location would later become "The Alien Planet". It was filmed in a large boiler room that had constant whistling and hissing sounds. In addition, heating elements repeatedly turned on and off, letting out a hissing and droning sound that resonated throughout the entire building and its concrete walls. The set designers had been preparing for the upcoming shoot day, filling the room with their chatter and set-building activities. My geofon[33] was the ideal recording tool for this situation, I decided. The geofon is a contact microphone that picks up vibrations via a magnetic coil. Although people activities were present, with the geofon, I could record all possible machine sounds and drones without interference. This was ideal for a potential library of science fiction effects and would be useful in many parts of the film.

Embodied poets

The early introduction of the Hora Band was instrumental in defining the aesthetic of the film. Their sound has an immediate appeal. Their music is full of humour, warmth and carried a certain rawness that influenced the overall artistic aesthetic of sound and visual.

The Band is an intrinsic part of the Horas and also the film. Their lyrical universe is filled with stories and adventures that take place in other galaxies and worlds. In the film, they are portrayed as occupants of their own planet. On the set, whenever the band were featured playing their songs, my job was to record them live. Their music would feature prominently throughout the film, and furthermore, they have given me some of their music stems, to process and compose new sound material. This will undoubtedly expand the tonal colour of the film and make the soundtrack more cohesive as a whole.

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[33] https://store.lom.audio/products/geofon?variant=29549909442647

Music

My understanding of sound design is that it includes everything that draws attention to the image-sound conversion. Therefore, I also consider music as part of sound design. Earlier practices of musique concrète or experimental electronic music, as well as modern sampling techniques, clearly show that design and musicality are closely related. I will experiment with some specific tools such as the use of some early electronic instruments like the Ondes Martenot or the Theremin Cello, both very expressive monophonic instruments invented almost a hundred years ago.

Exploring the richness of tools like tape delays and other analog devices is how I normally like to work. I find this more interactive, more haptic because I get a direct feedback from manipulating a physical instrument. Also, these processes can sometimes yield surprising outcomes.

An important aspect of the design job is intentionally placing all the sounds in space, somewhat akin to a lighting designer who hangs lights, to cast the appropriate nuances on the scenes. Walter Murch coined the term 'sound design' to describe his method of using sound in a theatre space.

Sound design is an organic part of the film, not a decoration imposed as an afterthought. By implication, music is an integral part of sound design, as are sound effects. Both have a common function and I hope to approach the creative process in a holistic way by handling sound design in a compositional manner.

Wilfred Jackson, composer, arranger, director and animator of Walt Disney Productions once said, "I do not believe there was much thought given to the music as one thing and the animation as another. I believe we conceived of them as elements which we were trying to fuse into a whole new thing that would be more than simply movement plus sound."[34]

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[34] Film rhythm after sound technology, music, and performance p58

3.3 Inventing a universe

The Robot Planet

In my experience, serendipity, lateral thinking, artefacts and flaws can create great potential when building the sound of a new world. I want to use the planet of the robots to exemplify this. We will have a close look at the planet's birth and invention, the development of the scene, the work on the set, its staging, and the implementation of the narrative through sound design.

On the Robot Planet, the Horas were given the task of inventing a robot that can perform some kind of work. That is what robots do and are. They are dutiful working machines. Deriving from the slavonic language, the word 'robota' means forced labor, servitude or drudgery.

The idea of inventing a robot as a machine who simply works, was received and interpreted quite differently by the Horas. Usually one thinks of work as a practical activity. However, the Horas expressed a completely different concept of work. They invented a robot for needs like hugging, loving or for singing. And there was also one for crying.

This idea that a robot takes a task like crying off your hands, is a new thought. To simply outsource such activities as crying, hugging, singing is a direct response to the question, "What do I want to do no more?" We have ventured so far away with the way we think and function to the point that we lack the spark to conceive ideas in the same way as the Horas.

The directors recognised the fortuitous opportunity that presented itself at that moment much more interesting and clever than anything we would have come up with. The actors' (Horas) notion of work was far more interesting than what we could have imagined. This led us to question why do machines always have to do crappy work, why do we trust so little in them?

This is one of many examples, where the Horas were given the image of robots and they created something new and surprising, and an artistic idea that was extraordinary. Their way of responding instinctively towards the creative process,

rather than theoretically, gave me an impetus for how I would approach the sound design.

This turn in the development of the scene and its characters also generated a discourse for the sound of the robot planet. How do such robots sound?

On the ground with the robots

The Robot Planet was filmed on two locations. The main location was outside in a sand and gravel pit. The location provided a strong visual set and an ideal backdrop for the images of this planet. There were desert-like dunes, valleys, dried cracked clay soil and small lakes.

The challenge with location sound for this particular outdoor scene was that the visual and auditory environments did not match. While the robots moved beautifully through sand dunes, I heard an invisible traffic road, an airplane and distant chatter on my headphones. This was also the only scene where a drone was used to take some aerial shots. The motor of the drone made the location recording redundant. Like many Planet Hora scenes, the Robot Planet had a script and some ideas as a base, but was mainly done as a form of guided improvisation. Still, whenever possible, the sound was recorded. On the other hand, it was one of those scenes where I was mentally trying to anticipate what this place could possibly sound like, mainly because the real sounds were useless and irrelevant. This even led to some inspiring conversations about a possible sound design and music with the team. Out of a slightly frustrating situation grew a comfort in imagining and sonic envisioning of this world.

Another part was filmed in the rehearsal space of the Theater Hora at Rote Fabrik. The action of the robots was filmed in front of a green screen. In post-production, it is possible to isolate the actors from the green background and replace the background as desired.

The rehearsal space of the Theater Hora is a rather reverberant space. It is a theatre space and therefore not soundproof. To record in such space requires letting go of

the expected standards of an Ideal location sound. It is generally favourable not to give too much attention to such ideals. As I mentioned previously, I can only judge in retrospect, if a recording has been successful or not. The main concern on set is to find a healthy ratio of interfering and useful signals. In most cases, the main focus for the useful signal is the dialogue.

Scene from the Robot Planet © Heta Multanen

On the Robot Planet, there is barely any dialogue. But one of the robots whose work is to sing, is performing an Elvis song with his band in front of the green screen. The original track is transmitted through bluetooth earphones and the actor sings along. The whole scene was recorded with a boom mic and a lavalier mic. The rights for such a song are obviously unaffordable. This is another example of choosing to deal with what is given and tuck away the concerns for later. It became evident that the vocal did not articulate the melody and lyrics clearly, so a new song can be composed and built around it.

For the song in this scene, there were two musical elements in particular that I had to consider. The strongest element from the original song was the 6/8 rhythm and its bpm. I had to write a new song in the same tempo. The second element was the original sound of the actor who sang "Falling in Love" by Elvis during the actual

filming on location. The music was played back through headphones, as mentioned above. The singing was very imprecise in pitch and rhythm.

To match the aesthetic of the robots, I thought a vocoder would fit. A vocoder is a kind of speech synthesiser. You hear a synthesised sound that pulses at the tempo of the voice you input, and the sonic characteristics of the voice are added to it. A great advantage of the vocoder is that the harmonic structure of the song could be reshaped and the phrases were still reasonably lip-synced to the singer.

Scene from the Robot Planet © Heta Multanen

By using the vocoder, I could relatively quickly free myself from the difficult task of building a song around the existing voice. I could simply start the song from the bottom up, beginning with drums, bass, guitar and keyboards. Eventually the Therevox[35] came into play, an instrument inspired by the Ondes Martenot and the Electro-Theremin. The Therevox is an analogue monophonic instrument that sounds similar to a theremin. I played it directly through a Roland Space Echo 201, an analog tape echo machine. The expressive and slightly dramatic sound compensates a little for the lack of pure vocals in this song and allowed me to use and explore the timbre of an early electronic instrument. The end of Robot Planet comes as a

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[35] https://therevox.com/

surprising twist. I probably would not have come across these two classic science fiction sound design elements, vocoder and therevox, if I had not been faced with the interesting and challenging task of creating a song to an existing, relatively obscure vocal part.

Although very little of the location sound material is usable for the Robot Planet, it was important to actually have been on site. The location presented a very stark impression, which can lead to an abstraction and re-imagination in the scene's sound design and music.

Knitting a sound tapestry

Perhaps one of the most obvious characteristic for this planet is the absence of humans and their sounds. There is no human activity and no signs of life. What we see are robots in a desert, moon-like landscape.

There are several possibilities for how I might approach a world devoid of human presence. I would experiment with a subtle hum, a vibration or pulsation, if you will, and some variations of wind. The planet and the winds could suggest the sound source of an organism. The humming, pulsing and wind presence assert that the planet itself is the only organism. I am considering using the hum and wind as musical elements, possibly interweaving them with the rest of the music. The ambience sounds and the music form a distinct soundtrack which serves as a canvas upon which the many details of sound design can rest, rather like a tapestry which makes up the universe.

On this tapestry might exist a frequency space for the sounds of certain interactions between the robots. Sounds that can tell us more about the nature of robots and the world in which they commingle , thus creating a tenuous but profound intimacy. The relationship between the proximity of the sounds produced by the robots and the musical ambience can also add a spatial depth to the soundtrack.

Inspired by a conversation with one of the directors, Stephan Stock, I realised that robots are not humans and therefore may actually be rather quiet. They don't have to

constantly produce sounds like humans do, in order to reassure themselves that they are alive. They know they are not. Why should such a robot make any noise? It means nothing to him. Noise is life and life is not a prerequisite for the robot. It is not disturbed by silence. It does not care about the absence of life. They can deal with the fact that there is no noise and life. The purpose of the robot is not to live, but to work and perform tasks. A machine is more interested in efficiency and efficiency is usually a relatively silent affair.

From a scientific or philosophical point of view, the use of silence would probably be an interesting and sensible notion for approaching the Robot Planet. Nevertheless, sound design is a powerful tool that can reveal both, silence and its absence paradoxically conveyed through sound.

Humanising the robots

Speculative listening lends a large imaginative component to sound design, an effective way to flesh out narrative content and deepen emotional impact. It serves an important practical storytelling function.

In order to trigger human response that evokes sympathy or empathy, certain sounds known to us work better than their absence. A world becomes familiar and more materialised through sound when introducing gravity and heavy footsteps. Sound suggesting crunchy or rusty movement can tell us something about the state of a robot. Sounds can help us to sympathise with the protagonists and give us an orientation of the setting. Metallic footsteps, a beeping language or electro-mechanical sounding movements can directly suggest a machine's being, perversely triggering empathy and compassion.

I attempt to develop a palette of possible sounds to illustrate the world of robots.The approach of quasi-humanising robotic movements through specific sounds, offers a key component to evoke empathy and a connection to them. In this scene, I would experiment with layering and processing different sound qualities based on concrete sounds in order to create the desired affinity to the robots.

The robots shut down and reboot several times. My attempt is to create sounds which combine mechanical matter and human corporeality in one. In order to get such results, I would experiment with layering and processing contrasting sonic qualities such as metallic and flesh-like, or electronic buzz with human breath. With any luck, this will create a narrative in which the viewer identifies with the robot shutting down and dying, or rebooting and being reborn again as simultaneous parallel emotions.

Perhaps one has to venture a step further to suggest that the robots and what surrounds us are the last things that remind us of humanity, and this could be enhanced if one were to create a hyper-human sound environment.

It is also very possible that this empty planet is blatantly filled with awkward sounds, such as metallic steps and electromechanical sounding movements that directly point at machine beings. If every move made by a robot generates a lot of noise, they could be seen as remnants of humans, as the last remains of sound, the noise that is also indicative of life.

A Sonic Cartography of Robot Planet

The Robot Planet starts with a few drone shots showing a desert-like landscape and hovering over parts of a lake. Later, the camera moves closer to the surface and we see a robot lying on the earth. Such a perspective has never been seen before in this film. The images introduce a new world and reveals more information and detail through perspective. With the sound design, I tried to convey a feeling of an ethereal, spectral quality, while combining this with a reminiscent trace of mechanical materiality for the beginning of this scene. I layered various drones, bell and glass-like sounds with metallic noises in the Kontakt sampler. The sounds do not have strong transients and are constantly in slight motion, taking on an airy and iridescent quality.

In this scene, I emphasised cuts and changes in perspective with a blend of swooshes. Some swooshes were layered with harsh digital sounds woven in, to match the digital font, codes and image glitches used to illustrate the aesthetic on

this planet. Some scenes are accompanied by a voice over. The voice was processed with a harmoniser (Little AlterBoy, SoundToys) and a delay (Slapper, Cargo Cult) so that it connects more with the world of the robots. The harmoniser conveys the' speech and melodic cadences of the voiceover in a more static and linear way. This is suggestive of chants from religious contexts. The linear speech melody seems to create an emotional distance and exudes a transcendent quality, yet it encapsulates enough humanity to trigger a certain amount of warmth and empathy in the listener.

Drone footage of the Robot Planet © Heta Multanen

The first two robots are introduced via the drone shots. The third is located directly in a virtual room, with his finger on a silver chip on his neck. Additional information such as "...downloading" is given via text panels. In the virtual space, the sound tapestry morphs and we get closer to insect-like sounds and distant hushed voices that suggest other entities or memories.

After about four minutes into the Robot scene, a violin joins the ongoing soundtrack. Electrical circuit sounds follow the dying and rebooting of this robot. The violin is woven into the existing soundtrack to underscore the fragility of the dying robot and perhaps the   remnants of its emotional intelligence. But it also announces the dramatic scene that follows, a more aggressive robot who strides through a valley.

The timbre of the sounds change. What becomes predominantly audible are heavy metallic footsteps that suggest more a machine than a mortal entity. The music gets more dramatic with more dissonant clusters that lead up to a series of screams by the hostile robot. The delay I used adds to his screams and serves on one hand, to make the voice appear bigger and additionally magnify the sense of solitude and desolation between these dunes.

Some of the robots were illustrated with mechanical hydraulic sounds to match their movements. Others were scored with foley to illustrate their movements. To a few specific ones, I added more of a soundtrack that loosely suggests sounds that are connected to the robot without precisely mimicking it. The latter approach leaves a lot more space for interpretation, when trying to suggest an image - sound connection. For example, for one of the robots is seen walking slowly, holding his heart as if he were to die while a voice intones over the scene, "I like to think of a cybernetic forest filled with pines and electronics where deer stroll peacefully past computers as if they were flowers with spinning blossoms…".

Here, the sound design clearly underscores the dying robot, but has the quality to morph into sounds that could also be a sonification of a 'cybernetic forest'. I am inclined to call this a flux-sound design. A sound texture which can be heard and assumes meaning according to additional information such as that found in a text or image. The Robot Planet appears to have a slow visual rhythm, but from a sound perspective, it moves from one element to another quite quickly. This contextualising method or flux-sound design helped me to create some multi-interpretational sound textures for several scenes.

My tools for this planet were mainly a sampler which layers and plays all the organic sound sources, and a monophonic analog synth (Arturia Minibrute) to create the digital chirps and sweeps. With the synth, I improvised without following the image and edited the useful material to the scenes afterwards. The only instrument used so far is the violin. I recorded a violin player improvising and chose some sound snippets which I then manipulated with a combination of reverb and delay effects (Schroeder). This eventually leads to these sustained, frozen violin notes hovering over the sound tapestry. After about eight minutes, the robots are seen as a group for

the first time together. Here, their facial expressions recalls a childlike innocence. I went along with this quality and weaved in some music box and toy like sounds. It is a subtle element which offers yet another emotional connection to expressive capacity of the robots.

To summarise further, the Robot Planet begins with an aerial perspective, introduces the different robots and their inability to die. It then switches back and forth between the desert-like landscape and the virtual space. Like in the beginning, the finale is an overhead view of the robots lying on the earth, but this time moving in reverse, in a slow, deliberate zoom out. This sequence is remarkably cinematic. What immediately came to my mind was space and the beauty of melancholia. I scored the scene using drones of a bowed electric guitar, rich in overtones that emanate a sense of space and stillness. This provides the contrast for a surprising transition into the song described earlier.

The robots are back in the virtual space, performing the song and playing air guitar and other invisible instruments. Towards the end of the song, we see that all along, Yanna and Stephan had been witnessing these events on a screen from their space craft. To radically shift the perspective from a full panorama to the screen inside the space craft, I used a plugin called Spanner byCargo Cult. I was able to automate all channels of the surround mix towards a sound source in the center and in essence, directly mimic the perspective change of the narrative.

3.4 Inventing a language

Giving creatures a voice - whistles, chirps and growls

The creation of a specific sonic language for the occupants of the 'Zeitplanet', the 'Alien Planet' and 'the Oracle' is an important consideration in my process.

On the 'Zeitplanet', the background noise of the recorded location sound was too active and is too disturbing for the quiet atmosphere and dialogue in this scene which features the three wise men on the planet of time. One solution could be to process the original voices into a 'fantasy language'. The voice and articulation would still be connected to the actor, but not comprehensible, it would simply be the language

belonging to this planet. This may well be an interesting and suitable aesthetic choice. Hearing the beings of Zeitplanet conversing in subtle whispers and strange sounds is highly suited to the mysterious and dreamy atmosphere of that place.

Murch suggests the term 'aphasic' for this kind of listening, which focuses more on the tone of voice and the body language, and less so on the verbal linguistic content. Murch elaborates, "You don't know what they're saying, so the only way to understand what the scene is about is to watch how they say it, through the tone of the voice and their body language."[36]

For the aliens on 'Alien Planet', one possibility would be to experiment with a very known technique, that is, passing recorded voices through a ring modulator. This was done for the *Daleks* in *Dr Who.* Ex-BBC engineer Ray White described the somewhat primitive process for how they would do this "in a small metal box, containing two audio transformers and a quartet of semiconductor diodes. Speech was applied to its input whilst a second signal, usually fixed at 30 Hz or lower and provided by an external oscillator, was connected to its 'carrier' input. The more sophisticated ring modulators available in later years didn't sound as good as these early devices, simply because they couldn't produce such useful levels of distortion!"[37]

Sound of Silence

In Sci-Fi, the most explored environment is that of outer space or a parallel universe. The approach to sound design is to create the sense of a void, a vacuum where silence is omnipresent. As I have previously outlined, the paradox in achieving this is, in order to represent silence, one has to use sound to evoke the lack of sound. All that we are trying to do is create the illusion of quiet because silence is relative. What humans perceive as silent is not necessarily the same as the total absence of sound. The representation of silence within space, or the vacuum as we call it, has more to do with feeling rather than knowing.

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[36] *The Conversations* p.143

[37] https://whitefiles.org/rws/r02.htm

In *The Conversations*, Murch describes how he evokes silence in *THX1138*, "We were trying to achieve a great contrast between two environments: the silence of the white limbo prison and the chaos beyond it. In the silence of the prison you hear only distant cooling sounds… ambiguous machines very far off and so remote that you can't really tell what they are. And occasionally thunder, on a whim, just because the space is so big."[38]

Stanley Kubrick, on the other hand, appears to have a different approach to sounding out silence in space. "His principle is more faithful to physical reality: since there is no sound in a vacuum, there will not be the slightest sound linked to operations or movements of machines."[39]

However, specifically in the Sci-Fi genre, I am inclined to agree with Miguel Mera regarding literal representations of silence in space, that "realism rarely makes for an engaging cinematic experience."[40]

Scene from the Zeitplanet © Heta Multanen

[38] *The Conversations* p.139

[39] Greene und Kulezic-Wilson - 2016 - *The Palgrave Handbook of Sound Design and Music in Screen Media p.*96

[40] *The Palgrave Handbook of Sound Design and Music in Screen Media* p.91

So my plan was to explore a nuanced approach to silence in the scenes for 'Zeitplanet'. This is the one planet where the notion of space and time is rather uncommon. Space here is not bound or defined through physical dimensions but through an evolution of nonlinear trajectories. Time exists on several planes and sometimes disappears completely. Sculpting sounds to convey different types of stillness will help to create this unusual setting. For example, using the cyclical nature of the run out groove on a vinyl record can suggest a certain type of silence audibly. The idea is to represent silence with sounds that are associated with states of void.

There are several ways to represent silence in science fiction. One would be to show the characters' hearing perspective. For instance, this could be the sound of breathing inside an astronaut's helmet, or more conventionally used, an audible heartbeat. Both correspond to the physical and mental interior of a character and can communicate the silence he perceives or even actual silence itself.

Another way is to establish the idea of silence through music. Music can convey the vacuum of space.[41] Just as music in film can underscore inner states, it can also establish places and their inherent qualities. For example in Kubrick's *2001: A Space Odyssey* (1968), the opening sequence of the sun rising over the earth and the moon is accompanied by Richard Strauss' music *Also sprach Zarathustra*.

Spatial silence can articulate two different scenarios. One, a sense of suspense through a vacuous depiction and the other, a more immersive and sonically generous proposition, expressed through the presence of sound and music.

Scale and Perspective
The 'Fabrik Planet' is in a work camp that is deserted. In order to evoke the desolation and simultaneously convey the emotion of being there, I will attempt to underscore the sparseness of the arid landscape by pulling focus on the dry, relentless sound of the workers periodically digging the ground. I would make this one sound hyper-present, in order to make the work-camp feel bigger and more oppressive. As an additional counterpoint, my idea is to tease out sonic content from

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[41] *The Palgrave Handbook of Sound Design and Music in Screen Media* p.92

wind, rocks and a few squeaking metal structures to enhance the atmosphere of the scene. This sets up a contrast in scale that heightens the moments when an authority figure appears, who plays a blasting sousaphone and rails loudly at the prisoners. Murch once said, "The desert is a vast space... the feeling it evokes is psychic as well as physical. The problem is that if you record the actual sound that goes with that space, it has nothing to do with the emotion of being there. In fact it is a very empty, sterile sound...So the trick is to evoke, with sound, a space that is silent."[42]

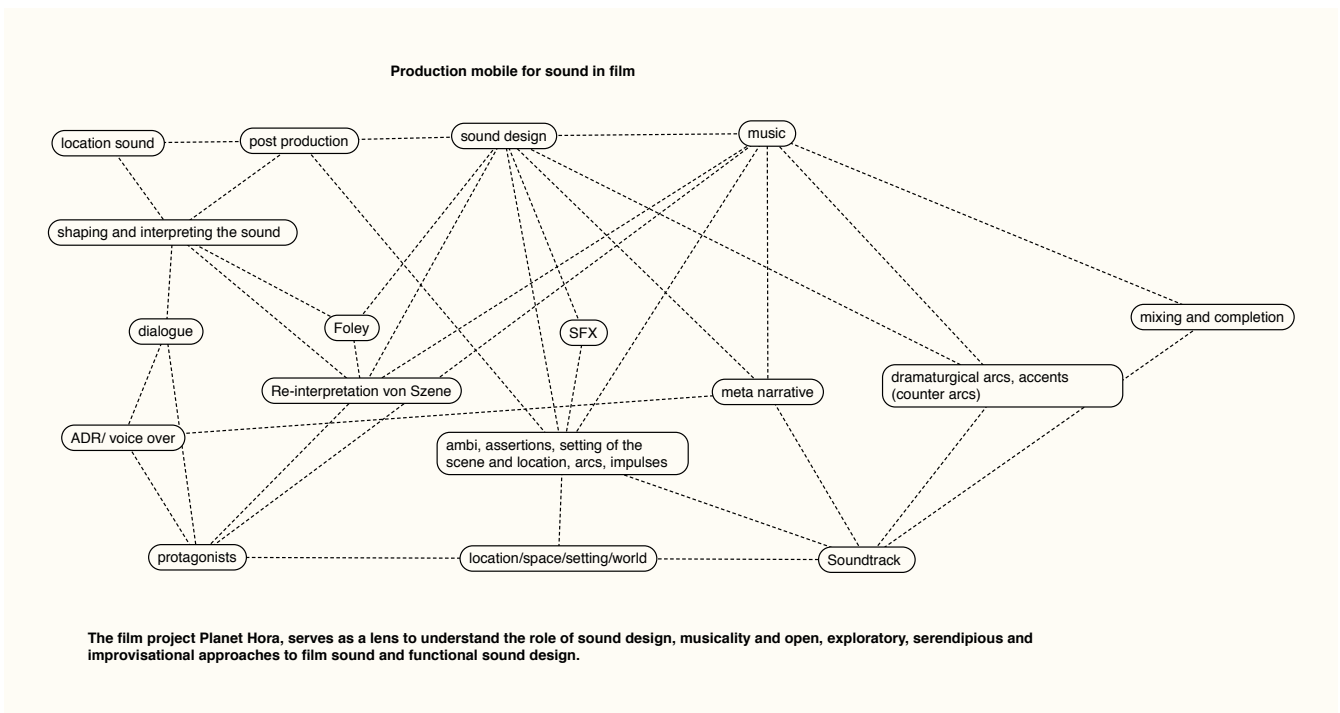Scene from the Fabrik Planet © Heta Multanen

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[42] *The Palgrave Handbook of Sound Design and Music in Screen Media* p.91

3.5 Intersectionality of sound fields

By combining different sound fields and sonic philosophies such as reactive location recording, intentional recording, sound experiments, as well as speculative outlines, with sound design, music composition and sampling of actual music sources, I hope to build a richer sonic universe that would match the richness of the film narrative and its visual imagery.

This multi-pronged way of working is not only fun, but also excavates plenty of creative ideas for designing various scenes. Below is a diagram I made early on, of a 'mobile', to project and organise multiple roles and creative objectives. It also helped greatly to have an overview of how the fields are related and where the points of overlap lie. Like in a real mobile, as soon as one function is touched upon or manipulated, it becomes clear how this affects another.

Production mobile for sound in film

location sound · · · · post production · · · · sound design · · · · music

shaping and interpreting the sound

dialogue   Foley   SFX   mixing and completion

Re-interpretation von Szene   meta narrative   dramaturgical arcs, accents (counter arcs)

ADR/ voice over

ambi, assertions, setting of the scene and location, arcs, impulses

protagonists · · · · location/space/setting/world · · · · Soundtrack

The film project Planet Hora, serves as a lens to understand the role of sound design, musicality and open, exploratory, serendipious and improvisational approaches to film sound and functional sound design.

4. Conclusion

4.1 Reflections

Playfulness can be empowering

Planet Hora is the first Sci-Fi film I have worked on, and the first production with Theater Hora. Although *Planet Hora* is a film, the influence of theatre methodology still resonates strongly within the structure of the group and with the underlying philosophy of collective production. Theatre, as an art form, can be very agile and dynamic, but is often an ongoing process which can continually be shaped even after a premiere. A film is normally considered a finished product once it is released and screened to an audience.

This particular film production required a high degree of flexibility right from its inception. I consciously embraced uncertainty as latent potential and oddly enough, chaotic moments during the shoots gave me pause and space for germinating creative ideas. This production was exceptionally different in many aspects, a significant departure to other films I have previously been involved in. The playfulness and unconventionality that emerged from it all will likely continue to have an effect on my creative outlook right up to the premiere and beyond.

The Horas' aesthetic

The Horas often use pop culture and motion pictures as templates for developing scenes and characters. Owing to this varied sense of aesthetics and material, boundaries between theatre and film are blurred, unlocking creative potential in unprecedented ways. The Horas are masters of invention, adroitly building an alternative world brilliantly different to the 'normal' one.This has inspired me to tap into some unexpected music styles and sounds that I usually would not delve into, such as Schlager, folkloric tunes and kitsch.

Post process evaluation

I approached this project by focusing on the tasks and the aesthetically requirements while maintaining an openness about the outcome. In the beginning, I tried to picture different roles for myself and to map out what the individual duties would require. In retrospect, this was a helpful mental preparation that served me well.

Due to considerable time constraints during the production, I had to react quickly to frequent changes in what was required for sound. I got accustomed to being on high alert in order to respond with instantaneous solutions without too much disruption to the filming or to my ability to work. A lean mobile setup helped a lot in this case but on more than one occasion, I was nearly at the limit with the number of channels I had at my disposal. In working with these theatre professionals, I knew that I needed to be much more creative and less exacting with what I could get on tape. I found it most challenging when the film director and cinematographer kept loudly directing the cast while the scene sound was rolling. Nevertheless, we soon managed to work this out.

Holding multiple roles and having to create the entire sound for the film necessitated a rigour and a solid purpose on my part, to collect, differentiate, link and layer various artistic and technical processes. Organising in this way gave me a bird's eye view of interesting connections and a better feel for regarding the kind of sonic direction that would work well for this film. For the first time, I thought about musical atmospheres while recording location sound. And I found myself imagining sound design ideas while recording particular sounds in between film shoots. I am now able to see the advantages in dealing with soundtrack creation in its entirety. Murch has a comical term for this. He calls it a 'one man mix'. One would be to be able to follow through with a consistent sound vision and thus build up a desired homogeneity in the tonal language of the film.

To have carte blanche in designing sound has definitely relieved considerable pressure. I have also learned to focus on the big picture and put my personal ambitions into perspective. This project required a certain courage, serenity and openness to unforeseen events, spontaneous changes and unorthodox film making.

Some of my best experiences in creating music and sound design have been defined by limitation. Limitations demands that one acts decisively in making choices. This is not the same as being economical, but it seems more necessary than ever, to stay true to the course while also entertaining the right about of deviation from what is normally done. The situation of limited resources can also serve as a stepping stone as well as an accelerator when seeking clear expression in artistic design.

In retrospect, I admit that I have never been in a situation that demands sound design and music for a full feature film in such a short time. For the music, I had given temp tracks for use during the picture edit. Based on my research, an appreciation for the Hora Band music, as well as a delightful exploration of works by the BBC Radiophonic Workshop and Walter Murch, creative concepts became rather immediate and accessible. In order to exchange ideas about the topic and the desired aesthetics of sound design, we had the benefit of existing Sci-Fi films and soundtracks which established a common vocabulary.

In the course of this process, it became clearer to me how necessary it was to cultivate a shared lexicon in the team to talk about sound. The easiest way was through concrete examples. On the other hand, occasionally describing sounds without a concrete reference can turn out to be stimulating and progressive. It can lead to surprising results but also misunderstanding that can end up being labour intensive to course correct.

Sound Design as a persistent search

One of my biggest realisations is that the genre of Sci-Fi does not present anything radically new. Rather, it acquires different elements from a hodgepodge of genres, and evolves as a recombination or a transmogrification of existing and known sounds. When inventing sound to a world never before seen or heard, Murch and Derbyshire caused quite a stir by embracing both the given and the unknown. They worked with what seems limited by today's industry standards. Yet, they created sounds that have endured and not lost their appeal until today.

Creating sounds for robots, spaceships or thinking about the soundscape of another planet has instilled in me, a new attitude towards sound design. The Sci-Fi genre propels a search for sounds that are somewhere in the space between the known and the fictitious. And in this liminal space, we can conceive new possibilities by compositing familiar sounds with chance outcomes from physical experimentation. Furthermore, playing around with other properties such as scale and proportion can yield even more complex and creative outcomes. The scale of objects for instance, can be mixed with their textural properties and exaggerated, thus making even small sound objects collectively amass into a voice for a large entity.

For me, sound design is this persistent search for new angles and parameters in any sound medium, one that is driven by curiosity and an appetite for new sound experiences. I intentionally set about this through substantial listening and the imposition of limitations. I discovered that the oscillation between the known and the unknown, or the perceivable and the imperceptible, can lead to interesting by-products, as much as to desired results.

Despite our quest to investigate the sounds of a possible future, there is still a need to play with sounds that are within the realm of human interpretation and sensation. This may sound banal, but in order to experience sound, it needs to operate on the basis of our perception of our planet, even when creating sound design for a fictional planet. For the experience of sound, one could say that we are bringing the far worlds of science fiction to us rather than the contrary, taking the long journey out there as it is often portrayed. The desire to design sound for worlds in which it may not exist, signals the value of sound to us and this goes beyond the cinema screen.

4.2 Unlocking potential and embracing the whole

Chronos and kairos

One of the strongest influences on me is the Horas' ability to be wholly in the present and to interact with what is immediate. The company's name originated from a character in the story *Momo* by Michael Ende, Master Hora, who is the keeper of

time. Working with the Horas prompted a direct reckoning with my own notions of time and presence.

The work on the soundtrack for this film was definitely an opportunity to manoeuvre through two antithetical qualities of time. The ancient Greeks named them *chronos* and *kairos*. Chronos is widely known as a quantitative sense of time, the past and the future are seen as a linear measurement of time. On the contrary, Kairos stands for a qualitative sense of what constitutes the present, the spontaneous and the critical moment. It has immediacy and is free of fixed dimensions.

The unique spirit of this production is the duality of experience, where at times, one finds oneself, lost in the presence of pure joy and impulse, and moments later, clocking back into production mode again.

Composer Mandy Wigby proposes a simple but vivid metaphor for a profound quality to undertake, "Imagine yourself as a huge pair of ears on legs. Take inspiration from everything around you!"[43]

Harvesting randomness and imperfection

In my research and thesis, I have presented several cases to illustrate the benefit of harvesting serendipity, randomness and circumstantial unpredictability as prospects for enriching the power potential of sound design. Artefacts and limitations have latent, dormant capacities which offer very fertile ground for the invention of interesting sonic worlds, especially in relation to the science fiction film genre.

An invented world becomes richer when one includes the incidental and the accidental occurrences, not excluding mistakes and the imperfections when building it. Even within our present world, flaws and differences hold great potential in realising artistic visions.

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[43] Excerpt of *My Top Tips with Mandy Wigby*: https://www.brightersound.com/top-tips/mandy-wig/ (all URLs accessed July 2021)

Augmented modes

I look upon my original impetus to enrol for the masters in sound design and how recent processes of different sound fields are intersecting in my work. My initial motivation is finally coming to fruition. I am beginning to see the shape of things to come, how I may use the experience I have acquired to apply a more intersectional and non-conforming framework to future projects.

What is evident is that intersectionality or the capacity to draw from different artistic practices, is a constant evolution that augments creative modes. This is what I hope to develop and expand further, to include more layers and nuanced approaches, even from other disciplines.

"Science fiction is not about the future. Rather it is a significant distortion of the present that sets up a rich and complex dialogue with the reader's here and now"[44]

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[44] Jeffrey Allen Tucker, *A Sense of Wonder: Samuel R. Delany: Race Identity, and Difference* p.28

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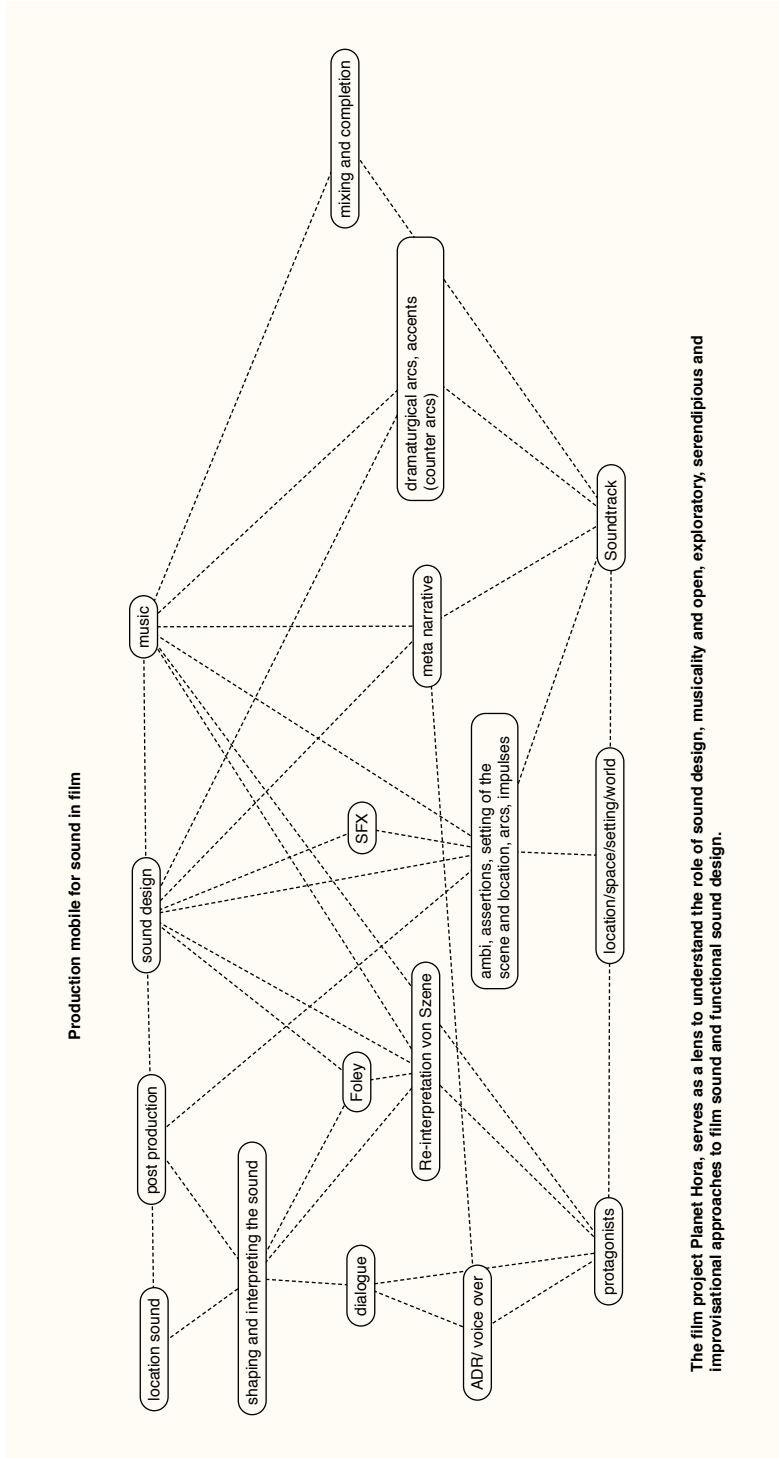
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Appendices

Appendix A is Hora-related material.

Appendix B is a selection of relevant ongoing research and past film projects.

A

Planet Hora Production Mobile E Graphic

Selected screenshots of the Hora Magazine June 2021 issue

HORA MANIFEST

1 Unterstütze und respektiere dich selbst und die anderen

2 JEDER MENSCH HAT SEINE EIGENE ZEIT

3 Glaube an die Kraft der Unterschiede

4 FEIERE FEHLER! GENIESSE ABSURDITÄT

5 HABE DEN MUT ANDERS ZU SEIN, IN DEINER WELTSICHT DEINER KUNST DEINEN IDEEN

6 GEDULD IST TRUMPF

7 PFLEGE UNSEREN RAUM ALS EINEN SICHEREN RAUM SETZ DICH EIN GEGEN Diskriminierung GEGEN RASSISMUS GEGEN SEXISMUS

8 MACH PAUSEN

9 ES SOLL IMMER EINE ZEIT GEBEN UM ÜBER DEINE BEDÜFNISSE ZU SPRECHEN

10 HÖRE ANDEREN ZU SO WIE DU WILLST DASS SIE DIR ZUHÖREN

11 RESPEKTIERE GRENZEN. NEIN HEISST NEIN

12 VERSUCHE NEUEN IDEEN AN MENSCHEN UND SITUATIONEN OFFEN ZU BEGEGNEN.

14 Achte darauf, dass die Wassermenge die Beckengröße nicht übersteigt.

13 Einer für Alle Alle für Einen Seire Solidarisch mit deine Team

15 VERLIERE NIE DEN HUMOR!

The Hora Manifesto

„Planet HORA - Der Film" - Worum geht's? In einfacher Sprache

Die Menschen vom Theater Hora haben zusammen nachgedacht.

Darüber, was Arbeit ist.

Und darüber, wie sie gerne zusammen arbeiten und leben möchten.

Daraus ist ein Film entstanden.

Ein Science Fiction Film.

Science Fiction (Saiäns Fikschon) ist Englisch und heisst ungefähr ausgedachte Wissenschaft.

Im Science Fiktion Film kann man alles Mögliche erfinden.

Auch was es eigentlich nicht gibt.

Man kann zu fernen Planeten und Sternen reisen.

Man kann Aliens und Roboter treffen.

Man kann ganz tolle Kostüme erfinden.

Und man kann viel freier und lustiger darüber nachdenken, was Arbeit alles sein könnte.

Deshalb haben die Menschen vom Theater Hora einen Science Fiktion Film gemacht.

Und sie haben auch ein Manifest geschrieben.

Ein Manifest ist, wenn man aufschreibt, was einem wichtig ist.

So richtig wichtig.

Das ist auch Teil des Films.

Im Film gibt es zwei Menschen die nur noch arbeiten.

Aber sie wissen eigentlich gar nicht, was.

Und warum.

Und sie sind unglücklich.

Also buchen sie einen Urlaub.

Eine Reise zu anderen Planeten.

Weil sie hoffen, so etwas Neues zu lernen.

Und dann etwas anders machen zu können, damit sie nicht mehr unglücklich sind.

Sie lernen auf ihrer Reise ganz viele Andere kennen.

Manchmal sind das Menschen.

Manchmal sind es Roboter oder Aliens.

Irgendwann kommen sie zurück.

Und merken, dass sie was ganz wichtiges nie gesehen haben.

Aber wir verraten noch nicht was.

The film explained in the words of the Horas

5.1 Mix in ZHdK Raum 3.K17

B

Field Recording research and composition

The following images and sound files are meant to give an insight into various process-oriented research. In the last 15 months, I begun to investigate sonic properties of different materials, specifically of stones. The presented material provides an impression of the locations and recording experiments.

Full playlist of clips on Soundcloud:

https://soundcloud.com/thomasjeker/sets/ma-thomas-jeker-appendix-b/s-YX2KUvXrqQn

Geofon recording of the action seen above, Pelzmühletal 2020 (2'43")
Listen

Geofon Recording of Langstrasse Tunnel Zürich, 2020 (01'16")
Listen

Music composed of source material from recording stones (60')
Listen

Isola (2019)

http://thomasjeker.ch/music-for/film/isola

https://maximage.ch/movies/isola/

Field recording moment during the shooting for *Isola*, heavy wind howling through a building (3'12") (Schoeps MS)
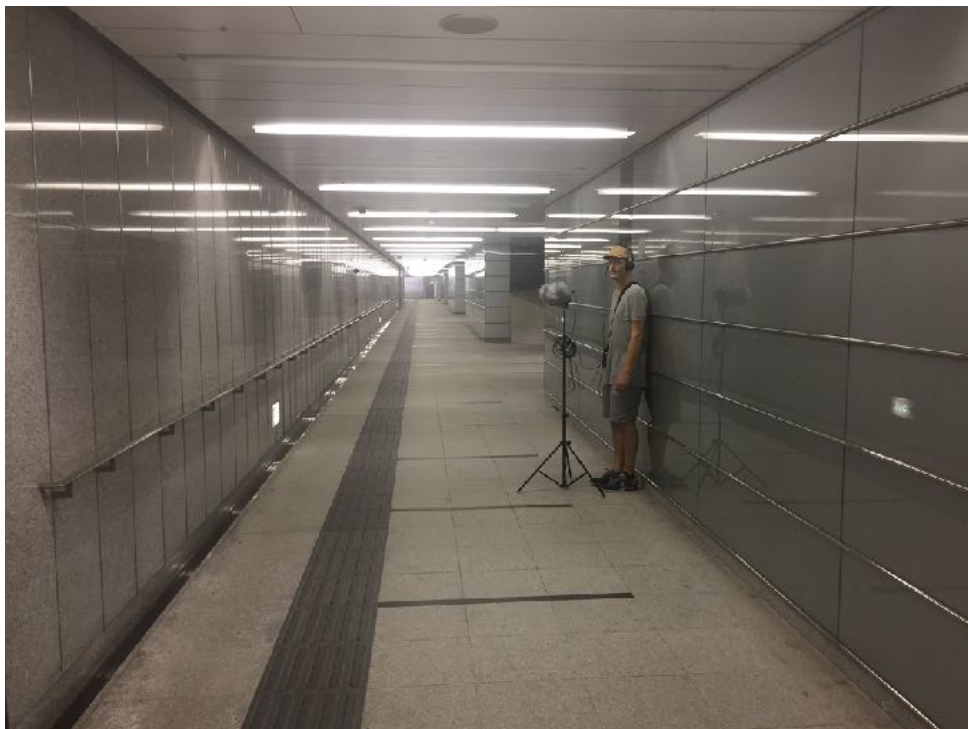*Listen*

Sensing Bodies (2020)

Full movie (48')
https://vimeo.com/345960179
Pw: Tokio

Two main recording techniques for *Sensing Bodies*, Sennheiser
Ambeo Binaural Microphones and a Stereo Pair Neumann KM

Declaration of Authorship

I hereby declare that this thesis was composed solely by myself, that the work contained herein is my own except where explicitly stated otherwise by reference or acknowledgment, and that no part of this has been submitted for any other degree, professional qualification or for publication.

Zürich, 21 August 2021   Thomas Jeker