Connecting Three Recent Electronic Compositions Through Drone Music

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Abstract

Abstract (English)

This thesis examines three compositions created during my master's studies at the IEM Graz, placing them within the context of contemporary drone music. Its theoretical foundation is found in a text by Pauline Oliveros, presenting a mode of engaging with creativity which is essential for composing works of this style. This is contextualized by the musicologist Joanna Demers, as well as by reports of musicians such as Éliane Radigue, John Cage and Dylan Carlson. Through this, an aesthetic framework is built for the three pieces at the heart of the thesis. The compositions *Pulse Pollution*, *Kerntemperatur* and *Tripped* are then analyzed in chronological order within this context, as well as their relation to the technology employed in their creation. The thesis concludes with a reflection on the prolonged association with these themes, and propositions for further artistic work.

Zusammenfassung

Abstract (Deutsch)

Diese Arbeit dient der Untersuchung dreier Kompositionen, welche während meines Masterstudiums am IEM Graz entstanden sind, platziert im Kontext der zeitgenössischen Drone Musik. Das theoretische Fundament der Arbeit befindet sich in einem Text von Pauline Oliveros, in dem eine kreative Methodik aufgewiesen wird, welche für das Komponieren in diesem Stil essentiell ist. Der Kontext dazu wird von Texten der Musikologin Joanna Demers, sowie von Berichten von Musiker:innen wie Éliane Radigue, John Cage und Dylan Carlson, entnommen. Dadurch wird ein ästhetisches Fundament für die drei Stücke im Kern dieser Arbeit aufgebaut. Die Kompositionen *Pulse Pollution*, *Kerntemperatur* und *Tripped* werden in chronologischer Reihenfolge innerhalb dieses Kontexts analysiert. Zusätzlich wird deren Relation zu der Technik, welche für ihre Entstehung eingesetzt wurde, beleuchtet. Die Arbeit schließt mit einer Reflexion über langfristige kreative Assoziation mit diesen Themen, und setzt Ausblicke für weitere künstlerische Arbeit.

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Chapter 1

Introduction

1.1 Topics

The following thesis is a reflection of three different compositions, *Pulse Pollution*, *Kerntemperatur*, and *Tripped*, which have been composed respectively in 2021, 2023, and 2024 during my master's studies at the IEM Graz, with particular attention to their relations to the historic and practical context of drone music. I chose these pieces in particular due to their differences in time of creation and due to their diversity of approaches to the subject at hand. Their placement in the historic and methodological context of this style, as well as their similarities and differences to each other, are the central focus of this examination.

In order to effectively contextualize these pieces, I will provide an aesthetic background to contemporary drone music, with special attention to musical material which has directly influenced their creation. Here, I will draw on writings from Pauline Oliveros and Joanna Demers to support my observations. This attempt at contextualizing drone for this thesis also includes sections on defining boundaries on what drone music actually is in this context, as well as reports on the music's effect on listeners and musicians.

For a successful autoethnographic examination of the three compositions mentioned above, I will also list the tools that were used for their creation. In particular, I will highlight the role of software as an ever-evolving creative tool and the importance of mutable and flexible tools within the drone music context outlined above.

1.2 Structure

This thesis contains three distinct sections, each building up on the insights gained in the ones before.

The first section of this thesis deals with the seemingly inherent difficulty of describing this style, and the attempts of musicians and musicologists alike to handle the reduction

that seems to lie at the core of this music. Drone's unique way of communication and the establishment of form within formlessness are the focal points of this part.

First, I will attempt to define what is commonly understood as drone, and how it is understood and experienced by audiences and musicians alike. Here, I reflect on my own experience with drone music in addition to the experiences of popular and established musicians in the genre. Since defining a style or methodology is often a difficult affair, this subsection is essential for setting the boundaries of what material is considered relevant to this thesis.

Then, with the help of reports from composers such as Pauline Oliveros, John Cage, and Éliane Radigue, I will point out the elevated importance of practical work and intuition within the compositional methodology of many composers of this style. In this subsection, the core of the creative methodologies behind the compositions analyzed in this thesis is established and examined.

Finally, this chapter also examines various attempts at conceptualizing drone music, drawing once again from both musicologists' and musicians' perspectives. The interpretations evoked by the formless and often static nature of this music are compared between artists like Celer and Sunn O))), as well as Joanna Demers' book about exactly this topic, *Drone and Apocalypse*.

The second section is about the technical realization of these pieces. Here, I connect to my earlier works with digital artifacts, central among them the phenomenon of aliasing. I will also establish a connection between the aesthetics of drone music and my way of composing with digital tools, especially the musical programming language *SuperCollider*. This section not only points towards the technical possibilities of the software, but mainly how its unique properties give way to a highly personalized style of working. Then, the role of hardware interfaces and their influence on the creative methods in question will be discussed, in addition to the evolving relationship to hardware throughout the course of composing these pieces.

In the third section, the pieces *Pulse Pollution (2021)*, *Kerntemperatur (2023)*, and *Tripped (2024)* are examined in a case study for their different relationships to the drone music discourse, as well as my personal development of sound synthesis and composition methodology throughout the years. Their connection to drone will be explained in multiple dimensions, primarily compositional methodology, aesthetic foundations, technological implementation, and methods of structuring improvisations.

1.3 Methodology

At the center of this thesis are methods of reflective practice. Personal creative experience is analyzed while remaining at an appropriate critical distance, in order to provide the primary data for the bulk of this work. This allows for first-hand insights into the creative

intentions and practical conditions of these compositions and their evolutions, while care has been taken to maintain the necessary academic rigor.

The context for this autoethnographical approach lies within the first section's discussion of active and passive creativity. Here, multiple composers' creative strategies are analyzed and compared. This framework has also proven valuable for highlighting the value of improvisation, as well as the importance of a mutable relationship to technology. In addition to this, the historic and conceptual context of this music is examined through time, drawing on scholarly sources as well as reports from musicians and practitioners.

Finally, special care has been taken to track the development of creative leadings and technological implementations across the span of time covered by the three pieces mentioned above. This is an attempt to gain insight into their meta-development in order to reveal not only their individual properties but also the trajectory of artistic evolution throughout my master's studies. More specifically, this thesis should serve as a document of understanding the evolution of electronic music practice through sustained creative association with a single theme, or in some cases, a single note.

Chapter 2

Aesthetics of modern Drone Music

In her book *Listening through the Noise*, musicologist Joanna Demers introduces the chapter on drone music with the following words:

> *"It is exceptionally difficult to write about drone music. I say this as a person who likes a lot of it, so I lack the prejudices often seen in print about drone music being "boring" or "like listening to a dentist's drill." Technical descriptions of drones take only a few words to state that one tone or chord lasts minutes or hours, leading to a rather sizable imbalance between the minimal number of words required to describe a drone and the maximal amount of time a drone takes. We also lack specific terminology for conveying exactly what goes on during a drone. "Sustained" and "held for a long time" are practically our only means of communicating what drones do, even though drone activity is often more complicated than these descriptions let on."* (Demers 2010, p. 93)

She suggests circumventing this problem by turning towards the effect that the music can have on its audience. Through the negation of established musical forms and dynamics and their replacement with a seemingly static form, the attention of the listeners is directed to the smallest details and shifts in the sound material. Drones also often amplify the physical aspects of the music, as well as the effect of the often very long durations of these pieces on the musicians and listeners. Aspects which are often purposefully set into the background or ignored in music come into the forefront through drone (Demers 2010, p. 93). In this chapter, I will attempt a definition of drone, discuss its effects on audiences and musicians, as well as find common threads in the values and methodologies of musicians associated with this music.

2.1 Identification

In order to explain the way by which I identify works as 'drone', it is important here to define what a drone even is. In its most basic and popular definition, a drone is a sustained tone, chord, or cluster. Within this definition, the use of a drone does not constitute a style, or a genre, but rather a compositional technique: using sustained tones as a structure for a composition. Defining drone as a style is a much more individual affair. In popular electronic circles, drone has become a kind of sister-genre to ambient music, describing a music that can be listened to passively as well as actively, yet omitting the melodic and chordal elements of more traditional ambient music in favor of repetition. Other composers of electronic drone music, such as Eleh or Phill Niblock, employ a less easily digestible approach, actively challenging the attention spans of audiences while bringing associations with the physicality of raw sound into focus. On another side, there is a kind of drone music coming out of metal, taking influence from much the same sources as most aforementioned composers, but combining it with an appreciation for classic heavy metal, often strongly associating with bands like Black Sabbath, brought into the discourse by Dylan Carlson's project Earth and popularised by the band Sunn O))). There is, of course, a high degree of cross-influence in these styles.

I would argue that the style or genre of drone is an emergent property of the compositional technique of using sustained tones and repetitions in order to achieve a certain mode of attention, which often goes hand in hand with the aesthetics described above. Therefore, the identification with this style of music is rather an alignment with a similar style of working than it is playing towards a genre.

2.2 Experience

> *"... found it difficult to think of the things that disturb me ... Afterwards, everything seemed right with the world.*
> *A new, yet seemingly ancient kind of experience ... very unusual!!*
> *... A PHYSICAL PRESENCE IN THE ROOM ... I CAN ALMOST TOUCH THE SOUNDS.*
> *When I got up, I could swear I was a few inches off the ground!*
> *Forget drugs and alcohol ... I am now very, very mellow!*
> *I feel alert yet very calm ... Wonderful after a hard day.*
> *MY TENSION HEADACHES HAVE DISAPPEARED!*
> *Always had trouble relaxing ... after auditioning Earth 2, had an incredibly deep sleep."* (Coggins 2018, p. 57)

These quotes are found on the back cover of Earth's highly influential drone metal album *Earth 2: Special Low Frequency Version*. Although intended humorously, they point

to a common experience for both audiences and composers of drone music. Prolonged exposure to sustained notes, often at high volumes, tends to have an effect on the brain not unlike meditation [1]. In the many drone concerts I have attended and played, a diluted sense of time, attention naturally shifting inwards, and an elevated sense of the sound being an ephemeral physical presence in the room were, among others, all phenomena that a large portion of the audience reported on experiencing. As a musician, the experience is rather similar, although having control over the sound somewhat shifts the mode of attention away from the meditative and often rather passive role of the audience. The desire to connect with this mode of attention is one of the reasons for many drone musicians to often seek a passive, or rather receptive, relationship to creativity. This preference is among the most central themes of this thesis going forward.

2.3 Practice / Intuition

For a composer, how can such a highly restrictive form provide the desired musical expression? The ideas and emotions present in this music can often be perceived only through a reflection within the audience, as this compositional style steers the focus away from the more traditionally communicative aspects of music. As conceptual and radically minimalist as this style may seem on the surface, the real center of this music lies within practice. As fixed and restrictive as the form is, it is, at its core, intuitive.

This practical and intuitive way of working in which drone music seems to live is nothing new in western musical tradition. But it was historically seen as secondary in favor of more conceptual methodologies. In her essay *The Contribution of Women as Composers*, Pauline Oliveros defines two modes of creativity: firstly, the active, willful mode, and secondly, the passive, receptive mode. Working in the first mode involves planning and goal-oriented use of materials. In the second mode, the artist seeks to be an open channel through which the material can flow and form itself seemingly autonomously. Both of these modes are freely accessible to each artist, although western culture has historically favored the first mode at the expense of the second. But the legitimacy and importance of this intuitive process of the second mode is well documented to have been used by many of the most important artists in western art history. Traditionally, this state of intuitive inspiration has been seen as involuntary or even god-given, though. Only seldom can one find reports of someone consciously employing this mode of creativity (Oliveros 1984, p. 132-137).

John Cage mentions in his piece *45' for a Speaker* that inspiration has to be avoided

[1] In a later section in this paper I will further discuss the role of drone's seemingly spiritual effects and their aesthetic implications. These aspects are central to many drone composers as well as highly influential in my own work. However, I want to make very clear that these practices are seperate, and not to be confused with, the field of musical therapy. These pieces of music exist, for a multitude of reasons. The mental state of their audience is not the primary purpose of their existence.

at all costs, as inspiration is seen as the alternative to not being inspired. He points to a way of acting in which a state of inspiration can be, ideally, sustained forever. Through this, he points out the popular definition of inspiration as an involuntary transition into the second mode while working inside of the traditionally preferred first mode, whereas in his described ideal state, an artist would stay in perpetual openness for the second mode (Cage 2019, p. 150). This proposed way of working seems to be centered on creating the ideal conditions for the artist to enter into this intuitively inspired mode and to be able to sustain it for as long as possible.

Dylan Carlson, a highly influential figure in drone music, describes this phenomenon with the following metaphor in the documentary *Within the Drone*:

> *"The musician is like a glass and the music the drink you pour into it... the music takes the shape of whatever vessel you put it into. I'm obsessed with creating the shape of the vessel that the music is gonna be channeled through, and then, hopefully, I'm honoring the intention of the music that's coming through me by making the vessel the right shape."* (Hunt 2007)

However, according to Oliveros, a balance must be found between these two modes. In her observations, artists who work predominantly in the active mode seem to produce very one-sided and dry works, whereas artworks created purely through intuition without a cognitive counterweight tend to become aimless.

What this second mode looks like in practice can, of course, look completely different from composer to composer. It can take the form of a freely improvisational practice, it might be a methodical exploration of predefined conditions. In a later chapter, *Technologies*, I will explain my own approach to this mode.

2.4 Music of Extremes

In 2015, one of the most commercially successful entities in drone music, the band Sunn O))), published their album *Kannon*, named after a Buddhist goddess of mercy. The liner notes written by Aliza Shvartz describe the album through a feminist and mythological lens, yet the allusions to this passive mode of creation persist.

> *"Here, drone becomes a technique that invokes Kannon through her own operation—through acts of introjection, of opening up, taking in. What we hear is not a cry for mercy or an expression of suffering, but a sonic extension of having mercy, of perceiving the sounds of suffering."* (Shvartz 2015)

Even at its most conceptual, passivity and attention remain central themes. The music here is a representation of awareness, not an expression.

In a later book, *Drone and Apocalypse*, Joanna Demers tries a different approach to writing about drone music, and this time does not focus on the personal effect of the music on the audience, but rather on the apparent emptiness of the music itself. She employs a fictitious setting in which the protagonist reflects on different works of electronic ambient and drone music, comparing the music to philosophical and mythological thoughts on the end of the world. The lack of obvious articulation and gesture in this music being likened to the sound of death. The effectiveness of drone in building and releasing tension, as well as its lack of interpretable content is, to the protagonist, a clear sign of an apocalyptic vision.

Conceptualization of this music seemingly always ends in something much larger than music, even larger than life. Dynamics of excessive emptiness, an all-revealing apocalypse, enlightenment, formlessness within a monolithic shape – these interpretations, though, in reality rarely align with the practice of drone musicians. The motivations and intentions behind the music are often simply of a personal nature. In the preface of *Drone and Apocalypse*, Demers herself writes of an email exchange with Will Long, the artist behind the ambient drone project Celer, in which he answers her question of philosophical intent behind their music. To Long, there is little to no philosophical intention to it, and that it is much more important that the listener is able to find these connections for themselves (Demers 2015, p. 3) This can be taken as an invitation to interpret the music however one likes – in the case of *Drone and Apocalypse*, likening the denial of concept to an apocalyptic void – or to go back to the beginning and try to find a more personal way of approaching this technique.

Likely the most conclusive outside view into the intentions of a composer of this music are the fragments of text provided by one of the most influential figures of this technique, Éliane Radigue, in the first edition of *Spectres*, published by Ina-GRM and Shelter Press. Radigue compares her music to a mirror, which reflects and resonates with one's inner state (Radigue 2019, p. 52). This is achieved simply through extremely close attention to the sound itself and through sheer duration. As we have seen in the earlier example of Sunn O))), the meditative nature of this music is often connected to spiritual or mythological symbolism. Radigue, being a practitioner of Tibetan Buddhism herself, sees her musical practice and spirituality as two rails which carry the same vehicle but only rarely come together. The meditative experience is certainly a part of the process, but not its entirety.

These excursions toward the conceptual side of drone music go to show how deeply the mentioned passive mode of creativity is rooted in the foundations of the music. The way of working reflects back on the attempts at interpretation and almost always leads back to more receptive forms of thinking: meditation, spirituality, apocalypse (revelation), et cetera, whether it is the musician's intention or not.

Chapter 3

Technologies

As mentioned in the previous chapter, a passive and receptive mode of creativity is essential for most composers utilizing drones. In this upcoming chapter, I will explain the technologies used in my own compositional practice in order to achieve this mode, as well as their impact on the compositional process and aesthetic outcomes of my music.

3.1 Software

The technological foundation of all the pieces analyzed in this thesis is the musical programming language *SuperCollider*. Its flexibility is perfectly suited to build the kind of personalized system necessary to explore and refine the required conditions to work in this way. Over the last years using this language, I have gradually built a way of improvising with it, out of which I source the sonic foundations of my current musical work nearly in their entirety. Not only does working with these modularized digital systems enable a highly personalized workflow, but more importantly, it also creates the potential for evolution in nearly every parameter of every sound used. Often, only by simply engaging with the program for some time, by creating a sound for whichever purpose, new evolutions and changes to the sound material seem to emerge completely organically. The sound materials used in the pieces below are directly linked to each other through this. None of the sounds were created from scratch just for one composition; rather, in these pieces, we can observe a natural evolution of the various musical materials through time.

The common root of this evolving material in the particular pieces discussed in this thesis is the pulse wave. There are multiple reasons for my choice of this particular starting point, both conceptual and practical. On the conceptual side, a pulse has a rather radical shape, essentially flipping from one extreme state to another through time with very little in between the poles. This obviously can be directly connected to binary systems with which a computer works, which invites further comparison to my past work using digital artifacts such as aliasing. Previously, I explored aliasing directly, using ad-

ditive synthesis with very high-pitched spectra reaching way over the Nyquist frequency in order to create new and full sounds by essentially folding the spectrum over itself. For these newer pieces, I used the pulse wave in conjunction with different ways of artificially decreasing the sample rate. This combination leads to a more predictable yet still effective spectrum as well as complex rhythmic developments within the sound. In addition to this, the pulse wave, in its extreme polarity, can be seen as a reference to the extreme tendencies of drone music itself. Through the manipulation and deconstruction of the clean binary of a pulse, the space between the two possible states starts to open up. Conceptually, we can overlay this to opening up a view into the monolithic emptiness often associated with drone.

3.2 Hardware

Because the majority of the tools used for these pieces are digital, the way to interface with them is highly important. In contrast to the common roots of these works within the software, the hardware used in their creation often changes rather drastically. All three pieces discussed in this thesis have a completely different relation to physical tools. This is, in no small part, due to the inability of hardware to evolve on a meta scale in the way software can. Hardware in these compositions takes a different role for each piece.

In *Pulse Pollution*, an analog tape effect is introduced with the conceptual purpose of bringing a naturally digital sound into the physical world, and the erosion that has to happen as a result of this. More practically, processing the signal through hardware in real time provided an effective interface for improvisation.

Kerntemperatur deploys hardware as a contrast within its formal development. The measured digital soundscape is contrasted with a free-flowing passage of distortion, played on a physical instrument. Bringing together these two elements was the challenge at the heart of this piece's creation.

For *Tripped*, hardware is simply an interface, a direct way of interacting with and monitoring the software and its results. The haptic limitations of this approach proved to be beneficial towards the sonic focus of this otherwise chaotic piece.

Chapter 4

Compositions

In this chapter, I will examine and review the processes behind three of my recent works, with regard to the themes of the previous chapters. I will, in each of these examples, highlight the use of the 'second mode' of creativity through the improvisational techniques which were used to different degrees in these pieces, as well as the evolution of the technologies used from one piece to the next.

These case studies not only serve as documentation for the creative decisions and aesthetic streams that informed these works individually. They are also intended to show distinct stages of association within my own artistic development. Moreover, their relation to the drone music discourse varies greatly, as do their applications of similar technology. Therefore, these three pieces can be seen as touchstones for an artistic trajectory spanning multiple years.

Each individual analysis will start with an introduction to their technological and conceptual background. Then, I will briefly describe the musical contents of each piece in order to more directly illuminate the differences and similarities within their sonic profiles. Through a further reflection at the end of each section, I will put the pieces back into relation with the established context, as well as highlight unique conceptual streams found within them.

At the end of this chapter, I will provide a summary of these case studies in order to provide a more direct comparison between the pieces, as well as to sum up the insights gained within this chapter.

4.1 Pulse Pollution (2021)

> *"Drones of all kinds (such as motors, fluorescent lighting, freeway noise), are ever present. The mantra of the electronic age is hum rather than Om. These constant soundings influence everyone, whether consciously or unconsciously."* (Oliveros 1984, p. 147)

Pulse Pollution is the first piece of mine sourced entirely from experimenting with the pulse wave. In this particular composition, I used *SuperCollider's* Pattern system, a built-in and quite extensive method of sequencing events and phrases, to create a simple form of off-sync impulses. The impulses, made from a pulse subjected to aliasing in direct relation to its frequency, creating a simple rhythm, were then layered in the Pattern system. The output of this patch was routed into a Roland RE-501 Tape Echo, which was where the bulk of the improvisation happened. The output of the Tape Echo was recorded into a DAW for further editing. Improvising by way of processing an incoming signal proved an effective way of entering into a receptive mode of creativity. Since, by necessity, one has to listen closely to the incoming signal and constantly position oneself in relation to it.

The composition starts quietly, with slow and sparse rhythmic impulses being introduced with heavy spring reverb. This is overlaid with different instances of slower drones and pulses. Eventually, this soundscape fizzles out into silence, and a bed of higher-pitched sounds makes way for a heavy, deep drone, which gradually morphs into a slow, steady rhythm. A faster rhythm is introduced and overlaid over this slow pulse. As these two pulses phase in and out of each other, various digital and analog artifacts make their way into the background. The two pulses speed up to a more frantic pace with overt manipulation of the tape delay. In the last seconds of the piece, the bass pulses are quickly taken away, and only the higher-pitched soundscape remains before it is quickly taken away, and the piece ends.

The choice to start this piece quietly, and to introduce the rhythmic elements sparingly, was mostly made to accentuate the feeling of heaviness from the drone around the halfway point. This drone was a product of improvisation, yet ended up warping the entire structure of the composition around itself. Being sparse and subtle with the rhythmic elements also nicely set up the more aggressive rhythmic development in the latter half of the piece. The structure of the composition goes from subtle and quiet to overt and aggressive. This also applies to how overtly the tape delay is used. The glitches and artifacts keep to the background at first, but by the end of the piece, they cannot be ignored anymore; they have taken over the piece to the point of becoming its center of gravity. Its short runtime of 6 minutes and 27 seconds, as well as its overt dynamic changes in between sections, would make *Pulse Pollution* an oddity in drone music discourse. However as its connections to the style lie in its philosophy of passive creation, in addition to

its adherence to a single note as the center of gravity at the heart of the piece.

This piece revolves around the pulse wave being a representation of a digital, or binary, state discussed in the earlier chapter, *Technologies*. Introducing this to an inherently analog effect seemed like a logical way to open up spaces beyond the binary. Additionally, this piece responds to a lo-fi, or lo-tech approach. It features themes of obsolescence, the rigidity of simple technologies, and the importance of broken sounds in musical creation. The *SuperCollider* patch at the heart of it is very simple, making use of aliasing, a ubiquitous property of digital audio most often audible in lower-powered digital signal processing systems. The tape echo is a sophisticated machine, which is however, based on very simple principles. These tools were used to evoke a feeling lost with the convenience and black-box approaches of a lot of modern music production and composition methods. Part of the aim was to expose the foundations of computer music, which often get disregarded in the compositional process. The dominance of the pulse wave as a binary state has become an unconscious, ever-present influence in our modern music habits. *Pulse Pollution* attempts to ask what happens when these foundations change, as they inevitably have to when interfacing with the analog world. Aliasing and its associated artifacts exist as a means of introducing digital information to the analog world; here, they are embraced next to physical degradation of the signal through analog means.

4.2 Kerntemperatur (2023)

Kerntemperatur was created in part in the electronic studio of the Estonian Academy of Music and Theater in Tallinn, during the semester I spent there as a part of the Erasmus+ program. In no small part due to the expertise of the staff there, it is quite rigorously mixed, which was necessary to keep a sonic clarity, as a major topic in the piece is the bringing together of two interpretations of drone that are not often presented together. In this way, it tries to connect all the themes of this thesis into one musical entity.

Kerntemperatur consists of three parts. It opens with an electronic part using pulse waves and aliasing, as mentioned in earlier sections. Then there is a crossfade into an entirely different sonic profile, a drone played on a bass guitar with heavy distortion, a direct attempt to connect the first method to the roots of drone metal as played by acts like Earth and the aforementioned Sunn O))), before the outro goes back into a generative digital rhythm.

The piece starts with a field of pulse waves and the occasional burst of distortion in the background. The electronic sounds pulsate out of phase with each other, but in contrast to *Pulse Pollution*, here their off-sync rhythm is a product of different aliasing parameters, not an outboard effect. After several minutes of this, the rhythms abruptly change into a faster and seemingly unstable structure. This sets up the central movement of the piece: the crossfade from synthesizer to distortion. As the pulses shift in and out of

focus, a distorted noise makes its way into the high-frequency range. At nearly 7 Minutes, one of the bass pulses drops out and opens a spectral space for the guitars to flow into. This bass guitar drone was played using different instances of outboard digital distortion effects and a feedback loop made in *SuperCollider*. This part was originally recorded independently from the later process of the composition and edited only rudimentarily, using simple methods like reverse playback and crossfades within this section to diversify the sonic image. The final part returns to a rhythmic approach, however, this time using a generative sequencer, injecting bursts of filtered white noise into the existing bed of distortion.

This is the most practical of the described pieces. It grew organically over the course of the months spent in Estonia and can be seen as a summary work of the different influences and ideas discussed in this thesis. It also resonates the most with the aesthetics of what we defined as drone music discussed in the previous chapters, both in its sonic profile but also in length and form, as throughout nearly 18-minute runtime it embraces static sections as well as the uncontrolled flow of distortion and feedback effects.

Because *Kerntemperatur* consists of several parts independent of each other, sampling and re-arranging those parts in real time has become the main practice of my live work in the past year. An elevated focus on *SuperCollider's* sampling capabilities paired with a live-mixing approach has proven to be a rich source of musical material in that time. The practice of live-mixing existing elements or sections of pieces is also directly connected with the receptive and open methodology necessary to develop this music in the first place. A live performance focused not on creating sound, but on attuning to an external situation and sculpting the sound to fit, or sometimes not fit, that situation.

4.3 Tripped (2024)

> *"Composers of electronic music have adopted the idea that a continuous pitch serves as a center of gravity around which other events revolve."* (Roads 2015, p. 207)

Tripped is a piece consisting of fully improvised sections, with minimal editing to bring them together. Its chaotic nature is arguably more comparable to digital noise and glitch music than anything commonly understood as drone music. The reason it is included as a point of discussion in this thesis is that the technologies, methodology, and philosophy behind this piece are very similar, as well as its 'center of gravity' alluded to by Curtis Roads earlier is an unchanging frequency. This piece may not evoke much of what we think of as drone in form, but it does in the way of compositional technique. This fact makes it an interesting piece for examination. Working with computer glitches in real time brings with it an unpredictability which of course, relates back to receiving

information and adjusting creatively. It is difficult, and often unproductive, to try to control these glitches. Therefore, in the majority of glitch-based music, this piece included, the glitch is seen as a way to have a sort of musical conversation with the computer. The composer's role is to set up the conditions for a glitch to arrive, and to accept the results as raw musical material. In this way, the creative strategies employed during the creation of *Tripped* very neatly fit into the spirit of drone music as well.

Tripped starts off as a quiet whirring sound, growing very suddenly in volume. What follows is a freely improvised soundscape of glitches and noise held together by their central frequency, carried by a constant metronomic ticking. After a dynamic shift, the ticking sound becomes less constant, seemingly stumbling over itself as the rest of the piece shifts its dynamic focus. At around the halfway point, it becomes the sole element in the piece, just before another layer of sound takes over the spectral range. From here, more rhythmic patterns are introduced through glitches and improvisations. The piece ends by fading out the central frequency layer, before briefly coming back and silencing the ticking.

The piece was performed through a GUI in an experimental *SuperCollider* patch and recorded directly, a more straightforward but also more haptically limited method compared to *Pulse Pollution*. Similar to *Pulse Pollution*, this improvisation was then edited in a DAW to create a more determined form, however, much fewer cuts and overlays were made in *Tripped*. Its runtime of 5 minutes and 50 seconds is simply a result of how much usable material the improvisation generated. *Tripped* was not a planned artistic project; it arrived spontaneously through experimentation, seemingly by accident.

4.4 Summary

To summarize, how do the selected compositions embody the aesthetic and methodological principles of modern drone music? The employed compositional methods reflect the style's common strategies. These pieces, however, do not blindly adhere to the formal and aesthetic expectations of modern drone. None of them exhibits the kind of staticity that is normally central to this music. With the notable exception of *Kerntemperatur*, not the length either. It is also important to note that the mentioned compositional strategies are not exclusive to drone. What then makes drone even a relevant point of research to understand them? Through analytical reflection, it became clear that they owe their existence to drone. The end result might not reflect the genre completely, but the manifold streams of aesthetics and methodology that have influenced the three pieces seem to congregate directly within drone.

One can observe here two different approaches to the drone form: *Pulse Pollution* and *Tripped*, exhibiting an ever-changing structure with a single tone at its core, rooting the pieces in simplicity, which in turn supports the pieces' conceptual frameworks. These

pieces take on forms more often found in other spaces of experimental electronic music, they connect to drone mostly through their point of origin and their aesthetic priorities.

In *Kerntemperatur*, on the other hand, the influences are felt more directly. Homages to more popular streams in the style, such as drone metal, permeate the piece. There is also a more traditionally free relation to time, as *Kerntemperatur* plays with the audience's perception of its passing in its comparatively brief, yet by current electronic music standards still unwieldy, runtime. It quite clearly reinforces expectations one might have towards a drone piece, yet, within adherence to this restrictive form, a lot of creative freedom can be found. It is no surprise that this piece, more than any others discussed here, became central to developing the more open forms needed for live performances. The method of live-mixing and sculpting the piece to its venue and audience reception has quickly become my preferred way to perform this piece.

Chapter 5

Conclusion

Throughout this thesis, I have highlighted the conceptual and methodological backgrounds of my artistic practice during my master's program. I have highlighted various aesthetic streams in modern drone music, starting with its seeming refusal of conceptualization. In this opening chapter, I have highlighted the inherent challenge that drone music presents to conventional analytical methodologies, which emerges from drone's deliberate engagement with modes of experience that are difficult to categorize in musical discourse.

Afterwards, I attempted to show how drone is defined among listeners and practitioners, discussing its different identifications as a genre, style, or as a compositional technique. Highlighting the often unique way this music affects its audience, together with the way musicians interface with these phenomena, opened a way to discuss the elevated importance of practical work and intuitive thought present in this way of working. Here, I used a 1984 essay by Pauline Oliveros to characterize a passive, or rather receptive, approach to creativity. Other musicians' experiences with similar approaches were also shown. This receptive mode of creativity is a vitally important part in understanding this musical practice, in accordance with accounts of John Cage, Dylan Carlson, and Oliveros herself.

To end the chapter on aesthetics, I called on texts by Aliza Shvartz and Joanna Demers for interpretations of the often spiritual and existential themes present in drone music discourse. I then compared these perspectives to the views of the actual musicians often associated with such themes. Ranging from artists such as Celer and Éliane Radigue, the importance of a certain philosophy and spirituality within drone music practice was examined.

In the third chapter, I discussed the technologies and tools used to compose the pieces at the heart of this thesis. I shed light on the reasons and methods by which I use software such as *SuperCollider*, and how I interface with that software in physical space. The examination of my use of pulse waves has tied the sonic identity of these pieces into the conceptual framework set up in the previous chapter. The evolution of hardware instruments and interfaces across the three pieces has shown the ever-changing relations

between digital tools and their physical counterparts, and how these choices and developments directly influence creative possibilities.

Finally, the three compositions *Pulse Pollution, Kerntemperatur* and *Tripped* were discussed in detail. Here, particular emphasis was placed on how the conceptual and methodological background of every single one of these pieces fit into the context described in the earlier chapters. Each piece's unique relation to technology, the receptive mode of creativity, adherence to common forms of drone music, as well as their actual sonic profile were discussed. This examination has demonstrated how these pieces collectively represent a sustained engagement with the fundamental questions that define drone music as both an aesthetic practice and a methodological approach to electronic composition.

Through *Pulse Pollution*, the role of the pulse wave was explored extensively. The concept of a binary interfacing with, and becoming eroded by, real-world interference lies at the foundation of this piece. The practical translation of this was a highly improvisational approach using an analog tape echo, creating the conditions for entering the receptive creative mode, which connects it to the research found within the rest of this thesis.

Kerntemperatur established a more grounded, yet confident approach. Throughout its three parts, it references and follows more conventional sounds and forms of drone music. Finding ways from electronic pulses to distorted guitar sounds and back again while remaining cohesive was the main practical concern of this piece. Giving every movement its required time, in addition to the transitions in between them, necessitated an extended runtime, which reinforces the piece's relation to the often long forms of drone.

Tripped, as a contrast, would formally and sonically not fit into the conventional discourse of this style. Its inclusion in this thesis serves as a reminder of the wide range of possibilities present within a seemingly limiting practice. Receptivity was achieved through arranging the conditions for glitches to arise and allowing them to happen. The drone here serves as a center of gravity to ground its chaotic and improvisational nature.

In summary, the ways in which these works challenge or reinforce the perception of time and musical form were more directly compared. Emerging similarities in style and form through extended exploration of particular sonic territories were highlighted. The highly practice-based creative processes of these pieces, as well as the evolving relation to technology between them, were observed.

5.1 Prospect

In future projects, I look forward to combining the essences of these works, from the aesthetic foundations shown in *Pulse Pollution* and the experimental methods of *Tripped*,

to the more long-form and live-centric approach of the shape that *Kerntemperatur* took. Working with Pulse Waves was a satisfying connecting thread between these three, yet the evolving nature of my *SuperCollider* work ties all my pieces together anyway. It is unlikely that further exploration of the Pulse Wave will be as big a theme in my future work. Instead, I am more interested in exploring the possibilities hinted at in *Kerntemperatur*: assembling sounds from sources that don't share many properties, and bringing those together through mixing. Especially in a live context, this approach has proven creatively and conceptually fruitful. The capabilities of *SuperCollider* with regards to sampling and sequencing recorded material are powerful methods, which open up ways of composition even with a minimum of controllable parameters. A methodology applicable in a live context is also a rational next step for the aesthetics of intuition I have outlined in the previous chapters. Tuning into a collective experience through the audience, sculpting the sonic experiences through the influences of the venue, its room acoustics, and its sound system. In this way, entering the second mode by attuning to the ever-changing external situations that live performances bring with them.

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