

TARTU UNIVERSITY VILJANDI CULTURE ACADEMY

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**LIVE CONCERTS IN 5.1 SURROUND SOUND**

Master's Project

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## **Abstract**

This report explores the viability of live music in 5.1 surround sound. I have organised 2 concerts in a small venue with my band, Minimal Wind, and solo projects of it's members. I break apart the process of creating music for surround sound, testing it in the venue and the studio, promoting the event and having the concert. I have invited managers, artists, engineers, venue owners and festival organisers and analyse their feedback on the concert experience.

As more and more studios are acquiring surround mixing capabilities, the viability of creating a culture of live surround music in Estonia is increasing. At least with smaller venues, surround music tends to be qualitatively superior to stereo, but since it requires additional cost and effort, there's no incentive structure to build on it yet. The main goal of my experiment is to explore the possibilities and limitations of creating live music in surround sound and spark an interest in creating an infrastructure of artist, technicians, venues and events for concerts in surround sound.

Keywords: live music in surround sound, 5.1 surround sound live, Envelop4Live, Logic Pro, Ableton Live

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## 1. Introduction

The first time I got to hear music in Dolby Atmos was extraordinary - the difference between surround sound and stereo was not subtle. It was as if I went from a 2D world into a 3D one. At the time of writing new technologies have been announced that have the potential of making surround sound ubiquitous - Apple's AirPods have Dolby Atmos's capabilities. VR headsets are rapidly being developed and use surround sound extensively, to create immersive experiences. At the same time Spotify streams music only in stereo and outside of academic circles, concerts done in surround sound are quite rare.

Having experienced the superior quality of surround sound made me wonder - why have live concerts in surround sound not become mainstream? Are there unsolvable technical difficulties, like the dependency on the position of the audience? Do people not care enough about sound quality differences to justify the extra effort that goes into doing a concert in surround sound? Does composing in surround require too much expertise? Is it too dependent on venue size? Is a traditional live concert an essentially stereo experience, since the band is in front of the audience and thus it would not make sense to hear instruments as if they were played from behind the audience? Or rather - have bands not explored creative uses of surround sound to make their live performances more immersive? Is the infrastructure of listening just not ready for surround, since most of the headphones and home speaker systems are stereo?

Probably the most famous band that has experimented with surround sound is Pink Floyd. They got so excited experimenting with four speakers in Abbey Road studios, that they asked Bernard Speight, an Abbey Road tech to put together a system that could work at full gig volume at their concert called "Games for May". In addition to making a quadraphonic sound system, he built Azimuth Coordinator - a joystick given to the keyboardist Richard Wright, who could use it to control where his keyboard sound and prerecorded sound effects would appear.

How did critics react to the concert? The *International Times* hailed Games for May as "a genuine 20th century chamber music concert". Financial Times called the concert "the noisiest and prettiest display ever seen on the South Bank". The administrators of the venue, Queen Elizabeth Hall, were less impressed - they banned Pink Floyd to ever play there again. This was probably not because of quadraphonic sound, but rather the fact that the show used bubble machines and flower petals on the seats, which made a mess out of the venue (Wired, 2009).

I formed a relatively successful band in Estonia called Minimal Wind (3 nominations in Estonian Music Awards 2023, 2nd place in Eesti Laul 2022). My plan is to incorporate the knowledge I've learned during my studies and create a 5.1 surround system live concert in a small venue in Tallinn called Kidrakuur. It hosts about a 100 people and is thus perfect size for my first test with surround sound, since the smaller venue avoids issues arising from the delay between different speakers. Since we have partnered with the first Dolby Atmos endorsed studio in Estonia, Studio89, we are in a great position to experiment with live concerts in surround sound.

My research question is not entirely out of academical interest - if I manage to incorporate creative possibilities from surround sound into Minimal Wind's live show and spark some interest in creating a culture of surround in Estonia, it might be both original and profitable. Dolby Atmos endorsed Studio89 in 2023 - perhaps the reason surround concerts are rare in Estonia is the fact that the technology, even though not new, is only now becoming more accessible. I might be one of the few people in Estonia with all the necessary requirements for creating surround concerts - the talented people who are willing to work on the project for free, compositional ideas for surround sound, an education in related field and the connections in the music industry. Or maybe there are other barriers to making surround sound live concerts work - I am eager to find out.

My role in the project is that of a visionary - I will use the project management skills I learned during my Masters program to organise the concert. I will be composing and arranging music that takes advantage of the surround effects for Minimal Wind. During the concerts I will be performing as a guitarist and host the event.

For technical expertise I will be relying on my Project's supervisor, Christoph Schultz and Rauno Avel from Studio89, who will also be the sound engineer for the live performance. For composition I will use the help of my bandmates, who are also producers - Velle Tamme, Elisabeth Tiffany Lepik and Paula Pajusaar. Each will arrange their solo projects into surround sound and perform as the warm up acts. We will end the night as a band, after having introduced the members through their solo performances.

The concert will take place in a rock music venue in Tallinn called Kidrakuur. For promotion I will be using my skills learned in videography and music production gained in various lessons throughout learning in Viljandi Culture Academy.

## 1.1 A Brief History of Surround Sound

The following chapter is written based on Tomlinson Holmans book “Surround Sound, Up and Running”.

The first person credited with giving spatial directions to musicians that are more complex than left-right is the Flemish composer, Adrian Willaert. He was the organist of St Mark’s Basilica in Venice. At around year 1550, he used the nearly square footprint (the cross of the basilica) to make the developing polyphonic style melodies more distinct. Berlioz’s “Symphonie Fantastique” (1830) contains instructions for the oboe to play off stage to imply distance, Mahlers Second Symphony “Resurrection” has instructions for the brass section to play from the balcony.

Surround effects have been used compositionally for at least 5 centuries, but recorded surround systems were popularised in the 1930s, when the legendary Walt Disney worked with the conductor, Leopold Stokowski. They had a common vision that classical music should be animated in a film. Disney had an idea that “The Flight Of The Bumblebee” shouldn’t only be localisable on the screen, it should be localisable in the auditorium. Disney engineers invented multitrack recording, pan potting, overdubbing and surround arrays in theatres. They called it Fantasound - the forerunner of all surround systems today.

The traditional two channel stereo came about in 1958, with the introduction of stereo LP. While film based audio used three channels, the phonograph record only had two groove walls that could carry two signals. Later CD-s followed the example of LP-s. Most homes have a two speaker set-up and the front sound stage is reproduced through the phantom image - an illusion created by the two speakers that there is sound coming in the middle. Unfortunately that effect is dependent on the listener being exactly in the middle of two speakers.

The quad era (four speaker setup) began in the late 60s through the 70s. People were reluctant to put more loudspeakers to their rooms and there were 3 types of LP-s and tape format so the quad trend didn’t catch on. Also quad recorders had different ideas of how to use it - some wanted the band to be in the front and the hall reverberation to be behind the listener, others wanted to place the listener inside the band or orchestra. Meanwhile in the 70s surround was developing in the cinema world. With “Star Wars” on 70 mm film, engineers set a new standard - 3 screen channels, 1 surround channel and 1 channel for the low frequencies. A few years later, Superman

was the first movie to split sound into left, right and boom (low frequency) channels since Walt Disney's first experiments.

Decoding surround audio has had its limitations due to the available technologies (LP, CD, DVD, Blu-Ray), but digitalisation of media has improved the formats, so that lossless decoding has become widely available.

Standardisation of 5.1 channels for Digital Television came in early 1990s, it improved during the decade by separating the side channels from the back surround channels. At 2005, consumer camcorders were able to record audio in 5.1 format. In home studios, stereo and 5.1 audio have become standardised.

Cinemas have adopted Dolby Atmos format, which is based on a logic of objects instead of channels, allowing for more spatial clarity and precision. IMAX format uses channel logic for audio, but has a top center speaker in addition to the centre speakers in traditional theatres.

To conclude - cinemas have spearheaded the development of spatial audio - the format has been interlinked with available technologies and limited by channels that have to be divided between audio and video. While there have been some experiments with live music in surround sound, it has remained widely unexplored. I believe one of the reasons it has been unexplored is the high cost and technical knowledge that has been necessary to make a live surround sound concert. With the advent of digital technologies live concerts in surround sound have become increasingly doable and I hope to spark a renewed interest in the format with my masters project.

## 2. What is unknown?

Potential for surround sound concerts has existed for a long time. Cinemas have had surround systems in them for decades. Why are there no surround sound venues in Estonia? Why are surround sound concerts done rarely, mostly in academic environments? Why hasn't live surround sound format been commercially successful?

Are there intrinsic problems in the format, that are unsolvable? Are there problems of scaling? Or could surround concert be a viable format in the future, that could be developed and might give some artists a competitive advantage?

Often the obstacles and problems present themselves in the process of trying to build something and I suspect it to be the case with creating a live surround sound concert. However, since the potential for having concerts in surround sound has existed for a long time, some difficulties that might arrive are researchable and thus foreseeable.

### 2.1 Problems with infrastructure

Since surround sound is not a widely used format for live concerts, it is lacking in infrastructure. Most of the venues don't have surround sound capabilities, most of the engineers don't have surround sound expertise and most of the artists do not create music for surround sound. Most of the concert goers probably do not know, why they should prefer a surround sound concert. As a metaphor one could think of a train without railroads - even though trains are an effective mean for transportation, without a railroad network it is nonsensical to build trains.

Should the rails for surround sound concerts be built in Estonia? Would the aesthetic benefits justify the extra effort and cost that goes into having surround sound experiences? As with many processes, things get cheaper and easier as they scale. In my example, I could use the expertise of an engineer already working in surround formats. If there were 5.1 surround sound venues in Estonia, I could have saved the costs of renting the equipment. The venue would have already done some of the promotion with the fact of it existing. It would create an environment that incentivises mixing engineers to work in surround sound.

Creating a culture of surround sound concerts could be compared to cultivating fruit - A surround sound venue, festivals having surround sound stages and artists inspiring others to take advantage of the added creative possibilities act as the necessary environment for the art form to grow.

As a sidenote - potential surround sound concert venues exist in the form of cinemas. In 2022 Coldplay made “Music Of The Spheres” tour live concert that was also aired in cinemas worldwide. One of the foreseeable limits of cinema as the venue is that cinemas are designed for sitting down, which is not ideal for dance music. However, cinemas are ideal environments for audiovisual art. Concerts in cinemas would benefit both artists and the cinemas.

## **2.2 Dependence on audience positioning**

Even though back speakers don't take up too much room physically, the viable area for the audience changes, since if a back speaker is used for musical effects, standing next to it would make the effect too loud compared to the music. Surround mix is done in the centre of the room and only a few people fit in the ideal listening space. Is the listening experience good enough everywhere to justify surround sound compared to stereo or are some spots worse than stereo? Compositionally a balance has to be struck between using surround effects and music being played live, to not overwhelm an audience member with sound effects at the expense of music.

With bigger concerts the effect is magnified. Outside festivals are usually mixed in mono, since the audience on one side mostly hears sound coming from that side. I first came across this problem when listening to a Beatles CD with a friend, where one guitar was hard panned to the left - one of us with the left earphone could hear harmony and the other with the right earphone could only hear the drums. Perhaps surround formats are best suited for indoor venues with limited audience size.

On the other hand, what we experienced with the concert in the small venue is the issue that surround system takes out valuable space in the audience, creating perverse incentive structure. Why would a venue invest in something that would decrease the amount of tickets they can sell?

### 2.3 Incentive problems

From the point of view of the venue, is getting a surround system set up an investment or a liability? In addition to the increased cost of getting the extra speakers and probably paying more for a more experienced sound engineer, the usable area of the venue decreases, and thus ticket sales decrease. It would not be an issue if surround sound made the venue earn more money by default, but there is no evidence that branding a venue as surround venue increases ticket sales. In an environment where venues throughout the world are in decline (Nestor, 2023), investing in a surround sound infrastructure might be considered risky.

Another incentive problem is that of the artist. Creating a surround sound concert takes a lot more effort and funds than a stereo experience. As some musicians reported in the questionnaire (Lystro, Salea), they would rather spend the extra time and money investing in creating a lighting show. The problem is magnified by not having a culture of surround sound, since the less people are capable of going through with such a setup, the more expensive their time is. I was lucky to team up with professionals who are willing to work for free, but creating such an experience from scratch without the necessary contacts and no proof that it would help generate more interest from the audience seems like a risky bet to take.

On the other hand, perhaps the high barrier to entry, both in terms of money and having the right network of people to work with, presents an opportunity. Things that are easy to do have probably already been tried, with increased complexity the likelihood of striking oil increases.

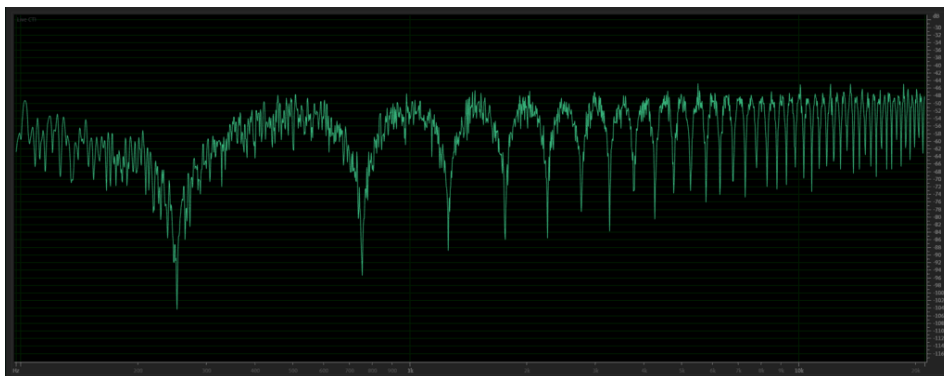
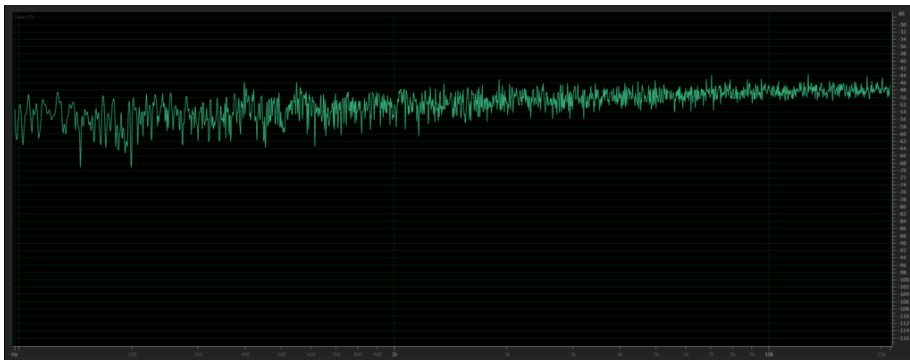
## 2.4 Technical problems

There are also technical issues to consider while organising a concert in surround sound.

### 2.4.1 Comb filtering

Comb filtering occurs when two sources of sound play the same sound and they are slightly out of sync. In that case, some frequencies are in phase and sum together, while others are out of phase and cancel each other out. If a track is duplicated without delay, it will increase in volume by 6 dB. If the track and its duplicate are not in sync, some frequencies will be out of phase.

Kyle Mathias explained it in his article with the following graphs. The first one is the frequency response of white noise. The second one is the same audio that is duplicated with a 2 ms delay. The frequencies that cancel each other by being out of phase cause the comb shape, hence the name of the effect.



In audio, about 30 cm introduce 1 ms of delay. So if audience members are 3 meters apart from each other, there is already a 10 ms delay in relation to one speaker. Not everyone can physically be the exact equal distance from speakers so some of the negative effects of comb filtering are inevitable.

#### ***2.4.2 Haas effect***

Haas effect states that if a signal is coming with the same volume from two speakers, the earlier signal sets the perceived direction of the signal. To produce accurate panning, the sound arrivals need to be at about a millisecond at each listener. When the levels are about equal, just 5 or 10 ms can cause significant image shifting toward the earlier sound source. Longer time differences, up to about 40 ms or so, will yield significant precedence effect – the earlier sound source will set the direction. With time differences of 50 ms or above, an unwanted echo effect will take place (ProSoundWeb, 2009).

The longer the delay, the bigger the problems. A smaller size venue might be optimal for the highest quality listening experience in surround sound, since with large venues with multiple time delayed speaker sets Haas effect might create undesired directionality. It is unlikely to affect concerts in smaller venues, but deserves mentioning for future experiments.

### 3. Methodology

#### 3.1 Practise led research mixed with qualitative research

In their paper “Introduction: Practice-led Research, Research-led Practice - Towards the Iterative Cyclic Web”, Hazel Smith and Roger T. Dean introduce the methodology of conceptual research. The central axiom is that knowledge itself is often unstable, ambiguous and multidimensional, can be emotionally or affectively charged, and cannot necessarily be conveyed with the precision of mathematical proof (Smith & Dean, 2009). To illustrate the point - consider my central question - how to make surround sound in live performances work? How to measure the aesthetic effect it has on the audience? What kind of obstacles need to be overcome to create a culture of live concerts in surround sound?

There are quantifiable aspects, like statistics about concert goers, ticket prices, amount of music written in surround sound, etc. All of those give knowledge about the subject. But what I am deeply interested in, the reason why I am doing the research, is harder to quantify. It would have to answer a question about the subjective experience of the listener. While it is impossible or hard to measure, it's what really matters - a seemingly successful concert might leave the audience cold, while a person could be moved to tears by hearing their grandmother sing. It is the latter type of experience that interests me as an artist - how to deeply move the audience? How to make the listener truly think that she had a worthwhile, potentially therapeutic experience?

Barbara Bolt argues that through creative practice, there can “arise a very specific sort of knowing, a knowing that arises through handling materials in practice.” She calls it praxical knowledge and claims, that it can introduce a shift in thought (Bolt 2007: 29). Through doing, problems and solutions appear, specific knowledge is gained and insight reached that would be unavailable otherwise.

As a methodology, I combine practice-led research with qualitative research. On one hand there is a lot of knowledge to be gained by composing music for surround sound, experiencing the elements that work and don't, experiencing surround music in different contexts. On the other hand investigating the ideas and insights of experts from different relevant fields (music, technology, journalism) will enrich my research. Often as artists we gain feedback by talking to the audience after the shows and being attentive, but that has a positivity bias, since rarely is a concert so terrible

that an audience member feels compelled to tell it to the artist. In addition to getting all the feedback I can after the live show, I will send a questionnaire to everyone I manage to reach and encourage them to give me honest feedback.

### **3.2 Epistemology**

The main influence to how I view epistemology is Karl Popper's falsification theory, as popularised and further developed by David Deutsch in "The Beginning Of Infinity". According to that the best way to gain knowledge is through good explanations - hypotheses that are hard to vary and can be disproven. The best theories are ones which are disprovable, but still stand. Theories are not dogmas, rather they are our best guesses that are falsifiable, but haven't been disproven yet.

In his book, "The Evolution Of Everything", Matt Ridley explains that technology, inventions and ideas follow a process similar to natural selection - 99% of species have already gone extinct, but the ones fit to the environment survive. Nature evolves by generating varieties of species, which go through natural selection.

I view my experiments with surround sound concerts as part of the evolutionary process. I present my vision of surround sound concerts to the process of cultural evolution. Through iterations the concept evolves - aspects that do not fit the culture will die out, while others prove themselves worthy of additional iterations. For instance it might appear that surround music is better fit for electronic setups. Thus I would continue trial and error with electronic music, with the end goal of improving the concert experience and hopefully creating something artistically pleasing and profitable.

On macro level it will take years to see, if the cultural infrastructure of artists, venues, organisers and fans will accept this format.

On the micro level I test many ideas in composition, organisation and live experience. Some examples of compositional experiments would be panning choirs behind the audience, having guitar delays surround the audience, using the backing track to bring animal sounds to the show - the feedback of the audience will hopefully show if an idea is worth developing further. On promotional level the micro experiments would be to see if a particular style of promotion works, for instance using self-deprecating humor in videos and assessing if it increased ticket sales. All of it gives specific falsifiable hypotheses, which I'll represent as truthfully as I can.

### **3.3 Entrepreneurial approach**

Ultimately the fitness of surround concerts is decided by the market - will the product of a surround concert be commercially sound? Does the improved concert experience justify the extra cost and effort that goes into organising such an event?

In the timeframe of the masters project it will not be possible to understand the answer to the bigger question of whether surround sound concerts are a good cultural fit in today's society, but hopefully this theses can provide guidelines for future experiments and points out some mistakes, questions and potential that can only be arrived at through trial and error.

### **3.4 Groups to survey**

My analysis will be partly based on the findings through executing the project and partly by getting the written feedback of relevant experts and concert goers.

There are multiple groups whose opinions are valuable to my research. I will mostly be interested in the answers of people capable of building up the infrastructure for concerts in surround sound - the musicians, composers, engineers, musical experts, managers, music business representatives, venue owners and journalists. As important, if not more important, is the viewpoint of the concert goer - did the audience notice anything different from other concerts? Would the increased benefit justify the added costs of doing a concert in surround sound?

### 3.5 Questionnaire

Since the audience members might notice some aspects of the experience I don't, I keep the questions open and leave room for feedback I might have not thought of myself. In general I sent out the following questionnaire:

What was your overall impression of the concert?

Did surround sound make a difference compared to stereo concerts? If yes, how would you describe it?

Do you think surround sound has potential to become a popular format for live music?

What would you like to see tried?

Do you have feedback on how to improve the concert?

If relevant, for instance if the one I quizzed is an EDM artist, I changed the questions slightly. I also asked for feedback from my band members, with whom we built the concert experience, since they have the most precise valuation of the effort and potential benefit of the event.

I have added a link to all the people I sent the questionnaire to with their credentials (if relevant) and full answers in appendix 1. In the summary I analyse the patterns I noticed both from written, verbal and visceral feedback.

## **4. Limitations of my research**

### **4.1 The problem of getting objective feedback**

Since Estonia has a relatively small population and people in the music industry tend to know each other, it might be the case that the experts I survey are also my friends, thus tainting the validity of the answers. In order to remedy the situation I will take extra measures to keep the survey objective - to make sure that my research is in no way personal. I have added the following clause to the end of every questionnaire: "Please note that honesty is appreciated. My goal is to explore the medium of surround sound and both positive and negative feedback are tools to do that."

Ultimately the success of my project will be determined by whether live concerts in surround sound catch hold in Estonia and whether bands start composing for surround formats. The answer to that question will be seen in the timespan of years - hopefully my project will spark some interest in the medium of surround sound.

### **4.2 The problem with the size of the venue**

My masters project will take place in a venue that fits about a 100 people. That brings up two problems. On one hand, technical issues we face and fix may be bound to the specific venue and not apply to venues of other sizes. On the other hand, the sample size of the people might not be large enough to be significant. I might not be able to survey all the experts and groups I intend to. Also since this is a two time live event, experts might not be able to attend and thus deprave the research of their input. In order to remedy that I will make sure to send the invites to various groups of experts as early as possible and try to find replacements in case of scheduling conflicts.

## 5. The process

### 5.1 Composing music for surround sound

In order to justify a live concert in surround sound for a band, the compositions have to make sense. Seeing the guitar playing in the right side of the stage and hearing the sound from the left behind the listener would likely just be disorienting. On the other side, immersing the listener into the music and colouring the experience with other tasteful effects might enhance the concert experience. I decided to rearrange 10 Minimal Wind songs to fit surround system. In addition to that I asked band members Velle, Elisabeth Tiffany and Paula to compose their solo live acts with about 5 songs each in 5.1 surround format.

#### 5.1.2 *My setup*

For the duration of 3 months I made a quadraphonic setup to my home studio. I borrowed Genelec speakers with a subwoofer and set them up as the front speakers. I put my own Adam 5F studio monitors as the back speakers and connected them all to my computer through my guitar multi effects processor and amp simulator, Quad Cortex, which also acts as an audio interface. Ideally I would have liked to work in a 5.1 setup with matching studio monitors, but my setup was good enough for composing and a rough mix - I had arranged a few days in Studio89 to fine tune what I did at home.

#### 5.1.3 *The specifics of composing in surround sound*

Most of the songs are played with a backing track. That allows me to send MIDI signals from Ableton Live (digital audio workstation) into Quad Cortex to make guitar pedal changes automatic. Since Ableton is not designed for surround sound, I used a third party plugin called Envelop 4 Live, which is an open source audio production tool. On one hand it's free and it has almost worked so far, on the other hand I might run into issues with compatibility that are unfixable. Of that more will be written in the chapter "Experimenting in the studio". Hopefully most of the problems can be mitigated by not installing any updates to Ableton or MacOS.

Envelop 4 Live came with effects that allowed for surround panning and surround delay, which are unavailable in Quad Cortex. My first compositional discovery was that guitar delay in a surround setup gives incredible immersive creative tools, allowing to start the song in mono and have it run circles around the audience. I could also use the delay to create something similar to a canon. The downside is that I can only use the effect if I play through Ableton and thus have to use CPU power and play with latency. With buffer size of 256 playing already feels like my playing is the slap-back delay. With buffer size of 128 I still can feel the playback delay, but can manage to play the parts almost in time.

With buffer size of 64 I don't notice the delay, but my MacBook M1 Pro with 16 GB memory is not powerful enough to manage the playback with dropouts and significant problems. I found two possible solutions to the problem. One would be to pretend playing and actually have pre recorded guitar parts. I decided not to do that, since that would make the live band part of the equation redundant. Instead I decided to compromise playing with buffer size of 128, risking with some audio problems and making my life on stage hard with latency, but keeping the music more dynamic and alive by playing it live.

The first thing I noticed in my quadraphonic setup is that I get a much bigger visceral effect while hearing music. I got goosebumps when I started working on our song "Torchlight", with surround delay, uplifting choirs and sub-bass from the backtrack. The second thing I noticed was that all the elements have to be rhythmically tight, otherwise the music turns to noise. In a surround setup being on time is much more important than with a stereo setup. What makes it even harder is the latency that is introduced playing through Ableton and playing live with other band members.

I found a compositional tool to mitigate the problem - to avoid rhythmical clashes, most of the backing track should be minimalistic, simple and powerful. I used brass and string sounds to play long notes from behind the audience. During the delay parts other instruments are either not playing or playing minimally. When the vocals are more rhythmical, the other instruments keep it simple.

Another thing I learned from my mentor, Christoph Schultz, is that transient sounds have a more noticeable effect in surround sound. Lower frequencies and pads reverberate through the room and fill up the space in a way that makes it harder to notice the direction of the sound, whereas s sounds or a fly buzzing are easier to make directional, both of which I used in composition. Taking inspiration from Walt Disney's requests for "Flight Of The Bumblebee", I start our song "Black Flies" with the sound of a fly buzzing through the audience and getting smacked into slimy oblivion

in the end before the first riff of the song. We also use the idea of smacking a fly in our choreography.

With surround sound ambiences also worked well to create a more immersive experience. We decided to start the show with our song, “Sirens”, with an intro using sea waves and eerie whispers in the backing track to show the audience surround effects immediately. We use a lot of choir soundscapes in our music, which seem to translate well into surround sound, creating the effect to the audience that they are inside a choir.

Other noteworthy surround effects are the intro of our song “Dark Horse”, where I create the effect of a horse galloping sonically through the audience. I’m doubtful whether it creates the desired effect or appears somewhat tasteless, since a horse running through the audience is nonsensical, whereas a fly in the venue is a possibility. I am curious to test whether the horse galloping sounds work.

In terms of mixing, a good practice is to use mono sources instead of stereo to bring more clarity to the surround mix (Waves, 2017).

Overall the composing process was fulfilling in the sense that I got to discover a lot of tools and use them. Also I found that with surround sound, the mix will fit a lot more audio information and a lot more powerful effects in music could be achieved. On the negative side, since Envelop 4 Live is an open source software, most of my time was spent troubleshooting and trying to make things work rather than compose, thus most of the time spent on the project was not fulfilling.

## **5.2 Experimenting in the venue**

One of the reasons I chose to have the concert in Kidrakuur is that the owners offered us an opportunity to experiment in the venue before the concert for free. We booked an entire day there on 24th of March. Since the setup is much more complex than with stereo concerts, we were lucky to get a chance - in 3 hours we managed to setup QSC 12 speakers behind the audience and the owner drilled the fifth, mid speaker to the roof of the venue. The venue already had subwoofers under the stage - we added another subwoofer to the back of the room. After connecting all the necessary microphones we could finally start the soundcheck. Everything went, as one might expect, absolutely and objectively speaking, horribly - the sound was muddy, wrong elements played in the backing track, the click track was routed to the left speaker and the guitar MIDI switches didn’t

work. It turned out to be wise indeed to not make the setup on the day of the concert, but give ourselves a lot of time to understand and eliminate all the errors.

It took as about an hour to get everything working properly and Rauno Avel, our sound engineer, to mix everything properly in the room. Since we use wireless systems on our guitars, we could play and hear the band from the point of view of the audience. To my great relief after fixing our problems it sounded much better and more immersive than in stereo - the problem with the audience positioning and comb filtering turned out to be almost negligible in a venue for about a 100 people - it sounded better than stereo from every position in the audience.

It is also noteworthy that our choices were amateur in the sense that they were based on availability. Ideally we would have used matching speakers and put them in the exact same height, but we lacked the tools and the team members for that. Even with technical imperfections we noticed a significant improvement in the listening experience compared to our other concerts.

After having set up our system, we decided to cap the ticket sales to 80 people, since the speakers and the subwoofers decreased the available area for the audience.

### **5.3 Experimenting in the studio**

Thanks to Rauno Avel, we were in a position to be able to test everything in Estonia's first official Dolby Atmo's officially certified studio, Studio89. We booked 5-7 April and 20th of April to work in the studio and do our soundcheck and in-ear monitor-mixes for the concert. He has been immensely helpful both technically and creatively, helping us achieve desired effects.

On the first week we planned to finish everything (mixing the backing tracks, rehearsals and in-ear-monitor mixes) in 3 days, but then once again the idea of having redundancy in our planning proved helpful. On the first day when we planned to finish all our surround mixes, the Ableton project crashed and wouldn't open again. It took about an hour to find out the problem - to combine her solo project songs with Minimal Wind, Paula added the two Ableton projects together and having two Envelop 4 Live master tracks in the same project would crash the computer. After 5 hours of rare and expensive time in the studio, I had managed to recreate what we had from an earlier save of the project and we were back at where we should have been in the beginning of the day. We changed our plans and decided to only work on the mixes for the weekend. We also decided to avoid open-source software in the future. Since so much work had already gone into

Minimal Wind project, I decided to risk it and use Envelop 4 Live for our concert, but for the solo projects, Velle, Tiffany and Paula decided to do the project in Logic Pro instead, which has native surround capabilities.

We managed to get most of the mixes done on the first weekend at the studio. On 20th of April, we were in the studio from 10 pm to 1 am. We recreated the stage on Kidrakuur to see how we fit everything on the stage and managed to do our in ear mixes, fix what we could, hear how it sounded like from the audience and do our best to fix most of the problems with the time we had.

#### **5.4 Promotion**

I had experienced the wonders of surround sound in the studio, but how to sell a live in surround sound to non-technical people? That question might point to a major problem in creating the infrastructure for surround concerts - if the increased quality of the experience doesn't translate into better sales, then there are no incentives to make surround sound concert venues, since it will bring additional cost and complexity to the venue and to the artists.

Due to the experimental nature of the project and the relatively small size of the venue I decided to promote the concert myself.

I put the concert up in online ticket vendor Fienta and sent the invite to our facebook fans and other friends, who might be interested. Subjectively speaking and having organised our concerts before, I didn't notice any extra interest which might be attributed to the surround sound aspect of our live. It didn't surprise me, because "surround sound" is technical jargon and probably doesn't mean much to an average concert goer.

As a solution I decided to use the skills I learned during my studies in the visual department and created a cinematic trailer to our concert. I used humor and cinematic sound design to try to promote the concert and explain surround sound in layman terms. I used a picture of goosebumps to describe what it is, since it was the visceral reaction I got from it. The link to the video is available in Extras.

The video got some traction, getting a 1000 views with the first hour on TikTok. I saw some increase in ticket sales after the video. Most of the tickets were sold a day before the event. For the second night almost half the tickets were sold after the first show. Probably the feedback from the audience stories and word to mouth generated extra interest in the experience. One of the owners of

the venue, Kristjan Sootalu, stated publicly in an instagram story that it was the best concert that's ever been in Kidrakuur. Several people from the first evening decided to come again on the second evening, which seems to be a testament to the success of the first concert.

## 5.5. Concerts

I am writing on 4th of May, in the morning after the first concert. Subjectively the experience was overwhelmingly positive - going through the process felt exciting, the hiccups were minor and easily fixable. I am aware that the feedback that I hear after the concert is positively biased, since people tend to keep their negative feedback to themselves, but some of the things I was told deserve mentioning. A listener told that before the concert the world appeared black and white and after the concert he could see colors again. In addition to being a very moving thing to hear after putting so much effort into a fleeting thing like a live concert, it speaks to the therapeutic potential of music in surround sound. A musician told that she got excited about doing music again. As for the surround effects, one fan told that it reminded him of a psychedelic experience, hearing the sounds behind him. The first time surround effects came in, I could see the audience visually looking around, at least partially in awe.

Another benefit of doing the concert two nights in a row is that a lot of small problems that are hard to see at the planning stage and become obvious during the execution can be fixed. For instance during the solo performances the performer had to turn the backing tracks on herself and the computer was behind her. It would be much better if one of us helped do that.

A lot of the bands live was without pauses, but we didn't take into account the audience cheering, thus a song would start too soon. In the beginning of our song "Torchlight" I couldn't hear the click track, because we the audience microphones in my in-ear-monitors was too loud.

Our timetable was off by about 15 minutes and we decided to prolong it to take a break before we went on with Minimal Wind, because it seemed necessary from the point of view of the audience.

Both of the evenings felt like full house. On the first night the audience felt receptive - it seemed like we created a special experience together with the fans. We started the second night with high expectations, but the audience appeared to be in a more analytical state of mind. Even though there were slightly more people on the second evening and we fixed some technical issues, the subjective experience of the band members was much better on the first evening. We did consider

both of the evenings to exceed our expectations. In our discussions it seemed like we might be on to something, that might give us a competitive advantage.

## 6. Conclusion

In this chapter I attempt to answer the question “what to make of this?”, in regards to the conclusions arrived after finishing the masters project. As an experiment I have written the next chapter before the concerts, to see the differences in expectations and reality.

### 6.1 Prediction

I am writing this on 29th of April, 5 days before the concert, to predict the outcomes of my research. So far I've worked on the project for about half a year and analysed it's viability. It would be interesting to see how the prediction differs from the actual experience.

On the positive side, I believe that technical errors notwithstanding, the concert experience will be clearly superior to stereo concerts. Experiencing that led me to the project in the first place and I believe it will be an objectively better experience to attentive concert goers. I also believe that it's affordable to smaller venues - at least for venues for a 100 people the phase cancelling issues and dependence on the positioning of the audience was negligible. I believe it would also work for venues for 300 people and will test it next year.

With live bands I believe surround sound will not become popular, for multiple reasons. On one hand, it is very hard to do, both creatively and technically and a lot of the work is tedious. There's an overwhelming amount of things to pay attention to and it's physically hard to have the instrument and in ear monitors, make changes in the digital audio workstation or mic positioning. It's expensive to work in a suitable studio environment. It could all be done for art's sake, but the final product will not be experienced by the musicians, since they (we) have to play with in-ear-monitors in stereo or mono. Perhaps a possible solution would be to position the band in the audience, but I fail to see the commercial appeal of such an experience.

Also musically bands are usually positional - the instruments are sound sources in a specific positions and it makes sense for the sound to appear to come from the place where the instrument is played. If backtracks are the main elements of music, it will become questionable to have the band on stage.

As a band musician I am not incentivised to work with surround sound, since I will not experience the increased quality in my in-ear-monitors. We have been playing and selling tickets for 2 years and the fact that our concert was branded as surround sound didn't seem to generate any extra interest compared to our other concerts. There might be many reasons for that and maybe surround sound could be branded in a way that generates more interest, but I doubt that.

I believe surround sound might be a profitable enhancement to EDM and club music, since it creates immersion. Dance music is designed for people to lose themselves in the experience and surround sound is a relatively inexpensive and simple way to achieve that. It would be much easier and sensible to write electronic music for surround sound.

To conclude I don't think that creating an infrastructure (venues and artists working with it) for surround sound is profitable, but it will increase the quality of concerts.

## **6.2 Analysis**

### ***6.2.1 Subjective experience***

Compared to our other performances, surround sound live seemed to generate more excitement and immersion in our audience. We felt it especially on the first night, when audience was more composed of fans and felt very responsive. The second night felt positive as well, but it seemed like the audience had a more analytical frame of mind.

We had the experience of listening to our first nights recording from audiences point of view. Other than live drums and the sonic differences that happen with the audience absorbing sound in a room, we heard our playback. Even though I'm usually self-critical, I felt proud listening to the playback - what I heard was a close enough approximation of what I had in mind when composing the music.

I mostly agree with the prediction, except that after going through with the experience I had more optimism and started to believe that surround sound live might become commercially viable. The experience was similar to building a prototype - after having done it once, it is much easier and cheaper to do it again. We can use and improve the backing tracks we already built and we know how to improve the experience technically. We got new compositional ideas to explore.

### ***6.2.2 Feedback of the audience***

Only part of the feedback is captured with the questionnaire - a lot of it comes from the conversations after the live shows and hearing what other band members heard as feedback. Some of the feedback varied, some of it was consensual. The practical steps for developing and improving the experience seem quite uncontroversial.

Unsurprisingly the consensus was that surround effects were easier to hear and had a stronger effect in solo performances with less elements. Compositionally surround sound supports minimalistic music and can be used as both as a tool for sparse compositions or for creating the contrast to fuller and louder parts of the live show. On some audience members, using choirs behind the audience created the immersive effect of being part of something bigger, similar to being on the stage of Estonian Song Festival. It might be considered one of compositional tools to make an audience member “lose themselves” in the music.

The opinions on surround effects varied greatly, from negligible and gimmicky to psychedelic and immersive. While some responders doubted, if surround effects were good use of resources, both materially and as an opportunity cost, no one seemed to think that surround sound in itself was worse than stereo. Johannes Valdma (Appendix 1) was critical that surround sound forced the audience into a smaller space, but the criticism didn't apply to the sonic experience. It deserves mentioning that one of the potential problems of 5.1 surround concerts from the point of view of the audience is that the experience might be disorienting (Tennant, 2023), but I did not receive this feedback with my project.

While experimenting in the venue without an audience, the dependence of where the audience stood did not seem to play a significant part in the concert experience. However, a few listeners reported that due to their position, some effects were too loud and drowned more important aspects of music, like vocals.

Another critical point was that the backing tracks were too loud and drowned out the real vocals and playing.

The extra effort and cost of surround sound is not paid by the audience. Therefore it seems like a worthwhile endeavour for the artist with the know-how on going through with such an experience.

An anonymous mixing engineer told us that doing a concert in bigger venues would work even better, since the reflections coming from the room would present less problems. I believe that the next step to create the infrastructure for surround sound in Estonia would be to achieve and prove that it works in venues for up to 500 people, for example Kinomaja, Paavli Kultuurivabrik and D3 in Tallinn, Genialistide klubi in Tartu, Pärimusmuusika Ait in Viljandi, since it would cover the needs of most bands in Estonia.

### **6.3 Some ideas to develop surround sound concerts further**

Through practice and feedback some ideas emerged, that could be tried to advance the culture of surround sound concerts. The ideas are both organisational and compositional. They will be described in a random order.

#### ***6.3.1 Organising a live surround sound festival***

Since there doesn't seem to be enough awareness about surround sound in concert goers and there are not a lot of artists and engineers, who would be willing to invest time into trying this format, it seems unlikely that a venue would transform into a 5.1 surround sound venue.

I heard rumours, that someone from Jazzkaar festival came to see our show to see if a surround stage would be suitable for Jazzkaar, but unfortunately didn't manage to track the person down. Introducing festival organisers to surround experience might be a fruitful pursuit. Franck Reissner, the owner of Studio89, told in the feedback form that they are in soft negotiations with Tallinn Music Week about creating a surround sound stage to their festival. Minimal Wind band members were excited about organising our own surround sound festival and adding other artist friends of ours.

#### ***6.3.2 ASMR composed into live music***

Autonomous Sensory Meridian Response (ASMR) describes the experience of tingling sensations in the crown of the head, in response to a range of audio-visual triggers such as whispering, tapping, and hand movements. It is often described as “aesthetic chills” and hasn't been widely researched yet, but shows promise for it's therapeutic and relaxing effects (Poerio *et al.*, 2018). On the next

Below is a list of common triggers for ASMR. A lot of them could be reproduced during a live concert.

<b>Number of triggers—of 13 (M—(SD))</b>	<b>6.76 (3.30)</b>
<b>Trigger type (N—(%))</b>	
People speaking softly	598 (74)
Getting your hair played with/brushed	591 (73)
Whispering	569 (70)
Close personal attention	530 (65)
Getting a haircut	456 (56)
Interaction with face or head	447 (55)
Tapping on hard surfaces (e.g., wood)	418 (51)
Watching people do things in a careful, attentive way (e.g., filling out a form)	415 (51)
Hand movements (visual)	386 (48)
Scratching sounds	381 (47)
Water/fluid sounds	294 (36)
Lip-smacking	244 (30)
Observing/listening to someone eating	166 (20)

What initially drove my interest in surround sound live was the biological reaction of goosebumps and shivers down my spine I got when hearing music in Dolby Atmos. I also experienced it while preparing for the show. I was thrilled to hear from multiple audience members that they had the same experience - particularly when hearing violins or choirs from the back speakers behind. It would be interesting to know if goosebumps could be reliably sonically created. My best guess is that it is subjective and similar to hypnotic susceptibility - some people are more prone than others to be influenced by music. If, however, some percentage of the audience reliably experiences pleasant physiological changes thanks to surround sound, it might redefine concerts as we know it.

Another interesting aspect of ASMR is commercial - how would a concert branded through ASMR sell? What kind of audience would it attract? Would it be a viable way of communicating surround sound experience to a wider audience?

### ***6.3.3 Compositional ideas***

As noted in some feedback, the concert would have benefitted from professional and thoughtful lightning design and videography. If music without much visual consideration could already create immersive effects, the potential affective influence a live show that added the visual elements, would be immense. Due to the lack of funding I couldn't afford extra visual technician and lights to our show, but with more time it would be an avenue worth exploring. Viljandi Culture Academy taught me the necessary jargon for live light design and visuals. I also formed connections with potential partners in the visual department of the live shows.

One possible path would be to create an album called ASMR and base the entire sound and visual aesthetic around the concept. On one hand it could be a unique selling point to the band, on the other hand it would help bring awareness of the possibilities of surround sound to the culture at large in Estonia.

In terms of electronic music, if one has the necessary tools for composing in surround sound, it seems worth the effort, since without live instruments surround effects are easily controlled and heard - mixing backing tracks to the surround sound format is a one-time cost and could be used easily, if opportunities present themselves. With band music, I would use surround sound with added choirs behind the audience, to create immersion. I would also use it to create atmospheres for concept shows. In general, however, I think it is very hard to get the right mixing balance with live instruments and surround effects and perhaps the extra effort is not justified.

## 7. Conclusion

As my masters project “Live concerts in 5.1 surround sound” I have explored the viability and potential of live surround sound concerts by organising live events two nights in a row in a venue called Kidrakuur. I composed and performed music with my band, Minimal Wind. In addition to that I had my bandmates prepare and perform solo projects designed to the 5.1 surround sound format.

My interest in the subject came from experiencing vast increase in quality while comparing stereo format with Dolby Atmos in a studio setting. I was curious to find out why concerts in surround sound have not become a trend, since the technology has been available for a long time. To be more precise, I was curious if a culture of surround sound concerts could be created in Estonia? Could there be venues that are set up specifically for surround sound? Could there be popular surround sound festivals? Could there be artists who play in surround sound and audience, that is aware of the difference it makes? Could surround sound concerts be commercially viable? In addition to the more general questions about creating a culture of surround sound concerts in Estonia, I was curious to learn more about the specifics - how to compose music to surround sound? What are the minimal requirements technically? Does promoting an event as surround sound generate additional interest in the audience?

Partially my questions could be answered through practice - many problems and solutions only appear in the process of doing. Other answers are harder to assess through practice. For that I have invited people relevant to creating an infrastructure for surround sound to the performances and asked for their honest feedback in written form. The usefulness of the latter exceeded my expectations, giving me specific guidelines for future experiments and feedback for what to continue developing and what to cut.

Compositionally I learned that surround sound is a great tool for minimalistic details. Too many rhythmically complex details in surround sound create the sonic equivalent of brown color. Surround elements are good for creating specific natural environments - elements like sea waves or birds singing place the music in a context.

Just panning musical elements around the audience has to be done tastefully - it's a cool effect the first time, but turns gimmicky fast. The directionality of transient sounds is easier to notice in surround sound than pads.

I was surprised to find the utility of long pad sounds, like choirs, string and brass sounds for

surround sound. I hypothesised that these sounds don't benefit much from surround and can be used to create a kind of canvas of long notes on top of which melodies and rhythms can be built. In feedback many people remembered surround choirs as being an immersive tool, making the listener feel like she's part of a larger whole.

One of the most interesting observation is that of ASMR sounds. While composing for surround sound I noticed that I got shivers down the spine from music. Some audience members noticed it too, particularly with violas and violins playing from the back speakers. Using ASMR triggers in music and branding a concert through ASMR might help bring awareness of surround sound possibilities to a wider audience.

Technically I was surprised to find that even though the room was small and presented problems with muddy room reverb, even though we had different speaker sets in front and in the back, even though we didn't measure the height of the speakers precisely, the effect still worked. The issues of dependence of audience positioning and phase cancellation were practically much smaller problems than I presumed in the research phase. The most critical technical issue was hearing the vocals, which can partially be fixed compositionally.

In terms of promoting an event, having organised our concerts before, I didn't notice any extra interest from the audience because of surround sound. There was, however, a large spike in interest after the first night of the show, which might be because something about the concert experience clicked with audience. There is not enough data to know the reason for the extra interest - it might be that people experienced surround sound and it made them share it word to mouth, it might be that something else worked about the concert, it might be the owner of the venue sharing a story about it being the best concert of all time there or it might be random.

In terms of creating a culture of surround sound, Franck Reissner, the owner of Studio89 told that they are in soft negotiations with TMW to create a surround sound stage to the festival. The venue owner, Kristjan Sootalu, thought that it would not make sense yet to convert their venue into a surround venue, since it requires too much expertise from the mixing engineer and wouldn't make sense financially yet. The artists that came to see the show seemed to think that even though surround sound added to the experience, they would rather invest their extra resources to other aspects of the show, like lighting. Sandra Sersant, manager of Liis Lemsalu, encouraged us to continue with exploring sound sound in bigger venues.

In conclusion it seems like a concert in surround sound is qualitatively better than stereo. However, because of the high barrier of entry to creating a surround experience, in terms of cost,

time and effort and no indicators that audience would be willing to pay more for surround sound concerts, creating a culture of surround sound concerts is not incentivised. It is a vast area of exploration artistically, since a lot fewer musicians have the means to work in surround sound than stereo. Commercially, the downsides of working in surround sound don't seem to outweigh the upsides, yet. However, surround sound has vast potential in terms of creating original and unique experiences, and thus deserves exploring to artists with the means to do so.

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## Appendices

### **Appendix 1 - Link to audience feedback**

Here is a link to insightful answers and feedback about the concerts in written form. I have interviewed musicians, team members, engineers, venue owners, managers, people from music business and other listeners. While my analysis captures the gist of what was said, most of the feedback is thoughtful, honest and worth reading.

I have added their names and credentials when relevant. I have not changed the wording of the feedback and edited only the formatting for clarity.

<https://drive.google.com/drive/folders/1URpxLtFDJDNkYIip99ubAjCBH3geMEYk?usp=sharing>

### **Appendix 2 - Link to the unlisted promotional trailer**

[https://www.youtube.com/watch?v=xiB-4XOV5AI&ab\\_channel=Taavi-HansK%C3%B5lar](https://www.youtube.com/watch?v=xiB-4XOV5AI&ab_channel=Taavi-HansK%C3%B5lar)

### **Appendix 3 - Link to videos and photos of the event**

Here are some videos and photos done by audience members of the event.

[https://drive.google.com/drive/folders/1DmCKjep6a0Mj3Z0AFP8\\_CJCpb8N\\_xDTt?usp=sharing](https://drive.google.com/drive/folders/1DmCKjep6a0Mj3Z0AFP8_CJCpb8N_xDTt?usp=sharing)

## Kokkuvõte

Magistritöö “Live Concerts in 5.1 Surround Sound” raames uurisin ümbritseva heli (*surround sound*) kontsertide elujõulisust ja potentsiaali, korraldades kahe järjestikuse õhtu vältel live-sündmused esinemispaigas nimega Kidrakuur. Komponeerisin, arranžeerisin ja esitasin muusikat oma bändiga Minimal Wind. Lisaks sellele lasin bändikaaslastel esineda oma sooloprojektide lugudega, mis olid kavandatud 5.1 ümbritseva heli formaadis.

Minu huvi teema vastu tekkis võrreldes stereoformaati Dolby Atmosega stuudio keskkonnas. Kvaliteedi kasv ümbritseva heli formaadis oli märkimisväärne. Tekkis küsimus, miks ümbritseva heliga kontserdid pole muutunud trendiks, arvestades, et tehnoloogia on olnud kättesaadav juba mõnda aega. Kas Eestis saaks tekitada ümbritseva heliga kontsertide kultuuri? Kas saaks olla esinemiskohti, mis on spetsiaalselt ümbritseva heli jaoks seadistatud? Kas saaks olla ümbritseva heliga festivale? Kas saaks olla artiste, kes esinevad ümbritseva heliga ja publikut, kes on teadlik sellest, mis see tähendab? Kas ümbritseva heliga kontserdid saavad olla kaubanduslikult elujõulised? Lisaks üldisematele küsimustele ümbritseva heliga kontsertide kultuuri loomise kohta Eestis olin uudishimulik ka konkreetsete küsimuste osas, mis on seotud ümbritseva heli kogemuse loomisega. Kuidas komponeerida muusikat ümbritseva heliga? Millised on minimaalsed tehnilised nõuded ümbritseva heliga kontserdi korraldamiseks? Kas ürituse reklaamimine läbi ümbritseva heli suurendab publiku huvi?

Osaliselt saab mu küsimusele vastata läbi praktika - paljud probleemid ja lahendused ilmnevad alles tegutsemise käigus. Teised vastused on seotud publiku tagasisidega. Selleks kutsusin üritusele inimesi, kes oleksid võimelised ümbritseva heli kontserdite kultuuri looma - teised artistid, helindajad, esinemispaikade omanikud, muusikaäris tegutsevad inimesed, festivalide korraldajad. Mu eesmärk oli kontserdiga näidata omapoolset nägemust ümbritseva heli potentsiaalset. Peale seda küsisin eelmainitutelt kirjalikult tagasisidet kontserdi üldmulje, ümbritseva heli ja võimalikke tulevikusuundade osas.

Kompositsiooniliselt õppisin, et ümbritsev heli on suurepärane tööriist minimalistliku muusika jaoks. Liiga palju rütmiliselt keerukaid detaile ümbritsevas helis muutuvad kiiresti kaootiliseks. Rütmilisele keerukusele on tarvis tausta, mis säilitab selguse. Ümbritsevad elemendid sobivad hästi näiteks looduskeskkondade loomiseks - mere lained või linnulaul paigutavad muusika konteksti, mis tekitab lisa immersiiivsuse võrreldes stereo kontserditega.

Üks üllatavamaid tähelepanekuid on seotud ASMR helidega. Ümbritseva heliga töötamisel märkasid, et mul tekkisid kergesti judinad. Mõned publiku liikmed märkasid seda samuti, eriti kui viiulid ja violad mängisid tagumistest kõlaritest. Sellest tekkis huvitav tulevikusuund kompositsiooniliselt rõhuda ASMR “päästikutele”, et kuulajates meeldivaid füsioloogilisi sensatsioone tekitada ja siduda need muusikaga.

Tehniliselt üllatas mind, et ümbritseva heli kogemus toimib ja on stereo omast parem ka mitteideaalsetes tingimustes. Kontsert toimus väikeses ruumis, kus on problemaatilised peegeldused seinade vahel. Meie tagumised kõlarid olid esimestest erineva tootja poolt tehtud ja kõlarite kõrgus polnud täpselt mõõdetud. Kompositsiooniliselt oli tegu meie esimese katsetusega ümbritseva heli formaadis ja seega polnud meil võimalik tagasiside põhjal korrekture teha. Lisaks on publiku asukoht määrava tähtsusega ümbritseva heliga formaadis ja ääre pool seisjate kogemus võib märkimisväärselt erineda keskel seisja omast. Vaatamata nendele probleemidele näis, et isegi ääres seisjale on ümbritseva heli kogemus stereo omast kvalitatiivselt parem ja ümbritseva heli probleemid on seotud lisakulude ja tegemise keerukusega, mitte publiku kogemusega.

Olles ka varem korraldanud Minimal Windi kontserte, ei märganud ma, et ümbritsevast helist tingituna oleks kontserti vastu lisahuvi tekkinud. Siiski tekkis peale esimese õhtu kontserti märkimisväärne lisahuvi piletimüügis. Raske öelda, millest see tingitud oli. Võib-olla tekitas kontserdi kogemine ja sellel tehtud *story-d* lisahuvi kontserdi vastu, ehk võimalik, et sõnad “ümbritsev heli” ei müü, aga kontserti kogemine pani publikut jagama sellest *story*-sid ja sõpru kutsuma. Mitmed kuulajad otsustasid ka järgmisel päeval kontserdile pileti osta. Võib-olla oli tegu juhusega. Usun, et ümbritseva heli kasutamine kontserdil loob parema kogemuse, aga brändingu poolest ei aita *surround sound* rohkem publikut tuua.

Ümbritseva heli kultuuri loomise osas ütles Studio89 omanik, Franck Reissner, et nad on pehmetes läbirääkimistes TMW-ga ümbritseva heli lava toomisega festivalile. Samuti kuulsin, et Jazzkaare esindaja käis kontserti kuulmas ümbritseva heli kogemusega seoses, aga kahjuks ei õnnestunud mul teda kätte saada, et asja lähemalt uurida. Esinemispaiga “Kidrakuur” omanik Kristjan Sootalu arvas, et nende koha muutmine ümbritseva heli esinemispaigaks poleks mõttekas, kuna see nõuaks liiga palju oskusi helimehelt ja majanduslikult poleks see veel mõistlik. Artistid, kes kontserdil käisid, kuulsid küll ümbritsevas helis lisaväärtust, aga pigem ei näinud ennast selles formaadis töötamas. Põhjuseks toodi aja- ja rahakulu. Ümbritseva heli asemel tundus neile mõistlikum investeerida valgustusse.

Liis Lemsalu *manager* Sandra Sersant julgustas meid jätkama ümbritseva heliga katsetamisega ja tuua see kogemus suurematesse esinemiskohtadesse, nagu Kinomaja.

Kokkuvõttes näib, et kontsert ümbritsevas helis on kvalitatiivselt parem kui stereo. Siiski, kuna ümbritseva elamuse loomine nõuab suurt investeringut kulude, aja ja vaevaga ning pole selge, et publik oleks valmis ümbritseva heliga kontsertide eest rohkem maksma, pole ümbritseva heli kontsertide kultuuri loomisele häid stiimuleid. Kunstiliselt on ümbritseva heliga töötamises palju avastamata radu ja seega võib sellega tegelemine artistidele anda konkurentsieelise.

Turunduslikult näib, et ümbritseva heliga töötamise miinused ületavad selle eelised, vähemalt 2024 seisuga Eesti kultuurimaastikul. Siiski võimaldab ümbritseva heliga töötamine unikaalse ja immerstiivse kogemuse loomist. Mida rohkem ümbritseva heli kultuur areneb, seda soodsamaks muutub ürituste läbiviimine; seda rohkem tekib helimehi, kes valdavad ümbritseva heliga töötamise kunsti ja publikut, kes oskavad hinnata ümbritseva heli eeliseid.

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Taavi-Hans Kõlar 13/05/2024