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Real-Time LiDAR-Driven Visual Art: Analyzing Audience Enjoyment through Flow Measurement

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Abstract:

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Real-Time LiDAR-Driven Visual Art: Analyzing Audience Enjoyment through Flow Measurement

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Figure 1: Photograph from the testing concert with the band Lady at Basement Copenhagen on the 3rd of May 2023

ABSTRACT

This paper aims to investigate the affect of LiDAR-driven visuals on the audiences' flow state in a live concert. This was done by planning, designing, and executing a concert in Basement Copenhagen in collaboration with the band Lady. Visuals and lights were created for each song specifically, with half of the visuals using LiDAR and the other half using other techniques. During the development, interviews were conducted with the leading VJs in Denmark, investigating the subject of live visuals even further. The visuals were tested in front of an audience that answered in favor of how the visuals contributed to reaching the flow state. Although this project could use further research and testing, the initial data shows that the audiences' answers are overwhelmingly positive and demonstrates the potential of LiDAR technology in real-time live concerts.

CCS CONCEPTS

• **Human-centered computing** → *Activity centered design*.

*Both authors contributed equally to this research.

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1 MOTIVATION

As two Medialogists specialized in Computer Graphics, with a passion for big screens (Abderrahman has experience in virtual production and Maja has worked a lot on dome screens) and live music, applying novel technology to the visualization in a concert setting was a primary motivating factor. The idea came of trying to capture the musicians and then project the capture back onto the band and thereby investigate the affection of the perception of the experience for the audience. The exploration of using this technology within the music industry holds the potential to expand further the way visual experiences are created and consumed. By investigating the integration of this technology into a visualization for concerts, the research aims to address the growing need for cutting-edge visual technologies that can captivate audiences and provide unique and unforgettable experiences. It became motivating to create a project where we investigate how to create a technical setup in this field for other peers to then use and benefit from. The aim was to test it in a natural setting, creating an actual concert, with an active band, at a real venue. Thereby, a lot of time was spent at the beginning of this project gaining access to a venue and general planning and organizing the concert to be. By shedding new light on the impact of novel technology within the music visualization industry,

this research aims to inspire further exploration and innovation, fostering a vibrant ecosystem of artists, technologists, and industry professionals who embrace cutting-edge technologies to create unforgettable visual experiences across industry fields.

2 INTRODUCTION

Artistic imagination, now further enriched by another aesthetic experience - the virtual experience, totally multimedia and interactive. Here the frontiers of technology merge with perceptive qualities, as well as the spread of the public's participation - but now the range of innovation is infinite and beyond all imagination[12]

As such writes Germano Celant in the intro of his book, *Vertigo - a century of multimedia art, from Futurism to the Web*(2007). This is, at the time of writing, 16 years ago and the technology has developed a lot since the iPod and DVDs were up coming[56]. Since then, streaming has become an everyday term along with others like Cloud Storage and AI. In 2006 these new technologies, iPod, and DVDs, came and revolutionized the possibilities in the visual arts field[56] and in the VJ scene. The term VJ stands for "Video Jockey" similar to the more well-known term DJ(Disc-jockey) but works with video instead of music discs[60][56][44][34]. VJs started with MTV¹, where a person would "jockey"² the music videos, but the term, VJ, is now more than this and they are also acknowledged as filmmakers[56]. They are not only a visual DJ[44] but anything from an activist[44][23] to a cross-media artist[44][56][34] with the goal of creating the audiovisual connections that generate a multi-sensory experience[23][56] and everything in between. This project investigates the current VJ and cross-media scene and seeks to implement modern technology into the real-time music visualization setting and how it affects the experience of the audience.

3 WHAT IS A VJ? - A LITERATURE REVIEW

By studying the evolution of VJs, insights into the motivations, techniques, and aesthetics that have shaped the field, will be gained. This knowledge helps to situate the research within the larger framework of VJing culture and the visual art field.

3.1 A Brief History of VJing

When talking about the becoming of VJs one has to start from the beginning of cinema[23][34]. Therefore, this section highlights important milestones to create a historical base for the theory of VJing considering the project.

3.1.1 1671-1900: Pre-cinema. "The Magic Lantern" was one of the first ways to project images and small animations onto a wall, with the light of an oil lamp, as early as 1671[23]. Later came the Phenakistiscope, animations on a rotating disk, by Jozef Plateau along with the concept of "frames pr. second", which is now a common term in media[23]. In 1879, the Zoopraxiscope, by Muybridge led to the Kinetoscope by Thomas Edison a few years later[23]. In 1895 the Lumiere brothers then created the famous Cinématographe,

camera, developer, and projector in one, and the silent film was born[23].

3.1.2 1900-1950: Silent film. The concept of VJing is also "only" visuals and music that is used to convey a narrative similar to silent films[23]. The silent film creators were experimenting with media for example seen in the renowned sci-fi film *Metropolis*(1927) by Fritz Lang[23]. Animation as a genre was in the beginning visuals with music as well[23], and one of the first public showings of abstract animation was of Walter Ruttmann's "Lichtspiel Opus I" from 1921[29]. Bernhard Dielbold wrote in a 1921 newspaper article about this new media and called it "absolute dance" a "painting in motion" and said it illustrated the "art of movement" and that it "doesn't work without music"[29]. Not to forget Oskar Fischinger who, among others, created "animated poems"[48][11]. This was only the beginning.

3.1.3 1950-1980: Concert visuals. Jordan Belson became one of the first to combine these animations with film used for concerts in his "Vortex Concerts" in the late 1950s[23][37]. Both Fischinger and Belson, are well known for their hallucination-resembling visuals, and were then defining a new term: "Visual Music"[37][48][31][19]. Visual music is a term that keeps occurring when researching VJing. It is defined as an "abstract animation" that is "non-narrative but with human presence and emotion", incorporates "the idea of synaesthesia"[63]. Synaesthesia being where a person has a cross-sensory perception, e.g. see's sounds as colors[63][50]. Visual Music is "a transformational abstract color film" that could be with or without music[40][31]. It is described not as an interpretation of the music but as a part of the total experience and often in real-time[25]. The concept is still relevant now and has become a research field of its own.

These types of hallucination-resembling visuals got popular in concert settings in the 1960s, due to their similarities to drug hallucinations. The way to create these visuals had no limits - e.g. oil was poured on a piece of glass then there was added water, chemicals, or even body fluids were used[23]. During this period, the prominent experimental video work of Nam June Paik was created, since the Sony PortaPack was a portable video device now available for the public[12][23]. He is said to be one of the first to own one[23]. One of the first to create a projected film for a concert, was the artist Andy Warhol, specifically for the Velvet Underground tour in 1966. Later Pink Floyd created a was a rock concert film, "The Wall", where an entire music album had a simultaneous movie with a narrative. The post-punk genre also used projections during this time. Here often provoking and/or in relation to a specific ideology, e.g. pornography or political footage[23]. MTV came along in 1981 and later the internet and everything took off from there[23].

3.1.4 2000's: Digitalisation. During the 2000s, VJing became about being aware of the mediatized and digitalized world and using it as a playground[23]. The band Gorillaz, founded in 1998, was one of the first to incorporate a video artist in the band[30]. They created a virtual band, cartoon character musicians[30]. Vello Virkhaus, a long-time VJ, described in 2006, the 2000s VJs as "pioneers of technology and art"[60]. He mentions that as a VJ it is important to get familiar with the music, analyze, break it down and plan out the visuals and show them to the band as you would in a

¹Music Television channel

²a term for a horse-race rider but also a person managing a machine

film production with a storyboard[60]. Mark Amerika, another VJ, speaks of being in an "asynchronous realtime" or "timeless time" while performing[44]. In the same sense talks about the "Fad of being" which he translates to "the presence of being in the HERE and NOW"[44]. This concept will be explored further in section 6. The audience response to the VJ's performance has been a way of evaluating the VJ through time[34] and with the development of the internet, a community of VJs in the rave/electro, hacker culture scene emerged[34]. Matthew Bain, now founder of a live visuals firm, mentions, in his exploratory thesis from 2008, that he investigated both the prerecorded visual setup and the real-time improvisational setup, in a live setting but found that the real-time setup is more interesting as the computer becomes an instrument in itself as part of the ensemble with the band[19]. Even though the technology in the '00s was roughly the same as in the '70s, it shifted to a simulated version of earlier analog content with reused footage from DVDs and created video libraries with added filters drawing parallels to newer CGI(computer-generated imagery) techniques in cinema[34]. Timothy Jaeger, a media artist, and Visual Media graduate, describes the lack of novelty to be solved by: "cross-media promotion, bigger screens, longer sets, larger-than-life multiple screens, multiple performers, bigger performance spaces, and added interactive elements" and emphasizes the urge to make no two sets the same[34].

This section shows the long history leading up to VJing being a term of its own. It's an industry full of experimental artists working with musicians in creating visual experiences. But where are the VJs now?

4 WHAT IS A VJ? - AN INTERVIEW ANALYSIS

Most of the references from the literature review(section 3) are written in the 2000s when VJing was a popular term. In recent years the term is not used very often in articles. It seems that the "cross-media artist", mentioned in section 3, is a more contemporary description. To investigate the scene further in the present time, the project group conducted interviews of interesting individuals, that fit under the VJ and VCross-Media Artist term defined above, to gain insight into the current VJ scene.

4.1 Interviewees

The interviews were about an hour long each and were planned as semi-structured interviews where the guide questions were: Please present yourself with your own words; What is your professional background?; What is a favorite project of yours and why?; Do you have a specific approach for different projects?; What software do you use?; Where do you see the cross-media field going in the future?; What is your dream project? These interviews include:

- Lasse Andersen, CEO of Dark Matters, Working with exhibitions, installations, animations, and scenography.
- Carl Emil Carlsen, Technical Artist and more, Working with theater and music.
- Marcus Willis Albertsen, Pleasure Control, Working with lights and AV tech for cross-media art installations.
- Kevin, Pleasure Control, Working with lights, planning, and concept development of cross-media art installations.

- Lea Fabrikant, Zo music, Multidisciplinary artist and visual musician.
- Sebastian Bülow, AAU Technician, and experimental media teacher.
- Mikkel Meyer, Vertigo, Project developer for artistic light installations.
- Marius Nielsen, Engelsholm Højskole, Teacher in "Audiovisual Art and VJing".

Of all the interviewees, no one is currently working as a full-time VJ, but they all have experience VJing or as a tech supporter in a VJ stage setup. More individuals were contacted but the interviews presented below were the interviews that became possible within the time frame of the project.

4.2 Trends of interviews

Reoccurring topics from the interviews are here condensed to gain insight into common goals, considerations, and features of creating visual arts.

Affecting the audience in some form or another became fast a very common topic. Sebastian mentions, by controlling the direction of movement through the virtual space, he had a show where he could control the head tilt of people as a physical response to counteract the motion.

You get a feeling of being the puppet master. Because if I twist my hand .. slightly and I can physically see the audience slightly tilting one way or the other. I'm using video and light to move your head and you don't even know. That kind of stuff is just grand. (Sebastian)

The urge to affect also includes the transformation of the reality of the space where the experience is taking place. Here, Carl Emil talks of being able to control a virtual character, that is a simulation of a physical actor on stage, simultaneously, in real-time.

That's where it becomes magical, where you can do that transition from a physical world. You construct something that is believable and then you make a switch so that people still believe in the virtual character and it's still him. And then when you transform, it really works powerfully. (Carl Emil)

Several of the interviewees also emphasizes the important aspect of the presence in the actual physical space as a real-life audience being part of the experience, and not watching it on their phone or tv separately at home.

It's important for us that you experience it as a human being with your senses .. you experience it as a person, not as one that's like looking at a small screen. (Mikkel)

You kind of feel, you're inside the content. (Kevin)

They talk of the magic that happens when the experience is created together at that moment and that, it is special for that single experience. This often relates to the real-time aspect of the creation of the visuals as well.

We all shared an experience together. We all share the creation together... It's so fragile. They saw the creation of it. (Lea)

You have to experience it over time, you cannot make it a still image. (Mikkel)

Several of the interviewees talk about how an experience makes the audience feel. It is related to art and is up for interpretation.

Make them feel instead of telling them what to feel. (Lasse)

It's supposed to be art and you are supposed to interpret it. (Kevin)

Mistakes during the performances are described as a beautiful part of human creation and are deemed important for the experience as well. Hereby, the real-time aspect of visual creation is also important for an experience.

They are completely part of it. And it's really beautiful because it's raw. I think that this is like giving a contradiction to all these, like perfections that you see everywhere. (Lea)

Visual music is also mentioned several times. The visuals and the sounds are so closely related they could be coming from the same source³ and for some of the interviewees, that is the goal. Sebastian explains that his setup is based upon making his hand the instrument that creates the visual through a Leap Motion³ or a joystick of a sort.

I can actually play with the musicians and then no longer quite know whether or not I'm triggering the bass sound or I'm just making the stage blue. You know, that moment, that's what you look for. (Sebastian)

The relation between the visuals and the sound is also mentioned as one unit by Lea,

So apart from the fact that they are one .. you won't see anything without the sound. (Lea)

or as a counterpart by others that can change the expression of the music by being different than the music.

If you hit each note on the beat, the crowd reacts to that, to the beat more. It feels like the beat feels heavier and if you do it on the 18th note the music feels that it's going faster than it does. (Kevin)

Lastly, the experimental part is important. Even though, several mentions that time and money are hindrances, all speak of experimenting when it is possible. Either before the show as a part of the planning and development or during the live show as a real-time improvisation.

I find it exciting to problem solve.. and I like developing new techniques and new skill sets. And new aesthetics. (Marius)

AI was also a big topic when discussing the future of cross-media but this topic will not be explored further in this study project.

Through these interviews, we recognize that the individuals are very passionate about their craft. They love to explore technology and find ways to influence the space and audience in a real physical space. The real-time aspect is important to most and it is an important part of the experiences. Their way of connecting sound to the visuals is never the same but the relation between them is

important for everyone. Next, is to investigate the global market of visualizing concerts to compare the insights from this section to a broader perspective.

5 STATE OF THE ART

The previous interview section gave an insight into the passion and persona of VJs and Visual Artists, but to figure out what is visually created on a broader scale, this section ventures through current visual shows created for music artists on a global and local scale, but also through specific experimental projects presented by interviewees during the interviews or other interesting projects found researching.

5.1 Mainstream concert visuals

5.1.1 Globally. Looking into current larger pop-music visuals for artists like, Ed Sheeran[3], Post Malone[9], Lewis Capaldi[7], Harry Styles[5] and even the old school metal band Black Sabbath[17], the live visuals seem to be focused around the artist. Often as a camera on the artist, projected on the background, with few effects. Maybe the visuals have been flipped down the middle, added a light noise or some level editing, or maybe it is a simple repeating visual just supporting the music and giving the scenography an ambiance of choice. One could assume it is a way to incorporate the concept of big-screen into the visuals as these artists play a lot of big venue shows because they want to keep the focus on the artist itself. Then there are of course singers like Beyoncé, that use an enormous setup, have a big amount of pre-rendered visuals, and seem to set up the concert more like a show[2][1]. Bigger rock bands like Architects[51], Slipknot[47], Tool[10], Bring Me The Horizon[39], and Epica[42] seems to utilize all kinds of setups. Some are pure abstract some combine the camera feed with abstract, some are very cinematic, and some are very static but with music video references like Apocalyptica[41]. The electronic music scene seems to also be very experimental in the same way as the rock scene. Skrillex[36] has almost his whole concert in red light and then ends with a big camera feedback of the audience and scene. An artist called Anyma[18] has made a whole viral storytelling setup of an android world that is interacting with the light setup corresponding to the music. In the same area, there is also Excision[35] and Eric Prydz[4] has recently made a whole holographic show with a semitransparent screen. Grimes[52] is combining abstract visuals with still images with and without effects and is also applying some use of what seems like camera input. Then there are of course one of the fathers of experimental visuals, Aphex Twin[23] who still does very experimental, different, and audience-inclusive visuals.

5.1.2 Danish scene. In the Danish music scene, visuals seem generally more sparse for any genre of artists like pop: Tessa[58], Aqua[45], or Mø[54]; HipHop: L.O.C[43]; Electronic: Veto[22]; Rock: Carpark North[49], Dizzy Mizz Lizzy[46], Volä[26], D.A.D[55]; or Kellermensch[38]. Setups with only lights seem to be the focus unless it is for an official TV broadcasted show like Artigeardit at "Echo Prisen"[59] or a big internationally known band like Volbeat[32]. Thomas Helmig, a big national artist, is one of the only Danish artists that seem to be using a lot of visuals and camera feeds for his recent shows[57]. Smaller metal bands, like Cabal[21], seem to use mainly light setups also. It should be noted that light setups

³Hand tracking depth camera, by Ultraleap. ultraleap.com

can be art pieces as well but for the project, the interest is focussed on the created visuals for music shows.

5.2 Experimental visuals

The projects mentioned in this section are only highlights, relevant to the thesis, of the extensive and interesting work that has been done by the interviewees and individuals below.

5.2.1 *Zo Music by Lea Fabrikant(interviewee) and Tarik Barri.* Zo Music is a project that revolves around visual music. Lea Fabrikant and Tarik Barri have been developing the concept over a long period and is based upon a custom software developed by Tarik while he was writing his bachelor's. This software creates a 3D virtual space that Lea and Tarik can improvise upon where sound and visuals are treated as one. Every time they perform it starts from nothing and expands from there. Lea mentions it took her a long time to get familiar with the technicalities of it but that the beauty of the project is also the presence of Zo and the audience together, and that it turns out different every time.

5.2.2 *Sky66en and Silicium by Carl Emil Carlsen(interviewee).* Sky66en(Shadow) is a 3D collaborative theatre play where both the actress and the audience interact with an AI. The crew has spent a lot of time and many iterations to make the piece what it has now become. The piece also has improvisation as the key element. Carl Emil Carlsen explains that some sections are planned by a cue but the setup of calibrating the projection, the stage, the AI, and a Kinect input makes it possible to create areas of the stage that enables the AI to interact with the actress. Carl Emil's project Silicium is with the musician Bjørn Svin and is a 3D experimental visual music improvisational project as well. Carl Emil mentions they utilize what they call a 4D box, creating a similar effect as "Pepper's Ghost", an older hologram illusion effect, where Bjørn can stand on stage and dance and move, and he can create a mask of Bjørn with a Kinect so he can make him appear to be inside the projected visuals.

5.2.3 *VJing by Sebastian Bülow(interviewee).* Sebastian is still actively VJing and talks about his setup of incorporating a control system in the form of the gyroscope of his phone. Previously this has been a Leap Motion as mentioned earlier. He uses this as a way to control the "view" of the abstract visuals he creates. With this, he can zoom in or out, inside the visuals. He has recently created visuals by combining camera feeds on top of still images and applying plenty of effects, that he can control almost every parameter of. He explains his wish of creating visuals that create a close-to-hallucinating experience but without taking any drugs.

5.2.4 *Benjamin Bardou.* Although not a VJ, Benjamin Bardou has created interesting visual art with his Megalopolis project. It is a series of visual point cloud/particle video "poems"[8]. It is based on the idea that after a world war, the city of Megalopolis arises and the visuals he created were one of the main inspirations for the beginning of this project.

5.2.5 *Keiji Takahashi.* When scrolling through experimental, VJ Keiji's website and Vimeo channel you find all kinds of AR-, Kinect-, point cloud-, holographic- and experimental visuals. Keiji seems to develop these tools himself and utilize Unity as his

platform of choice and publish small videos of his results[6]. Keiji was also one of the main inspirations for this project.

This whole section illustrates only a snippet of all the different visual setups for music in recent years. Through the interviews, and further conversations we have had while investigating VJs, it is apparent that also the rave/electronic scene is filled with visuals, also experimental, in many ways. There seems to be a financial correlation with the level of visuals used in the concert setup. The bigger the artist the bigger the possibilities but there is also a practical aspect of making the show interesting by making it possible to actually see the artist in these big venues on the big screens.

6 EXPERIENCES

The concept of the "experience", both for the audience and the VJs themselves, seems to be the main reason to implement visuals the way the individuals in the interview section above describe. This section will investigate the experience as a concept.

An experience becomes an experience when the material runs to fulfillment[27]. Here, e.g. when a concert finishes. It has a beginning and an end; It is then an experience[27]. An aesthetic experience is then manifesting if one notices and is interested in the objects or colors that occur in this experience[27].

The intimate nature of emotion is manifested in the experience of one watching a play on the stage or reading a novel. It attends the development of a plot; and a plot requires a stage, a space, wherein to develop and time in which to unfold. Experience is emotional but there are no separate things called emotions in it. By the same token, emotions are attached to events and objects in their movement"

says John Dewey in his book "Art as Experience"[27]. Artistic and aesthetic are two separate concepts often used together. However artistic is for the production state and separate from the aesthetic; The artistic is for perception and the aesthetic the enjoyment[27][28]. Enjoyment, as stated by Csikszentmihalyi and his theory of flow, can be defined as:

- Tasks with a reasonable chance of completion
- Clear goals
- Immediate feedback
- Deep but effortless involvement that removes from awareness the frustrations and worries of everyday life.
- Sense of control over our actions
- No concern for the self
- Alteration of the concept of time, hours can pass in minutes and minutes can look like hours[24].

Flow experiences and aesthetic viewing experiences are related to being fully engaged, especially when "losing track of time" and "getting lost" in the moment[62]. Even though, there are other elements to enjoyment, the "freedom from the tyranny of time" can make us enjoy and experience in "complete involvement"[24]. Csikszentmihalyi's figure, figure 2, describes how when we become better at something we become bored if the challenge doesn't get higher. But the flow can become more complex as the skill/challenge balance becomes higher[24]. Csikszentmihalyi states:

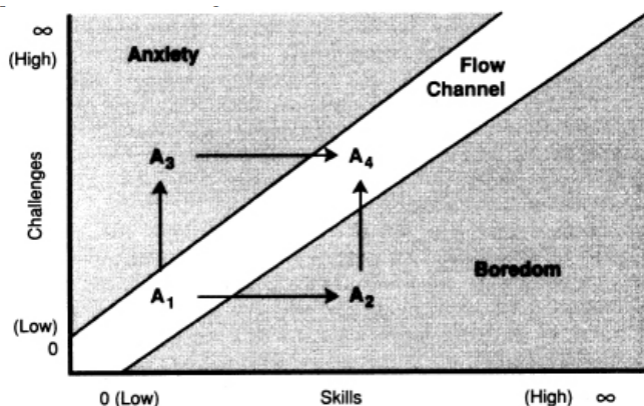


Figure 2: Csikszentmihalyi's model for flow and complexity of consciousness's relation[24]

Any activity that transforms the way we perceive reality is enjoyable, a fact that accounts for the attraction of "consciousness-expanding" drugs of all sorts, from magic mushrooms to alcohol to the current Pandora's box of hallucinogenic chemicals[24].

This ties directly to the ideas presented in section 3 and section 4 where exactly these concepts, of altering perceived reality, has been a goal while creating cross-media art throughout time. This should then be considered when developing and testing for the enjoyment of the created visuals in terms of the experience.

7 TECHNICAL ANALYSIS

This interdisciplinary field uses many types of hardware and software. The individuals often combine and experiment with different technologies for creating these visual experiments. Several times in the preliminary research of this project the use of a LiDAR/Kinect in this field created a strong motivation for digging deeper into the use of LiDAR for live visuals.

7.1 What is LiDAR?

Light detection and ranging, or LiDAR, as it is known, is a laser-based device that transmits light waves for a few hundred nanoseconds[61]. The short light pulses, then backscatter into a built-in beam detection unit, through a collimating lens or focusing lens[53]. This then is processed by a range-finding unit or an optical analyzing system, which converts the wavelengths from the collected light into electrical signals. The length of the electrical signal is determined by the time it takes the light to bounce back after being transmitted from the LiDAR[53, 61]. Most high-range LiDARs are not designed to be used in real-time. That means that they are mostly used for standing in place and over a set time scanning their surroundings. If they are real-time enabled, they are unfortunately not affordable within a scope of a project like this. Thereby, the term depth cameras are interesting cause uses the same principles but has different ways of generating a depth map without using a laser. This often means that the range is lower than the LiDARs' range.

7.2 Real Time LiDAR/depth cameras

Below is a small overview of recent LiDAR/depth detection cameras.

7.2.1 Kinect. The Azure Kinect⁴ is a depth camera that processes an infrared image from the two near-infrared laser diodes that can generate two different fields of view.

7.2.2 Realsense. Realsense L515⁵ is a LiDAR camera for "indoor applications". It has a 9m range that is affected by reflectivity. Realsense D435⁶ is a stereoscopic depth camera that generates data of the depth camera by comparing the information between the two cameras. The range is up to 9m but ideal around 3m.

7.2.3 Zed2i. The Zed2i⁷ is a small AI stereo depth camera that uses advanced algorithms to create a depth image. It utilizes however the color camera in these calculations and that means that the depth data is working best in well-lit conditions.

7.2.4 Smartphone. Apple has implemented LiDAR in their smartphones and while Android has recently implemented depth mapping through the camera and utilizes Time-Of-Flight to calculate the distance to the objects in front of it. This is a more accessible approach for development and applications that use the technology built for Android thereby also working for Apple but not vice-versa[16].

7.3 Software

Many different software products can be utilized in creating real-time visuals and according to the interviews and research, it seems like the decision it is more based on preference or prior knowledge. That includes but is not limited to, TouchDesigner, VDMX, Unreal Engine, Unity, Notch, Resolume, Pd, VVVV, and Processing. There are however some limitations that should be considered e.g. VDMX not supporting Windows.

7.4 Interface/tools

In the early stages of VJing, tools for manipulating sound were often used to manipulate the media, e.g. waveforms[34][23]. When creating interfaces for making real-time visuals it is important to make sure they are capable of having enough options for the artist to access enough variables to tweak but compressed enough to not give too many options[33][20]. One needs time to practice and get to know the tool. Often times VJs share developed tools with other VJs[34]. Additionally, the audience gains a more special experience when they see the visible real-time interaction of a VJ[33].

With the knowledge of possibilities for software, hardware, and considerations for producing the show. The final research question and production can be presented below.

8 RESEARCH QUESTION

The paper has now dived into the history of VJs and visual artists; Investigated the current scene of mainstream and experimental visual productions; analyzed how to test an artistic experience in

⁴<https://azure.microsoft.com/en-us/products/kinect-dk/>

⁵<https://www.intelrealsense.com/lidar-camera-l515/>

⁶<https://www.intelrealsense.com/depth-camera-d435/>

⁷<https://www.stereolabs.com/zed-2i/>

terms of enjoyment of the audience along with the software and hardware possibilities for implementing a LiDAR for real-time visuals. Thereby, the research question can now be concluded to:

How do live visuals created with a LiDAR, affect the experience of enjoyment by flow theory in the audience of a concert?

9 PRODUCTION

Based on all the prior research, there is now a basis for creating requirements for implementing a visual art production. The section 6 describes flow in seven bullets. The first 4 points are about the task of the experience. In the setting of this project, there is no specific task to complete as the audience is "just" going along with the experience. It has thereby been decided to test the enjoyment of the experience by the amount of "flow" rated by the alteration of the passage of time.

9.1 Requirements

9.1.1 General implementation of the show.

- The experimentation element
- The Real-time element
- The effect on the physical space
- The artistic element
- Considerations of the synchronization of visuals and sound.
- Planning the visuals with the band for the music

9.1.2 *Technology requirements.* Besides the theoretical considerations when creating VJ/visual art for music, there are technical requirements found by an exploratory implementation. This relates to the experimentation element mentioned prior in both section 3 and section 4.

9.2 Camera limitations and decisions

9.2.1 *Kinect 2.0.* The camera that ended up being used in this project was Kinect 2.0. The group did test both the Realsense L515, D435, and Zed2i but they showed to be a bad fit for this project. The two Realsense cameras had both technical issues and the D435 did not have a high enough range for what the group needed at the venue. The only Kinect product available was the Kinect One 2.0. This turned out to be the final camera. This was due to its satisfactory point-cloud resolution at the expected distance possible at the venue on the test day and its almost "plug and play" support with the available TouchDesigner software, which already has a node specifically for the Kinect. A Kinect Azure was not available for us to try. The Kinect made it possible to separate the musicians not only from the detected surroundings but also from each other, making it possible to apply individual effects. This feature was utilized in the creation of the visuals.

9.2.2 *Placement considerations.* The band members have to be placed offset from each other to avoid them blocking their point-cloud data and to make it possible to also separate them from one another in the software. Additionally, the Kinect and Projectors' point-of-view should be placed as close to each other as possible to make calibration easier.

9.2.3 *Detection and projection optimization.* Some black fabrics don't reflect the infrared light which means it creates no data from the Kinect. That meant, e.g. the guitarist wouldn't have any legs in the point-cloud. There was no apparent relation between the fabric that did this. Some black materials worked, and some didn't a theory was that some black colors are red-based and thereby absorb all the infrared light instead of reflecting it. It was at the same time decided that the band needed to wear white shirts for the projection to be as reflective as possible when projecting onto them.

9.3 Visuals created in order of setlist

The setlist was suggested by the project group, presented to and approved by the band, Lady, before additional tweaking of the order was made at rehearsal sessions.

- **Deafeated** was the very first song. A chromakey separation and transform edits were used on the band's logo along with a teaser to the point-cloud, with the guitarist posed in the middle of the screen during the solo.
- **Rolling Stone** had a camera color video with a superimposed layer of a point-cloud recording by the Kinect. Few chromakey differences were applied.
- **Running Wild** is where the real-time point-cloud was most visual. The whole band was captured in real-time and used to create a 3D point-cloud based on the colorspace data from the Kinect. This meant that a virtual camera could turn around the band, also in real-time by mapping to the computer's mouse, and recolor the points. Their individual point-clouds could be projected on top of themselves, or behind them. Then mirror effects and feedback could be applied.
- **In Red** was based on the band's cover for the song which is a road with streetlights and a lady with a red dress. The front singer was bathed in a dress of red particles and a generative road was traversing throughout the performance, utilizing an edge post-processing effect to use on different parts of the song.
- **Ride On** Similarly this was a generative scene with a traversing road, but since the song had more of a "cowboy" feeling to it, it was made to look like a desert scene with cacti and tumbleweeds moving in a beat that is similar to the musical beat. The edge post-processing was also used in this song but different shaped masks to show different parts and effects of the same visual.
- **Hold Your Head Up** was a song with pure audio-reactive visuals, both presented with 2D and 3D elements. The first visual used a height map of the audio data from the guitars, drum, and bass. This was used to expand the cubes on the Y axis on a grid, showing a dynamic audio-reactive pattern. A live feed of the grid from the top view was used to add effects to the band's logo. Additional audio triggers were used to enhance the post-processing effects such as glitches and bloom. The second visual was an audio-reactive mesh that lights up, twists, and rotates based on the triggers from the guitar. The feed of the visual was then presented in the middle of a circle that changes color and rotates based on triggers from the drum.

- **The Feeling** This was the control song. Meaning it had no visuals and only a few yellow moving lights and a white fill light.
- **Mountain High** was more like In Red and Ride On, in such it was a road between two mountains in some parts of the songs. The visuals were all presented in a particle system style. This was done, by using the color values in the videos and the created visuals. The closer the color is to white the highest the pixel would elevate, giving this dimensional effect to the visuals. The visuals consisted mainly of mountains and a blue sky with clear clouds. But at the end of the song it ventures from a mountain road with a black sky with colorful strips to space, navigating in between the stars.
- **Work For A Livin'** Here, the tracking was utilized once again with the point-clouds being redefined as colored "blobs" that could switch color and switch between the different musicians controlled by a switch on the MIDI-controller.
- **Dirty Roses** used point clouds of roses in parts of the song, later parts used the point cloud of the lead guitarist and the roses for the solo and other parts used the Kinect data to trigger falling rose petals, applying a force away from from the position of the lead singer instead of falling straight down.
- **Coming Home** had real-time generated visual and audio-reactive visuals. The former was a representation of a waterfall, created by applying a noise map on a mesh to create wavy patterns and twisted downward at the end of it, giving a 3d perspective of the visual. Particles were spawned to go along the mesh to represent the flow of water and some particles were made to drop down to make the visuals more dynamic and to further establish the depth of it. The other visuals were made using the same height map used in Hold Your Head Up. On would light up an energy barrier around the band members, illuminating them. The other was a tornado-shaped visual, using the height map as a texture on a twisted mesh, giving the illusion of the rotation of the tornado, and visualizing the sound waves.
- **Whole Lotta Pretty** had more of a 2D feel. It had frame-by-frame animation in different layers. One of the frame-by-frame animations was of a hand moving, which was used as a mask for some effects, the other was an animation of the band members looped around during one of the segments of the song.
- **Woke Up High** had the same type of 2D elements but also utilized public domain GIFs with applied effects to create a "trippy" visual fitting with the theme of the song. It also included a tube effect with the point cloud of the lead guitarist used as a texture scrolling across the tube.

10 METHODS

The goal of this project was also to test the visuals created, in a natural setting[14]. It was thereby important that the test was carried out at a real venue and that the concert became as true to real life as possible. The venue, called "Basement Cph", luckily agreed to help with the project, and the concert was carried out on the 3rd of May 2023 with the band called Lady who is currently an upcoming

Table 1: Visual elements pr song. Rec. = Prerecorded, R.T. = Real time, P.C. = Point Cloud. Additionally some elements were audio reactive for automation purposes but was not part of testing.

Song	Rec. Kinect	R.T. Kinect	P.C.
Defeated	-	Yes	Yes
Rolling s.	Yes	-	-
Running w.	-	Yes	Yes
In Red	-	-	-
Ride On	-	-	-
Hold your.	-	-	-
The Feel.	-	-	-
Mountain.	-	Yes	Yes
Work for .	-	Yes	Yes
Dirty R.	-	Yes	-
Coming h.	-	-	-
Whole lot.	-	-	-
Woke up.	-	Yes	Yes

Danish rock band. A lot of rehearsals were carried out before the concert at the Hum. Lab. at Aalborg University Copenhagen. Below is then an overview of the different methods prepared for testing this day.

10.1 Throughout the project period

Interviews were as mentioned in section 4 carried out throughout the project period due to the planning and organization of the interviews.

10.1.1 Insight expert interviews. Semi-structured, non-probability sampling, expert, insight interviews were carried out to get an up-to-date insight into the industry[14]. This means, either found through convenience, snowball, quota, or purposive sampling[14]. This was then analyzed through traditional coding to find trending themes and use them for development[13]. See the coding in appendix C. They were asked how they describe themselves, and what they think is important in their field of work and to gain insight into their thoughts on the future of visualization technology as mentioned earlier. Since it was a semi-structured interview, follow-up questions were asked to gain further insight or get them to elaborate[14]. The interviews were carried out without telling them too much about what the thesis was about beforehand to avoid them being biased toward the topic. This information has then been processed in section 4 and has been considered in the design process when possible. Read full transcriptions in appendix B.

10.2 On the testing day

Both the evaluation testing for the testing day but also the method for setting up the technical equipment is described below.

10.2.1 Technical setup in Basement Cph. A white screen was hung from the back truss, that the venue had, to make a good base for the projection as the walls in Basement Cph are very rustic. See figure 3 no. 1. The cameras, figure 3 no. 2,3, 4, and 5, were used to capture

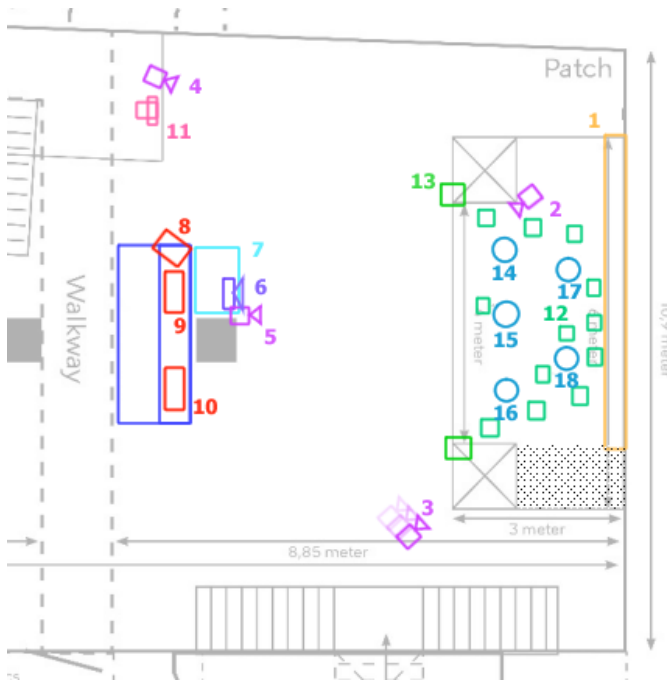


Figure 3: Setup diagram for the concert test on the 3rd of May 2023 at the venue Basement Cph. Generated from the blueprint provided by the venue. It illustrates 1: White screen fabric. 2: Audience observation camera. 3: Handheld camera. 4: Side view camera. 5: Front camera. 6: Kinect. 7: Projector stack. 8: Backup laptop. 9: Abderrahman's PC. 10: Maja's laptop. 11: Roland Audio recording device. 12: LED lights x 2. 13: Scanner lights with Gobo x 2. 14: Guitarist. 15: Singer. 16: Lead guitarist. 17: Bassist. 18: Drummer.

audience reactions as well as capture footage for the required AV production and for future references to this project. A triple stack of 5k lumen projectors, equalling around 15k lumen, were placed on a vertical truss with sandbags on the foot and tape for extra security, against a pillar, figure 3 no. 7. The Kinect, figure 3 no. 6, was then placed directly on top of the stack to make it as easy as possible to calibrate with the projectors and be high enough to avoid the audience's heads. The PCs, no. 8, 9, and 10, were set up straight in front of the stage behind the pillar. An audio recording device was plugged into the mixer, no. 11. And no. 12, shows the placement of the LEDs on the stage floor. No. 13 shows the two scanners on pedestals next to the stage. The musicians, no. 14 through 18, were then placed in an offset pattern to make them easily calibrated individually on the Kinect.

10.2.2 Audience observation. A smaller camcorder was set up on stage to collect front-row, natural, non-participant observation data[14]. Recording the audience through the whole concert, made it possible to later observe if there were any visual representations of changes in facial expressions while certain visuals were displayed at stage[14].

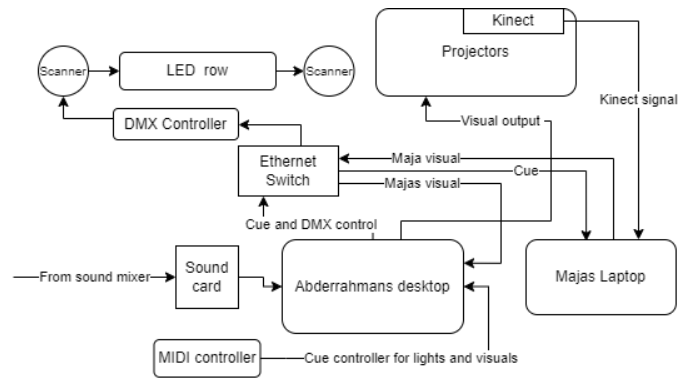


Figure 4: Technical diagram of signal transfer for both visuals and lights

10.2.3 Questionnaires. Quantitative questionnaires are used as qualitative data can have a lack of statistical reliability and validity[14]. The questionnaire was split throughout the whole concert based on the set list and when the lead guitarist had to switch guitars. This was done by asking the audience to scan a QR code that was projected on stage and fill out the questionnaires while there was an automatic short break already.

The first questionnaire right at the beginning of the concert was to gather demographic data and ask about the audience's experience with visuals in concerts and if they think the visuals add to the experience. The other parts of the questionnaire were investigating the flow of the audience while the concert was going on and it was split into 4 parts:

Part 1: After 4 songs, the audience was asked to rate on a 5 grade Likert scale if the visuals made them lose track of time and space for each song and about their experience of the first 4 songs

Part 2: After the second set of 4 songs the audience was asked the same questions again for each song and about their experience with this set of songs compared to the previous ones

Part 3: After 2 songs the audience was asked the same questions for each song and how their experience with this set of songs compared to the previous set.

Part 4: In the end, the audience was asked to answer the same questions for each song again and about their experience with this set of songs compared it the previous set. And lastly, they were asked if they think the visuals improved the show. See the questions in the Appendix A.

10.2.4 Qualitative feedback interviews. After the concert short structured convenience interviews were carried out to get additional qualitative feedback supporting the questionnaires[15]. Two volunteers were kind enough to stand at the venue after the concert and catch people on the way out and ask them 3 questions: How did you like the show? Did any song stand out in particular in terms of visuals? Would you go to another show with the Band Lady?

10.3 After the testing day

10.3.1 Feedback expert interviews. After the concert, Marius, the teacher from Engelsholm Højskole mentioned earlier, was interviewed to receive feedback on the created visuals for the concert.

This was carried out as an expert interview on the 19th of May at Engelsholm.

11 RESULTS

The results in the questionnaires have a different variety of amount of testers, some answered all the questionnaires and some answered only a few, therefore the recurring participants were picked and the rest of the list was randomly filled to have the minimum answers which was 47. The test subjects were in a public space and were drinking beer which might create bias, but since the same conditions were provided in the testing as they would be in real life, this bias will be ignored when analyzing and discussing the results. The audience consisted of some regular audience, some Medialogy students, friends and family of the group, and also friends and family of the band and their fans, and that relation can create bias. The audience was entering a beer raffle as well by answering the questionnaire so that also has the potential for creating a bias.

11.1 Questionnaires

The questionnaire was provided as a QR code during the concerts after sets of songs as mentioned in 10.2.3. The results from the questionnaire will be presented in this section.

11.1.1 Demographic Data. An approximation of 150 audiences have attended the concert, this is calculated approximately after having 116 tickets scanned before the start of the concert. Since the event is free and there were more audience members that arrived without a ticket, they were permitted entrance after the concert had started and the space capacity haven't reached its limit. The number of people who entered after the concert started approximated to around 30 based on the estimations of the volunteer that was scanning the tickets.

The questionnaires had various amount of test subjects answering, between 47 and 64. The first demographic questionnaire was answered by 64 participants, from which 37 were male, 24 were female, 2 chose other, and 1 preferred not to say. The answers also indicate that 4 individuals go to concerts once every 5 years, 6 people go once every 2 years, 11 people once a year, 32 people once every few months, 5 people every month, and 6 people multiple times a month. The majority of the participants also experienced a concert with visuals, with 50 out of 64. The last question is about how much the audience believes the visuals add to a concert. This was asked to be compared to the same question in the last questionnaire at the end of the concert. Therefore, the questionnaire with 47 answers was the baseline of how many answers should be considered in the analysis as explained at the beginning of the Results section 11. The answers to the formerly mentioned question average 4.75/5.

11.1.2 Songs' Visuals Data. The questionnaire is investigating the effect of visuals on the flow experience of the audience during the concert.

The results from figure 5 show that the songs are averaging from 3.42 to 4.49 out of 5, based on how the visuals made the audience feel like they have lost track of time and space while the respective songs were performed. The control song scored 2.58 out of 5. The results from figure 6 show that all songs scored 4 except one that scored 5 and two that scored 3; including the control song. The

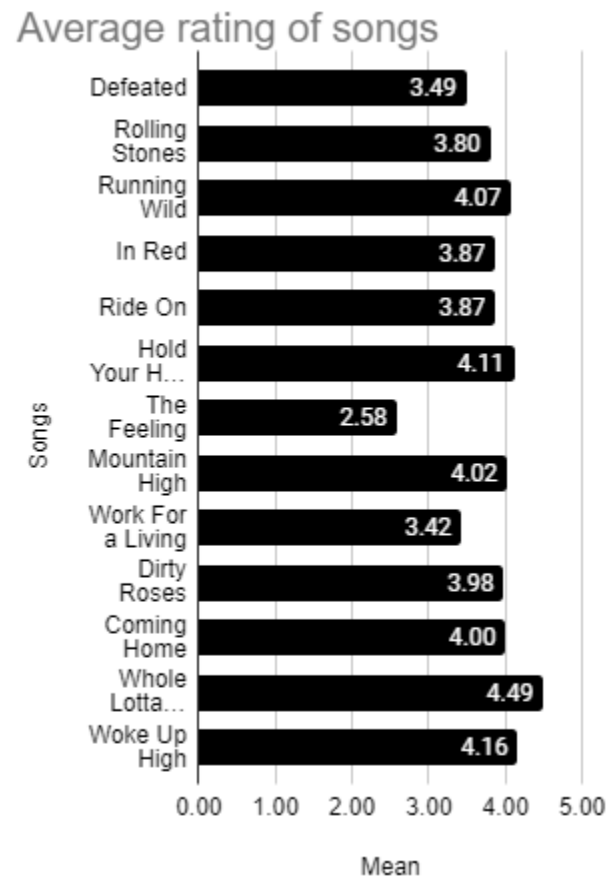


Figure 5: The average rating of songs.

results from 6 are separated between songs that use the Kinect and the ones that do not, showing that the songs that used Kinect had a minimum of 3.42 and a maximum of 4.16, opening at 3.64 and closing at a 4.04. The songs without the Kinect show a minimum of 3.87 and a maximum of 4.49, with an opening of 3.87 and a closing of 3.11. This is represented more accurately in 7. The audience was asked to rate their experience during 4 different sets during the show, as shown in 9. The results show that the first and last set is when the audience had the better experience, leading the charts with 4.58 for the first set of songs and 4.24 for the last set of songs. The two other sets were rated 3.78 for the second set and 3.67 for the third set. Figure 9 shows the difference between the average of the means of the flow experience in each song in their respective sets and the average of the rating based on the audience experience in each set of songs. The last question in the questionnaire was about whether the visuals enhanced the experience of the concert and the 47 answers averaged 4.5 out of 5.

Median rating of the songs

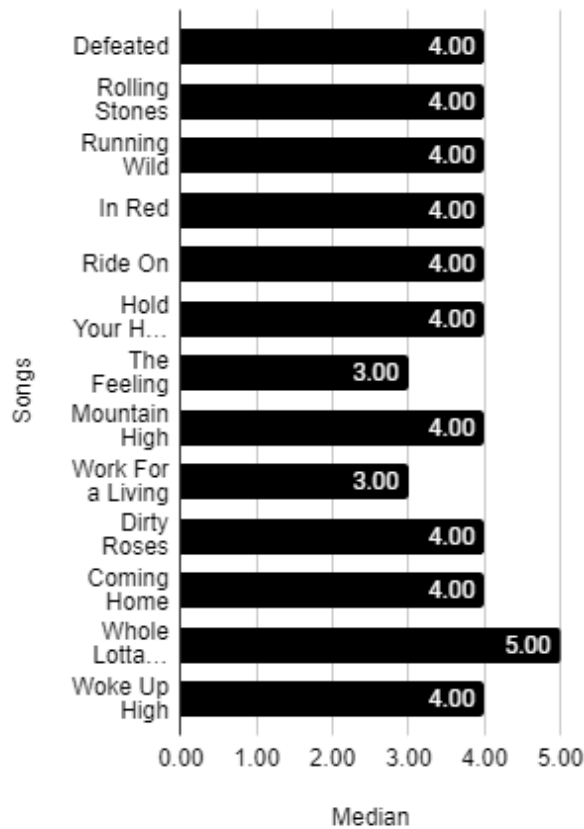


Figure 6: Median of the rating of the songs.

11.2 Audience observation

The audience was reactive and happy based on the footage, interacting with the band and following the music, cheering after each song, and showing excitement towards the show and the music.

11.3 Interviews

14 Audience members were interviewed after the concert by volunteers in a casual setting. The results from the first question were all positive, indicating that the visuals they were professional and well-made. The second question asked about which visual was their favorite and it show 6 out of 14 liked the visuals that had Kinect in them, with some answering what visuals they liked the most by *"The one with the rose petals. And then the one where, like, look, it was like, on the screen."* (referring to the point-cloud in the background: **Running Wild**). Others liked songs based on aesthetics and different animation techniques like **Whole Lotta Pretty** and **Woke Up High**. Some of the audience members expressed *"I really like the second to last. I was like the vibe was just great. Additions were like all-encompassing and really immersive and I like that was really good."* and *"With like little drawings and then also I like the kind of dreamy and also talking about the eyes. I really like that one. I*

Kinect vs No Kinect

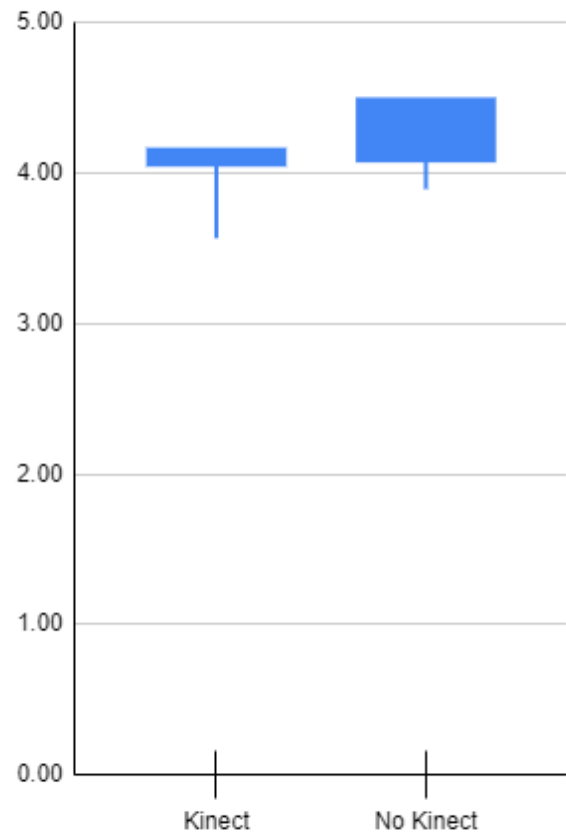


Figure 7: Average rating of songs with and without Kinect.

like the eyes that pop out." The final question asked the participants if they would go to another concert with the band, to which 13 out of 14 answered that they would. With testimonies like *"I thought it was really good. I was kind of expecting, like, I don't know, like a bit more amateur performance, but this is really kind of, I guess, surpassed my expectations."* and *"100 percent... Yes Yes."*

11.4 Feedback interview with Marius Nielsen

Marius complimented the group's general effort, making a clever technical setup, and showing ambition of utilizing the Kinect in an actual venue, as he expressed that less could have done the work but thinks it became a "cool project". He mentions that we tease the visuals by not giving everything away at first, which is a good thing, we do however have a lot of different types of aesthetics that don't all fit together as the mesh, point-cloud and blob aesthetic is separate from the 2D aesthetics in the end. He thinks it is especially cool in the point-cloud sections where we turn around the band and he expresses that he believes the audience would definitely think it adds to the experience, if or when they notice it.

Flow vs Experience

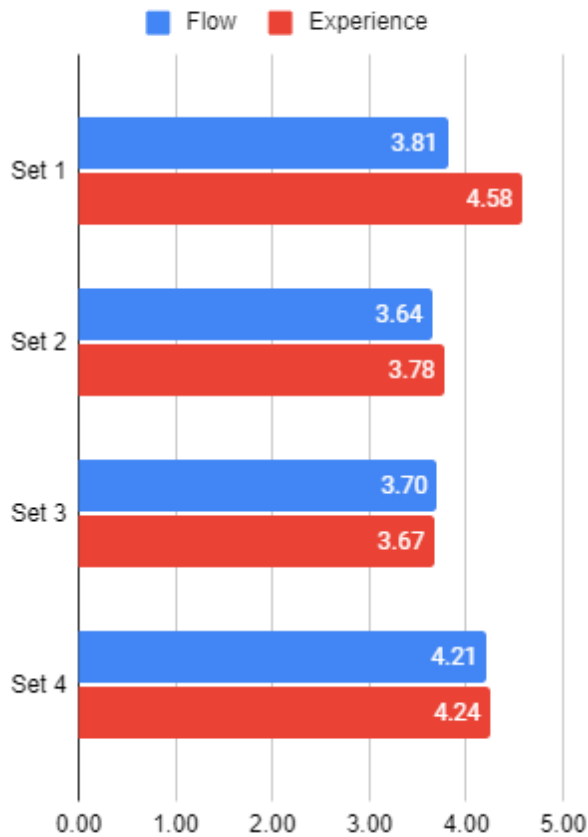


Figure 8: Average rating of the sets based on the flow questions and the experience question.

12 DISCUSSION

12.1 Results Discussion

12.1.1 Questionnaire. The results don't show a big difference between the songs that used Kinect and those that had no Kinect data. The answers show that the audience was mostly focused on how the visuals looked regardless of the aesthetics, figure 7. The average rating, figure 5, shows that most songs with the Kinect and point-cloud of the band received a rating above 4. But overall there isn't much difference between songs regardless of the technology used to create them. The data from figure 6 shows that the test participants have scored above 3 in all songs, which might indicate the presence of the flow state during the performances. The data also shows that the trends are the same when it comes to what the audience answered in relation to flow for each performance and their overall experience in each set of songs, figure 9, placing the first and last set of songs in the lead. There might be bias in the first songs of the concert with visuals being new and change of visuals in the last set, but also since the concert was planned to be more focused on LiDAR in the beginning and the end, it lines up with

Liked Visuals from interviews after the concert

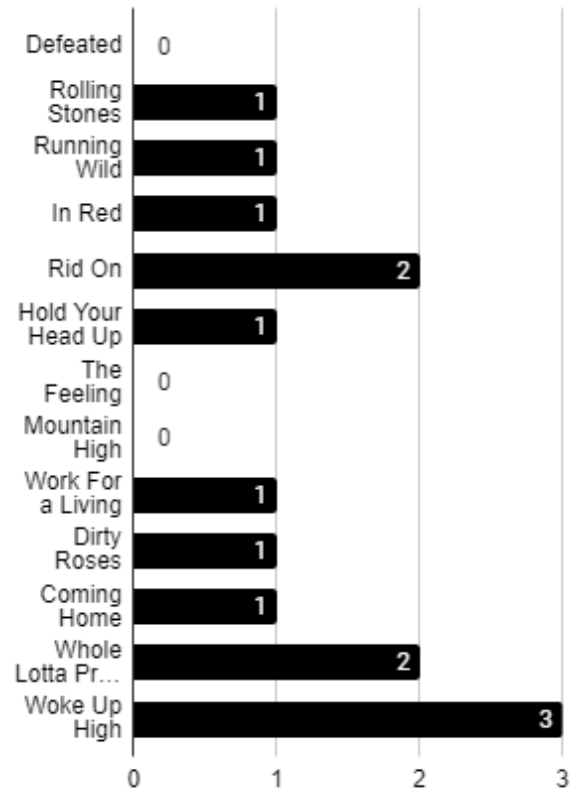


Figure 9: Favorite visuals count based on the interviews.

the results indicating that LiDAR driven effects are adding some influence in the aesthetics.

12.1.2 Interviews with the audience. The 14 audience members interviewed have expressed almost a fairly split interest between the visuals using the Kinect and the ones that aren't using Kinect. This indicates that the visuals using the point-cloud generated from the LiDAR data are in pair with other visuals that are animated, looped, or audio reactive, thereby being as good as the industry standard visuals. The interest of the interviewees also emphasizes more on the theory of the audience reaching the state of flow, since they would like to go to another concert [24]. The audience also rated the influence of the visuals highly, with a scoring average of 4.5, almost as much as the average score of 4.75, indicating how much they thought visuals add to concerts in general before the beginning of the concert. This shows that the visuals shown during this concert have almost reached the expectations that the audience would have to go to a visual concert.

12.1.3 The audience reaction recording. The footage of the reaction of the audience shows different types of reactions and emotions, but it is hard to know if it is because of the visuals or the songs

played live. Most of the things happening in the visuals were based on the songs and different parts of the songs. The solo parts for example are always a highly appreciated part of the concert, which means the excitement of the audience can be both from the visuals pairing the solo or the solo itself, but because most of the audience thought that the visuals added something extra to the concert and their high rating of the visuals, the argument can be formed for the affect of the visuals on the reaction of the audience.

12.2 Additional considerations

12.2.1 Limitations. Because this was a real concert, performed in a real venue and with a real band and real audience, the decision was made to make the questionnaire as easy and short as possible, to both get as many participants as we can, since the audience members are there for a concert primarily and because it could have affected the experience or broken the flow, we have only used one question per song, asking if the audience if they felt if they lost track of time and space because of the visuals. Although the result is overwhelmingly positive, the fact that the questionnaire has few questions lowers the value of the results.

12.2.2 New Media Art. Marius Nielsen mentions in his interview that he has found that the cross-media field is commonly known as *New Media Art*. However, as his interview was the final interview the concept was not researched further.

12.2.3 Visuals. With the knowledge the group now has after creating the visuals and winding up the concert a lot of the interface implementation would have been different in setting up more improvisation possibilities in the beginning.

12.2.4 Music affecting the visuals. In a setting like this where the music and the visuals are so interconnected, they will also affect each other. If the music is disliked by the audience member that could affect that person's rating of the flow they feel and vice versa.

12.2.5 Projection becomes a light. Our feedback discussion with Marius also pointed out that with the amount of light we have on stage the projectors also work like a light and how you add more lights should be considered to make sure you don't get unwanted white-outs or blackouts due to the projection.

12.2.6 Scale of production range of Kinect. The Kinect only has a certain range that is optimal around 5-6 meters. That means that bigger venues would have a difficult time placing the Kinect in a place where it can reach the musicians on stage. Real-time LiDAR with a higher range is more expensive and more time-consuming but should be considered in the future.

12.2.7 New visuals canceling boredom - more flow. Maybe cause the switch to a new type of visual happening in Whole Lotta Pretty the flow score is higher as people have become accustomed to the visuals prior. As we now know flow is about balancing boredom with anxiety.

12.2.8 Audience point of view for development. It could be interesting to have analyzed the audience members' points of view. Several times throughout the project it was discussed if it would be possible to track the audience members instead of the musicians making the audience affect the visuals. It seems that the community of VJs

are loving novel technologies but it is not apparent how much of a difference it actually makes for the audience. This whole project could potentially be flipped to be about designing for the audience with interviews instead of interviewing VJs.

12.2.9 Implementing a true LiDAR. Even though, the Kinect created the same visual expression as a LiDAR would provide. Setting up a technical interface with a high-range LiDAR could create more possibilities for bigger venues and is most likely a more cumbersome system to set up.

13 CONCLUSION

This project sought out to investigate capturing the musicians on stage and projecting back visuals and how that would affect the experience in a live setting. Research and interviews gave an in-depth insight into the field of VJs and cross-media artists. It gave knowledge of their motivation and goals, which often were about experimenting and creating unique experiences. The project managed to organize an around 80minute long concert in a venue in Copenhagen with a band and around 150 audience members. Visuals were created for each song and utilized old-school concepts along with the novel technology aspect. We created a technical setup that utilized the Kinect camera as a low-fidelity substitute for a real LiDAR, and were able to set up a minimal interfering test for gathering data about the created visuals. Based on the discussion section 12, we can conclude with the preliminary data that the use of LiDAR cameras to create live visuals is affecting the audience experience in a positive way, although more research and testing are required to solidify this claim. The audience expressed an interest in seeing more visuals such as the ones created for this concert. This does by no means, mean that the visuals are perfect and there is definitely room for further experimentation and improvement. However, this showcase has proven that the possibilities are endless and the visuals are interesting when it comes to including LiDAR cameras in live performances.

In conclusion, the aesthetic of the visuals and how they are presented in combination with the songs and bands are what is more important, the use of LiDAR is but a tool, but it also creates new opportunities for adding a dimensional aspect to the real-time live visuals.

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A QUESTIONNAIRE

We are a pair of students from Aalborg University of Copenhagen from Medialogy. We are conducting a study of the use of LiDAR technology and its application for designing real time visuals in a concert, and how that affects the audience experience. The questionnaire will be divided into sections asking about your experience with the visuals and the overall concert.

I case you would like to withdraw your answers, contact amhadd18@student.aau.dk or mwpe18@student.aau.dk

Full Name:

Gender:

- Male
- Female
- Prefer not to say
- Other

Email:

I consent to have my answers be part of the study and that my name and email will be used for a raffle draw to win a beer.

- I consent

How often do you go to concerts?

- Once every 5 years
- Once every 2 years
- Once a year
- Once every few months
- Once a month
- Multiple times a month

Have you experiences a concert with visuals(Being a projected background or similar)

- Yes
- No

How much do you think visuals add to the whole concert experience in general?

1-5 Nothing-Transforms the experience positively

Enjoy the concert until the next part .

In this part, we have general questions about your prior experience with concerts and visuals.

Full Name:

Email:

The visuals made me lose track of time and space while DEFEATED was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while Rolling Stone was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while Running Wild was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while In Red was performed

1-5 Disagree-Agree

How was your experience during the last four songs?

1-5 Not Enjoyable-Enjoyable

Enjoy the concert until the next part .

In this part, we have general questions about your prior experience with concerts and visuals.

Full Name:

Email:

The visuals made me lose track of time and space while Ride On was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while Hold Your Head Up was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while The Feeling was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while Mountain High was performed

1-5 Disagree-Agree

How was your experience during the last four songs compared to the previous four?

1-5 Less Enjoyable- More Enjoyable

Enjoy the concert until the next part .

In this part, we have general questions about your prior experience with concerts and visuals.

Full Name:

Email:

The visuals made me lose track of time and space while Work for a Livin was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while Dirty Roses was performed

1-5 Disagree-Agree

How was your experience during the last two songs compared to the previous four?

1-5 Less Enjoyable- More Enjoyable

Enjoy the concert until the next part .

In this part, we have general questions about your prior experience with concerts and visuals.

Full Name:

Email:

The visuals made me lose track of time and space while Coming Home was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while Whole Lotta Pretty Up was performed

1-5 Disagree-Agree

The visuals made me lose track of time and space while WokeUp High was performed

1-5 Disagree-Agree

How was your experience during the last three songs compared to the previous four?

1-5 Less Enjoyable- More Enjoyable

How much do you think visuals add to the whole experience in this concert? 1-5 Adds Nothing-Transforms The experience positively .

Interviewee:

Lasse ANDERSEN
Dark Matters
darkmatters.dk

Interviewer:

Maja PEDERSEN, Abderrahman
MHADDEN
AAU
mwpe18@student.aau.dk

Interview date: 10. March 2023

Interview:

- Maja:** Um, so firstly, we would actually like you to just, like, present yourself. Who you are.
- Lasse:** Yeah, I'm Lasse Andersen, I'm the CEO and creator of DarkMatters. Uh, and the company as the form it is now, has been going for 12 years. But before that, me and my former partner, um, we were doing a lot of VJing, visuals and installations before we created DarkMatters. He was in an art crew. I was a VJ. And it was always more fun to VJ when we were crew instead of just doing it, Uh, one man. Yeah. Uh, and then it basically turned out to be we always got the other one booked for the gigs as well. So it made sense to join forces and make a VJ crew. And that's basically the start of DarkMatters.
- Maja:** Okay. And what is your professional background from before?
- Lasse:** I'm a graphic designer. From a technical school. So it's like not the fancy graphic designer, but more the craftsmanship graphic designer. Um, and when you went to the technical school, Uh, it's, uh, "multimedia grafiker". Uh, you have to go as an intern for two and a half to three years. Like when you were a carpenter or electrician. Um, but there wasn't anyone who could have any interns when I was at the school, So they, for the school to survive, they, uh, started this, school internship. So you had one of the people that was placed in school who didn't have any assignments, so you kind of had to invent your own assignments. And that's when I started to get into VJing.
- Aba:** The next is what is your company doing?
- Lasse:** Uh, well, from the development of VJing, we got this one assignment to do a museum exhibition, in Kronborg, and we used mapping in that exhibition, which was fairly new in the VJ world as well. And people saw that, and basically, that kicked off that people started using us for exhibitions. So right now, we're doing a lot of museums, exhibitions, uh, some installations and, animations as well, but mostly focus on museums.
- Aba:** What is your most significant project?
- Lasse:** Uh, like a personal or the one that gave us most money or..
- Maja:** Your personal favorite.
- Lasse:** Well, since we do a lot of different stuff, there's like different favorites. I mean, yes, there's, they're all children, but some of them are like the difference between basically abortion and and favorite children.
- Maja:** But then just a few of them, maybe..
- Lasse:** There's some ex-girls with some children that are not really in the good term, no. But I mean, I really, really liked one of the first big exhibitions we did down in Vordingborg. So which was our.. Yeah, the first big, big exhibition we did.

And I really liked that because we had about a year of doing research on medieval times and the assignment was that they want to change the whole way of going to a museum, that it would be sensorial and it would be abstract and it would be, uh, less text and more feeling. So I really, really like that approach to doing museums. Um, so we did a year of trying to get into the different subjects. We did seven installations and how we could show this visually without doing text, doing anything that was normally in the exhibitions. And um, so everything was in a, research of feelings and how to uh, depict people like what would we do conceptually? And then it turned out really, really great. As an example, the first thing, um, the first installation we did was a huge purgatory and it was seven meter high and it was supposed to, uh, disseminate, uh, heaven and hell, how the king and the peasant were perceived in the Middle Ages. And it's all based on one coin where you had the king and the bishop on one coin. So it was like the, the ultimate salvation for the person was to go to heaven. Like, that was what everyone was working for. And then you had the king and the bishop, in the top in heaven, so hell was life and heaven was the bishop and the king. So it was seven meter in purgatory. That moved like up and down. And it had hell downwards and of course, heaven upwards. So when the people were actually standing in the installation, they were engulfed into the hell projection. Normally you would always, uh, prevent people to go into the projection because they would make shadows. But since they actually were physically in hell, they were really represented towards what it was like to be a peasant in the times. And when you're standing there, this is how you would look up and up in front of you was the heaven. And that was the same analogy for going into a church at that time where you have all the lights coming from the gothic, uh, windows in the big churches. So there was like a physical presence of how it was to be, uh, peasant and the mental presence of where the audience was actually staying. I thought that was really, really nice way of actually telling how it was to be a person at the time. Uh, so it got to physically and mentally at the same time. Yeah, in a simple way of just showing the purgatory. I mean, the picture was invented like 400 years after this time period. That's a concept in the Bible. Uh, but that was, that was okay that we used it eventhough it wasn't historically correct. Uh, and so, and some of the other installations we would use a lot of mapping to explain, uh, different ways where people went to war. It could be political war, it could be assassinations, it could be like full on war. It was a lot of bricks that turned around. And so different objects in the installation as well as to just have objects that actually represented different stages of war. Instead of doing a lot of people that came together on the battlefield. So everything was based on these different kind of installations of showing something where the audience actually just looked at it and felt different things instead of getting everything pointed out by a story. Well, this is this, and this is that.

Maja: Yes. So more about showing than telling.

Lasse: Yeah, exactly. Make them feel instead of telling them what to feel. Yeah. Um, and the last installation or one of the ones, we really liked was the biggest challenge about bricks. Like bricks was the main thing in development from the more, uh, let's call a simple life in the Middle Ages to actually having, like, status and wars and you got, uh, warlords and kings and stuff like that, that actually got bricks imported from Italy and southern Europe. When you had a brick, you can make a wall, you can make a castle, and you could like rule things. Yeah. So the brick was the main thing that changed the whole face of the Middle Ages. And you had all the bricks was stamped with the ones the brick makers had, like different things. You had colors of bricks where they came from and what methods people used. And it was like this big challenge of how do we do bricks sexy? How do we actually do that in a good way because normally everyone would do it like pillars of the Earth. Intro were they had bricks building of different cathedrals and stuff like that would be the normal way of museums showing the power of bricks. And

then we started looking at the architecture because the bricks were normally laid in different colors. So there was different patterns and stuff like that, different methods towards how you doing arches, how they actually support each other in clever ways. And then we started to think about, well, all these bricks were like notes and maybe we could do like, uh, like a synthesizer modular thing where all the bricks came in and were displayed as notes to a song. So we had a circle which where one line of the song we had different arches to different architectural things. So the rhythm of the songs we had printing and the bricks that basically mean like, dumm. So it was a different mark every time it kind of banged into the audience. So it created this big melody of the start, like one tone and the rhythm and then the bass and stuff like that. So it was a symphony of bricks. Oh yeah. Um, so that means a lot to me. It was like the big kick start and it got like, raving reviews. Everyone thought that was a magical thing to actually dare to do this in the museum world. Yeah. Um, I like "Den Sorte Skole" visuals. We did this for this Danish band called "Den Sorte Skole".

Maja: Was that the Roskilde Festival or?

Lasse: Uh, yeah, that was like the third act of our partnership.

Maja: Okay.

Lasse: The first one was our attempt to do storytelling and visuals. All VJing visual stuff like that was much more effect based. Uh, there were some people, some of the biggest people tried to do, thematic things, uh, but we never really seen like a real story unfold in visuals. And "Den Sorte Skole" is this sample, uh, deejay duo, who do a lot of things about ((..)) and rites and doing a lot of storytelling in their music, uh, you know, and they were gonna release this "Magnum Opus" and had been collecting samples for four years and the album turned into be this big chunk of their life. And I was listening to the album and at the time was I was really tired of how the whole VJing thing looked. And it's like, okay, this had a premiere in the Danish Royal Theater. So we actually had people benched, so we could hold them so we could do boring stuff or we could do conceptual stuff and they wouldn't just go to the bar because they weren't like, uh, exposed to only effects. Like, okay, "now is that blinking". "This is boring", "this is the quiet song" or "this is numbers. Uh, seven song, which is always a silent song. I'm not into that. I just want the big beats" or something like that. But we knew we had them so we could actually tell the story and they were forced to feel different stuff. Um, so I listened to the album and I, I've been kind of, I mean, when you're not a storyteller and then script writer, you don't know how basically stories are, like the structure of a story. So looking into what would be the most basic ways of storytelling, what is the like the main stencil of a story. And it's just a guy called Joseph Campbell who did this, Uh, it's a hero's tale. This is this way, this stencil for how to tell, uh, an adventure,

Aba: The development of, like, the main character.

Lasse: Uh, yeah, exactly. And like that. The challenge. And then they have to leave home, and then they get a companion and, like, this is.. you can put on Jesus, you can put it on Lord of the Rings you can put it on Star Wars, like, all the great tales. So I was like, Oh, this is really good. Because if this is the main stencil for most fairy tales and adventures and biblical things, people kind of have it in their body, so they kind of know how the progress is without actually knowing full well that works. And I listen to the album and basically, it ranges from like ten points to eight markers in this. It's there's a lot of different interpretations of his main model and basically the model I chose like 14 of the 17 tracks just completely clicked with everything in the whole stencil. It's just like, Holy crap, I went back to the boards and just like, Look, what I have been talking about. See what we have here, it's crazy, but we actually have a hero's journey. It's like, Whoa. So it all came through that. Okay, so who's the hero? Of course, it's the audience. The

Benched audience. We have 800 heroes that were taking their own travel through this concert and the whole thing was to make our own world. So we had to do an introduction, like you have to present the world. And that was done by a lot of skies. And then you came to an island because an island is always a secluded world. Yeah. So it's not bound to anything. An island it can be your own world, right? Yeah, it's just like, perfect. And then the next thing to do, it's like closer up to the island. And then we sample a lot of, uh, golden era danish paintings, uh, which is, uh, the time zone is where everyone kind of got romantic about old stuff. So that's when, uh, Margaret the first, she made this declaration that we should start to preserve buildings, uh, ruins and towers, stuff like that. That's when we actually started to romanticize, old stuff. Instead of just breaking towers down and building new buildings from the bricks of the old towers and stuff like that. So it kind of made an ode to, they were sampling old records and we were starting to sample old pictures, and a lot of the listeners would be like urban hip hop stuff and we were just like, uh, exposing them with old 1800s golden Age paintings, which is really cheesy and really romantic. To this hip hop crowd was like, Fuck, they can move their brains out here. They just have to accept this universe and then everything into this journey just, uh, yeah, went into different worlds. We were underwater and which is a lot of like (()), downthere and went to the other side of the moon with this huge, uh, temple which was just dissolved by this one beautiful siren voice was like he was traveling all over different adventures and places and, uh, yeah, worlds. And some of the things that for this one, you had to return. The hero has to return. Uh, this one point.. We built the scenography for this. It was like, uh, 12, I think long drapes, so it had, like, a depth in this and everything as well. Uh, which totally killed the band when they had to go to tour, Fucking hell for them, it was the worst thing we've ever done for the band. Took five or 6 hours to put up the scenography. Everything was ruled out. It was all really clever from home, but it was just. It was crazy. And then they have to map everything. Yeah, it was really, really, really not a good idea. But that's the thing that if you have (()) meters of scene, like one of the biggest scenes in Denmark and then they had to go to a northern Jutland where they have a six meter scene. Oh, then you just use this and it's just really, really, really bad. But one of the songs, there is, we called it this is a TV show in Denmark called Lost Danish People. But they have a reporter, one with, um, lost her mother and haven't seen her for thirty years or something. And then you go to Vietnam and the mother, there's always like this piano music. And this one track was like this really beautiful. Uh, there's some kind of classical piano music. And that was like, Oh, Jesus, that's like this. It's like the "lost danes" thing. And we decided in, uh, in the concert to do like it had like big build up. And then wup and then the piano came in. So 4 minutes we turned off all the lights in the whole room like so just had this huge, huge, huge build up. And then when the piano came, we just lighted of the different drapes with white. So that was like the big piano. And normally that would be like when you first looked at it was like, Oh, that's a piano. It's like, no no. We're fucking never going to do that. That is so, so cheesy. And when you listen to the whole thing, this is part of the apotheosis is where the main hero actually leaves his physical body and gets a higher enlightenment and kind of realizes what his goal is. So he gets this enlightenment of what life is about. And loses his body and embraces his own soul. Just like we've got to do the fucking piano thing. And it just works so good. So sometimes it can be. I mean, you're allowed to do the most cheesy thing if it's right, but then the work kind of dictates what is right for the work is that if you being snobbish and say, no, those are those are "tangents".. is it it tangents?... like that, is that never going to do that. And we looked at each other like fuck. And at the premiere people came out and they were like "well I was crying my heart out because, uh, I'd just been to a funeral that reminded me of my grandma". I'm just like, Okay, okay, okay.

Maja:

So it was okay.

Lasse: Yeah, you get people to cry, then you kind of know you're doing the right thing. The crazy thing is after the apotheosis since this long song is like 8 minutes, and that's basically the journey home. So Frodo the has to go back from the volcano and stuff like that. And we made this huge desert, beautiful (()) long walk. So a singing about longing home and stuff like that, having made this desert with flying rocks in it very Moebius kind of thing like seventies sci fi. So you're just walking through this desert because that was like the way home. And so it was hard to get home after party at night. That's basically the whole thing. And those 9 minutes were so fucking boring. And it was like, well, conceptually that is really, really good because it's so boring to get home. But all the feedback was like I was bit boring in the end like that, that kind of took out the whole thing. Okay, so if you go too conceptual, then you might actually work against the experience. Well, it's supposed to be boring. It's a long way home. Well, and musically it didn't work as well. So that track was taken out of future concerts as well. But that really means of a big thing to me because it was like people had never tried to actually sit and watch visuals. And even though you didn't get it, you got it because you have I mean, people were like, I was on a journey and I was like, Good, Then you've got it like and I really like the people don't have to get the concept as long as they feel the same thing as you would actually have them feeling or to this notion of this was a travel or adventure or something and someone was like, "Oh, I saw that was just like Star Wars" "that was I was thinking of Lord of the Rings" or something like that. Um, so I'm pretty proud of that. I mean, now visually it's completely in other places than what we can do, but conceptually, I think that was really, really nice.

Aba: Nice. Yeah, yeah, yeah. I mean, uh, he basically answered the question. So, uh, next one would be, do you have a specific approach when it comes to like making specific projects? Like how do you, like you think of doing a project? How do you go with like, okay, I want to do this concert for these, for this band, or I want to do a visual for this museum. How do you take it from that into the visuals in the end?

Lasse: Like, um, there's, I mean, there's a lot of boring factors in the starters, like time budgets, uh, clients, sanity. Yeah, like this. Like, are you in a, I mean, how, how good is the trust between you and the client? Very dictating or are clients giving you, do they know you and trust your work and just say do the fucking coolest thing you can do then. Then you do. I mean, different approaches towards.. but it really often depends on (()) and the budget. But normally it would, I mean, it would be.. So you try to say that every project is different, but we always try to do something we haven't done before or do something unique. So you have to approach it in different ways.

Aba: Okay. So it's more like, you go by what you want to do and not just like the textbook thing you have always.

Lasse: Yeah, we don't. Yeah, we don't. I mean, it would be really, really, really, really efficient to do that. So it's, it's not a good thing per se to do what we're doing. But, but, but I mean all projects are really different. I mean you have someone who does like, uh, e-learning videos. Companies do that. They kind of have a stencil for what should be in it, what's the payoff, what's the intro and stuff like that. But most of the things we get in are people that want something that is different than normal. So you can't really lean towards what's normal. I mean, you can see when they want a mapping and the one we did, the particles and Copenhagen airport model and that has kind of been done that many times before. So we kind of know the, the, the things we have to take care of or what is.., if you have high buildings, it's hard to project on it because have a difference between the focus and a difference between pixels and like all this technical stuff. Its a lot of like seeing what could be problems in the projects. That's a big thing like that's, this is the kind of thing uh do they know the technical challenges. Do they have a good

technical team at the museum or do we have to do everything. Um, how fast the current time to deliver that part of the.. which is a huge thing. Uh, how fast they to deliver compared to are you just... Well, we're going to do this in some two months of just sitting on our hands for the first month and just waiting for them to deliver. Then you basically just have one month. So it's yeah, So there's like these things we always go through, but how we actually would do it.. you know, basically the techniques we might be using, but the looks and direction and how we're going to animated stuff like that is kind of, uh, along as we go, uh, yeah, we will start this.

Maja: So, when are you trying to experiment with stuff.

Lasse: Yeah, that's the thing. Right now we're doing this, uh, basically Copenhagen city development through maps and we wrote to the, client like, well, you have to deliver all the maps. It's sometimes in '47 where they did this place (()) in Copenhagen. They put it down and it would expand, uh, the city to the suburbs where the fingers are, and they would put green zones in between those like the, big communication from 1947 and then they have different developments from different years. Uh, so we have 1960, the eighties and 90 and the millennium and stuff like that. And they can't really give us any maps. So that changed the whole thing of like.., well, okay.., and you don't have any maps from 1947 that is in vector. Okay. Then you have to draw complete map of Sjælland in vector. And we can't really do that. So that that is things that kind of changes the assignment when you don't know how much you can get in or if they can actually deliver anything they think they can deliver. But I don't know it's hard to get.. who would vectorize maps from 1947. Those who would profit from doing that. Right. But luckily Jon(ed. Coworker) he could go into open.. openmaps.com that then actually exclude all the vectors and then collect it and... He is a wizard so everything turned good. And then we find all phone books with maps from 47, from that we can see basically where the cities evolved and didn't evolve and everything, like, uh, remove things from the map so we can work backwards. Yeah. Yes. I don't know if that answered your question.

Aba: It did. I mean, like you said, instead of giving data.. like you give stories. That is very nice. How does your work and sound relate? With your work and then like the artist you're working with for example that have sounds like.. How do you make it to make sense?

Lasse: So, uh, sometimes it's 1 to 1, like with the Den sorte skole that I talked about before. Yeah, that was like, uh, basically talking every day about things sometimes it, uh, it's like, do cool stuff and then we "do cool stuff" and then they see it in the end and then like,"cool stuff". But basically, sometimes it's, I mean, the thing with Den Sorte Skole we did that, I don't know, seven, eight years ago and then the company was another that was more a VJ thing. So it's more like a survival day from day.. band kind of thing. Uh, but now it's much more, uh, how many? I mean, we don't count hours, but we count more. We count hours towards what's was possible in these amount of hours which relate to the, to the budget, of course. But if people don't have this big budgets, that's going to be there, well, trust us, then we make something cool. And, uh, "what you get is what you get" kind of thing. Yeah. And then we, we send maybe halfway, we're saying, well, this is the things we're going to do. And then there's like, okay, that's cool. And then we do all the animation and that's, that's or can you do a music video for 20,000, which is basically three days of work? I said, Yep, but you don't have any influence on anything. You just give us the money and then we give you the project. That's it. Yeah. We did it maybe three or four times like, okay, cool. So that's people we know. Yeah, Yeah.

Maja: Can I just...

Aba: Yeah, sure.

Maja: What about in terms of, like, genres of music, do you approach them differently or is it the same, Uh, what like different genres of music?

Lasse: Like, uh, yeah, hip hop is really hard. Yeah, that's really I mean, hip hop is very electronic now, so maybe it's easier now, but but when we've done hip hop things, it's always been totally weird and messy.

Maja: In what way?

Lasse: Uh, because there's a lot of words and there's a lot of persona in it compared to electronic music, you can actually invent your own universes and basically just do stuff. Um, so I mean, it's very much looking at like ambient techno videos compared to the cool hip hop videos. Uh, hip hop videos are much more about the persona. It's much more true. It's much more like cinematic, uh, approach towards, uh, towards the music video, the visual. Uh, we did something two or three years ago, this podcast in Denmark, uh, about hip hop and uh, national TV wanted to be like, uh, a concert about this hip or this podcast or related to the podcast. And that was about all these old Danish, the ones who invented hip hop in Denmark where the first one originated. And then we took all the footage you can get from old school stuff, from the music videos they did back then. And then we use like this video synth thing to fuck everything up. So that kind of the analog visual trashing VHS tapes thing kind of solved it. Or else we didn't. We wouldn't know what to do. Okay. Yeah, and we did, Uh, it was in Store Vega, so we did collect all the old, uh, graffiti tags from, from the eighties, from Copenhagen, and then we made gobos like, stencils for lamps. Yeah. So the whole Vega was completely bombed with, uh, graffiti tag. That was good. That was a good idea. Um, but yeah, electronic music is way easier to do whatever I can do,

Aba: What about like rock'n'roll.

Lasse: But I think bands have turned more conceptual now and rock and roll as well. I mean, if you're, uh, that so you can actually do a lot of things that are more atmospheric and more conceptual compared to ten years ago. I mean, that's a whole if you had, the White Stripes or the Killers or Interpol and stuff like that, it was much more about the style of the rock band, right? Yeah, but White Stripes, you just, uh, Michel Gondry, did all this stop motion thing, so that was like the character of their whole visual identity, like the simplicity and, and kind of, uh, camera tricks. You could repeat it or you could mirror it and stuff like that, but it was still, like, recorded footage. Not many rock bands do the graphic stuff, Queens of Stone Age actually did, like, tap into the whole Let's make ourselves a comic kind of thing or not comic but but more digital. There's this group called Shynola yeah they did Junior Senior a lot of a lot of uh, British things like things that was out on uh, uh, (Mo Wax??) and (Walk records??) and stuff like that. They were the music video kings at one point, yeah. Did the first music video that could ever be sent by an email because it all was like pixels for Junior Senior. Yeah, Yeah. That's a good PR Yeah. Cool.

Aba: Uh, do you have any specific software equipment you prefer to work with?

Lasse: No, uh, when we were VJing we were always using the V4 like, a video mixer. Live VJ mixer. Yeah, that was. And that was the one everyone had who was reaching all over the world. It was like 10,000 or something. So you had to work really hard to actually get it. We got is like, Fuck yeah. Now I have the real mixer. I need to do all my stuff. So back in the days that was it. Just like get a video mixes so you can get two inputs instead of just having a computer. One computer.

Maja: What about now for all your museum stuff?

Lasse: Uh, no, I think I actually don't know what to do. No, I mean, now it's basically we don't do that much live anymore. Uh, for when we did the third concert with Den Sorte Skole, I think we set it up into a whole pult, like, the whole live pult, like and they could change randomly between two outputs, but it wasn't like dynamically.

Then I had everything on my computer. Then I had an intern doing the side screens like, “No. Blink blink blink” And so I think a lot of people doing VJing now is doing it for real time, which is another thing than what I was used to doing. So I don’t know how people actually do that. I mean, setup of more computers or they have different modules they shift between or everything can be set up. And as you’re doing your own video problem though, right. Yeah. When it’s nodebased, I’m way too stupid for that. Unfortunately.

Aba: Uh, where do you see the cross field? Uh, the media cross media field going as far as field media as what is it like? Yeah. So the cross media is like using different mediums to like, for example, I think that the, the projector and like, Dmx lights, like how do you like this? Like what if, like using different parts and using them together to create something new?

Lasse: I think it’s I don’t see it as expanding. I mean, there’s always like trending, uh, effects that’s going on. It pushes some things further, but I mean, it’s, I mean, people, people move backwards sometimes. I mean, the treadmill backwards and forwards. I mean, all the shows for our sake, all the shows now in the world have grown so big technically, you see, I mean, the six mile periphery are immensely huge know that for people who are not doing Drake, Beyonce, stuff like that, you can’t really compete with the size. So you have to conceptually be clever and create an experience that doesn’t just rely on doing the biggest fucking screen in the world like that. It’s not enough anymore because that has been done really a lot of times and bigger than you could ever do. Yeah, So you have to kind of think of other ways of doing it, which I really like. So the technique or the amount of hardware is not the goal anymore because it’s been done it’s I mean, on the TV shows as well, all the idols and all these huge scenography with 400 moving heads. So people are used to seeing that. I mean, it’s another thing to experience it in life, but if you have seen something really, really big just in the flow TV, at home, just doesn’t impress you as much when you go outside anymore, much more about creating a right atmosphere instead of just making big with and I really like I really like that the people have to not just crave money to get technical hardware budget, but actually make something that makes sense in the room with the people, which could be interactive. It’s not for the sake of interactivity, but it could be a thing could use to make another experience. Than you get at home. that’s like the main point we always say to the customer, like if they can get it at home, why should they go outside to experience it? Yeah, people I mean, people’s televisions is at home now. It’s like 70inch or something. They re immensely huge. Usually people are like, Why? Why should I go to the cinema? I have like my, my living room is a TV and then the sound part kind of comes in because that is like a thing in cinema. If you have cinema sound system at home. Well, then you just build your own cinema. So that kind of that’s a big thing if you do go into the small movie theaters now they’re kind of small, compared to what people have at home. I had a really, really hard time finding a 45 inch TV 4K that’s like, well, I found one from Samsung because i didn’t want a big TV at home. But that just explains the consumer’s demand towards sites of, uh, of home entertainment, right? Yeah, but I think into interactivity and that not necessarily digital, but that has a big thing in the concept or you put the artist in the middle of the audience instead of the stage then that’s interactive as well cause people can stand close to the light and use it as a respect line towards touch... There’s a lot of things that makes people think about the position and how they’re actually experiencing the song or how close they are to sounds and stuff like that.

Maja: Maybe can you actually talk a bit about the Lukas Graham laser thing you did, cause that’s kind of interactive in a way?

Lasse: Yeah, that’s I mean, it’s an extend of.. We did this P6 Beat Rocker Koncerthuset like this radio channel, uh, we had this yearly show became like this Christmas tradition, and the poster that had like one line of a color was the concept every

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year. One year there was the yellow line, and they have a lot of projectors in their concert hall at DR. Yeah, uh, that are fixed, and it's a hell and it's so stupid, but that year we did like this illustration of hands that were shooting, uh, yellow lines out of them like this, schh, and you had lines coming out of the hands and they were like, moving on the, uh, on the walls. And then we did, like, uh, sort of with a light that was shooting, like a moving hand, shooting up in the ceiling. And that light hit another moving head that was shooting down on the floor in the middle of the dance floor or the concert floor where you never shoot lights. And and then we had another one that that light into the (..?). So we had like a yellow line throughout the whole concertroom. Well, yeah, the technicians was like.. that fucking you can't.. people are standing there light in the head.. and it's very terrible and they should be listening to the music. And everyone in that concert venue were at the yellow light and doing like this and walking through back and forth and hands and taking pictures of them being in the light. And when everyone, when the concert was there was like this, like this fine hole in the audience. So watching where the light was going down with beautiful scenography with this basically just one line. Yeah, with a beam of light that was immensely interactive and people are talking about it. So this like it. And that was kind of the same thing we did for the the Yousee – Lukas Graham. It was an old idea. Actually. Led Zeppelin did it in the seventies with a laser, which I found out after I thought about that. We had this. I just called Girl Panic the sample of crazy kind of butt breaker, but like fast crazy music. And he kind of slams his computer and being like, really crazy dude. And we put him in the middle of the Vega venue, Big Vega, and we built him up on a pyramid. And then we had a laser on top of him. And at this certain point was then he went up and started it on the table. He had this computer like this, and we turned on the laser and just formed this huge pyramid around him. Everyone was like, Yeah, we had like hands like this. We tried to reach him on the table and it looked like this very, very religious picture of of that saint standing there in the laser pyramid and all was really crazy Gothic and Jesus. It was really crazy. and that thing just plants in me. And for the Lukas Graham, you there was Yousee a teleprovider that was sponsoring the whole concert, wanted some branding and their name is like laser green. So you just fill the whole thing up with lasers and did 16 pyramids when people came in. So everyone had their own space in this, that maybe 20,000 capacity and the venue, I don't know how many can be there, in Jyske Bank Boksen. And you can just with a flick turn it up to their logo. So that was really good too. It's satisfying the client and doing a pretty easy setup. We actually, a month before we worked on it for a year to do like this kinetic balls. We had them in wires for like big patterns and we worked for that endlessly. And the provider of this kinetic ball to he bailed out one month before the whole show, like huge fucking expensive show. And then the laser pyramids came in like this fucking okay, what else can we do? And then that was actually a much better solution, much easier. And you could do the decorations. The lasers could be used on the concerts as well.

Interviewee:

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Interviewer:

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Interview date: 31. March 2023

Interview:

- Maja:** We would just really like you to start by introducing yourself in your own words, and describe what you do and what your professional background is?
- Carl Emil:** Hmm. Sure. So, my name is Carl Emil, and I studied interaction design. And meanwhile, studying, I started to do art projects, and I just continued to do that alongside doing design work after I finished school. So, I shuffled between being an interaction designer and a media artist. And then I went into theatre work and performance stuff around 2013 and has also been doing that and mainly working with this special stage called The 4D Box, which is this reflective foil for like a fake hologram using tracking and stereoscopic projection. Um, and I also worked a bit in the VR game industry, not really games but more like storytelling experiences. And in that context I would be a technical artist, both like doing the visual work but also building tools for non-programming artists to build things.
- Aba:** How would you describe what, what you do now with the shows?
- Carl Emil:** Um, it has been a lot of people collaborating on the ideas. So it's been a very flat structure. I mean, um, so the director has thrown out some ideas and then that has been picked up by like Cecilie, who works on the AI, and me, and then we've been shuffling it around and it has developed over many iterations over the almost four years. So yeah, the process has been very shared. And also because of these iterations, we have time to try something out and find out that it didn't work, then reorganize the entire piece again and put a different structure on it. And so, yeah, maybe you can ask more specifically about that.
- Aba:** Uh, it's also in general, not only the, the last show you have done, what would you consider like your profession to be in this like in general as well?
- Carl Emil:** Um, well it's different within every context. If it was a theatre, it would be a videographer. If it's a game design, it would be a technical artist, if it's design it would be interaction designer or experience designer maybe. Um, so it really depends on who's asking. But, I mean, my main skill is to know all the design principles and to have like an aesthetic view on things and then also having skills to carry through projects in terms of like programming and developing interactivity and, that can be a very nice position to be in because you can make a very small team that can grow very fast. So, it also works, uh, a lot in prototyping for bigger clients like Lego and Hasbro, making augmented reality and toys and these sort of things in the prototyping phase, right? Um, so I'm also hired in for these kinds of things.
- Aba:** Yeah, that was going to be my follow up question, like how do all of these different things you do link, for different things in development?
- Carl Emil:** I mean, it's the same kind of tools that I come with, but depending on the context, it's just a different position.

Aba: So, uh, so what is your most significant project or personal favorite for you.

Carl Emil: Right now? It is probably Shadow(ed. Sky66en) because there's a lot of things that come together in that project. I don't feel like it's my own personal work. Um, but it also couldn't have happened without a lot of people participating. So and I also don't agree in every aspect of it, because there's so many compromises in it as well. Yeah, but I think it is a quite special production because it had the time to be developed and it had multiple iterations and we did have time to evaluate and reconfigure things. Um, so I think if I were to like, um, recommend anybody to view something I made, it probably would point to that right now.

Aba: Do you have like any specific approach, uh, when it comes to making projects like these? How does this go from an idea for like actually trying to sort to make it work and then end up on a show?

Carl Emil: Yeah, um, from for myself, I need to embed some sort of meaning into whatever I do. So for example, creating the AI character, the idea was that I wanted something authentic and then I wanted something that felt real. So I started to research how neural networks really works and what kind of components they involve and what they typically look like structure wise. And then I quickly found out that, that's pretty impossible to render in real time if you don't want to have something ChatGPT rendered. Yeah, but there are some people who have made really incredible visualizations, not real time, but where it looks like, uh, like organic flower structures. Where like then the different layers are shown in proximity so that the distance to the different neurons or perceptrons, um, like visualize the different layers on how we communicate. And it can really look very organic. So, I was inspired by that. And then it became this sphere with multiple neural layers that are connected, and it somehow visualizes, that information runs through each one. So in quite simple way. Yeah, but it's an example of how I really feel best when I have some kind of meaning behind that. You can embed some kind of meaning to it. And it is difficult for me just to create visual expression without any kind of meaningful drive.

Frej: Can you speak a little more about these organic structures? It relates very much to the project we are doing now. Our overall theme is like harmony between the AI and humans yeah, and the movement of sort. We talk about like this organic structure and has like flowers coming across.

Carl Emil: Yeah. So, this is something I found is just promotional graphics for a company that does hardware for running neural networks. So they make these optimized chips for running your networks and then their promotional graphics is this kind of image that looks like bacteria or flowers. And it's just like the full neural network visualized with every connection and every perceptron. But they organize it in a way where it's, you know, self-organizing through like a false directed graph. Um, and it becomes these patterns. So it's like visually organic in that way.

Frej: Okay. Do you remember what it was called?

Carl Emil: I can probably find it and look it up. It's a while ago.

Aba: So how does your visual work and sound relate. Do you account for sound early in the process or like include that later on or um.

Carl Emil: So visual music is one of my subjects that I keep returning to. And I have also in the past been doing VJ-like things. Um, but mostly when I knew about the music, I knew about the artist that was creating the music. Um, because think it really makes more sense when you can develop something for a specific style of music or like for this. And I had a series of works together with techno artist, Bjørn Svin, called Silicium, and we also explored what can be done in this 4D Box format. And it was actually after I did my very first project in the 4D Box that I thought that, that format would be something special for, uh, for visual music or for like visual concepts, because you're going to have, you have a performer and

the music and the visuals in the same point in space, like it could all come from the same source, so you could have one directed expression that is both kinetic... (...interruption from café manager...) And then with Bjørn, I had the chance to actually spend time on that. So we started from the concepts that could be, for example, the digital as something hard and crystalline and uh, looking at chips and, and structures of chips and like everything is rectangular and that could be like a source of inspiration both for the visual and then the music. And then we would start from there and develop something and then have these meetings where we would try things out and then go out and work separately and meet up again. So a process would look like that. And so we ended up with a visual ?synth? and an audio ?synth? systems that could talk together in different ways. And we did. We've done five productions now, uh, these ways of integrating it technically, that's been different every time. Um, so one time it was completely timed and another time it was completely improvised where the instruments were talking together. And then, and another time it was like an in-between, where some things were timeline, some things we all had controls where certain elements were left for improvisation. Yeah. And so I think there's still a lot to explore there, like really endless possibilities of figuring out how to work together. Yeah, it could also be a completely automated system that you build together that you press play on, and then you also ((include)) the audience from that point. There's lots of different formats for that, in fact.

Maja: Yeah, but that was made to experiment or was that just the natural way that it happened?.

Carl Emil: Uhm, like why we decided to take different angles on it? It was mostly, well, we had an idea to begin with that was sort of the foundation. And then we would apply for funds and we got the funds and then we would probably be in the mindspace at the time where Bjørn would be interested in a certain aspect of how to produce music and I would be interested in something. And then we tried to find commonalities of, what is interesting right now. And that sort of that spins off the process.

Aba: Where do you see the future of cross-media going? It's like combining like either A.I. with projection or cinema or music and live shows.

Carl Emil: And I think in the AI department, I think a single person is going to be able to produce way more. So it will be possible for one person to do a production like Shadow, and it will just spin off a lot of creativity. And also it will create some projects that are extremely pure in a way that there's very few compromises in it because it is like one person or maybe two people whose idea was just plowed through. Yeah, so I look forward to that. But there's also going to be a lot of trash, of course. And the problem will be that a lot of people will not see the difference because they will be bombarded with so much media. And it's, you know, you become numb to what is good and what is not. So that could be a problem. In the visual department, i think we all waiting for the headset that we'll be able to merge the two realities and it will eventually happen. But there's sort of a battle between physical screen hardware and headsets at the moment, and nobody knows who is going to put these 3D objects into physical space first. And the 4D Box is sort of like the.. a temporary solution for being able to experiment with what is going to come in the future where we all can have this experience anywhere at any point. And that and of course, when we are at that point, it's going to completely change how theater works and where you can experience theater and what a room is, because you can also just change where you are completely. It's going to be extremely confusing. But I think it's it's also going to set lose a lot of creative ideas. That's going to be interesting.

Aba: Do you have any specific software or equipment that you've been sort of working with or developing?

Carl Emil: I mean, um, yeah, in that I mean by now it's mostly out of convenience and, and

personal investment because I started using Unity back in 2006 when it was version 1.4 and it was super buggy and you couldn't do much. But even at that point it was for me the most productive tool that I could find, because the alternative was to try to build things in Processing or something called Cinder, which was C++ based or OpenFrameworks. Um, and it was just way more productive in Unity. And even though it was not really made for generative procedural things that you could make it happen. So, so that's my main tool. And I've also, because I have been using it for so long I've started to build libraries that I can reuse and frameworks for making graphics and the ((GPU)) in different ways that I reuse in almost anything and like for control and live situations. And I also developed my own the timeline tool. That is a bit like.. a combination of a regular timeline and Qlab. It's used in theater in almost all theaters for like starting the next cue. That will change the lighting and start the video and, run the whole show. Just everyone is using Qlab and it's just like hitting one button and then you send it to the next thing and then you can set up rules for something that should stop when you go to the next one window or continue. Like continue through the next cues and then stop. I mean, it's just simplified, but you cannot do any animation at the same time. So I made this experimental tool to able to do both like suppose animate and also have queues that start and stop. And then I use touch screens a lot for live visuals because I've been using hardware with sliders a lot. But if you want to have content that changes or you want to change a view of some things, then it's so much easier. We can just repopulate the whole interface with new sliders and values depending on what you're working on. So they're also developed my own interface for that. And then I'm using this 3D mouse for controlling the virtual camera. And I also own like in the case of Sky66en, I'm using it to control the AI's position on stage. Yeah. And it's super nice because it's very sensitive and you can make very quick movement, but also extremely precise. And it works in all axes.

Frej: Are you controlling it in real time?

Carl Emil: We are controlling the position of it on the stage to be able to make these improvisation sessions where we don't know where the actors will be. So she might want to walk over here and then I might want to move it over here and then it's out of it. And then like, maybe she sits down and maybe it should also sit down. So I'm controlling it, but only the position of it. So the rest is automatized. On cue. So when we then exit this like improvisation space, then maybe there's a cue that unfolds that even more or change the lighting and so it puts on a different AI persona.

Frej: So then so where you present in the show. Are you present at every show?

Carl Emil: There's another guy who runs the queue list who also does the lighting, you know, and I my job is to be super easy when when things work and everything is calibrated. And then I just control the position of the Ai. At Aveny-T. There was another guy doing that for me, but we just came home from Madrid and I was doing it there. So it depends. That was only three days so I could do that. But Aveny-T was two weeks, so I rather want to work on something, you know.

Aba: Do you know the name of the mouse?

Carl Emil: It's 3D connexion makes them and they have different versions of them. They use a lot in the AutoCAD stuff where engineers view models with one hand and drawing with the other hand.

Aba: I think yeah we went through all of our questions.

Frej: I think that's great because ours relate mostly to Sky66en and first of all I'm thinking like with how come, you know Dan, why were you at Aalborg University.

Carl Emil: So I met Dan at the design school when I was studying there in Kolding because he was dating one of the my student friends. A long time ago in 2004. And yeah,

so that's was a long time ago.

Frej: Okay. All right. So we already talked about some of it and it is very interesting the thing about the organic structure and was thinking, do you know, if any.. of any other place that are doing something like Sky66en. Have you heard about any similar taking place?

Carl Emil: Um, like you mean theatre places in Denmark. No. And I was just accepted to this residency called EMAP European Media Art Platform. Yeah. And it's an organization that is made up of 16 organizations in New York. That all work with art and technology in different ways and I talked with these people, we had like an intro meeting in Athens three weeks ago and they're all looking for something happening in Scandinavia and they cannot find it. There's no EMAP organization in Scandinavia. Yeah. And also when I look at the educations, it's really I mean, the design schools don't really have anything relevant anymore. And I mean, Aalborg(ed university) maybe one of the only places where there's still something relevant for this, but it's really sad I think that there's so little focus on it and there's a lot of people who work in this field that do their experiments in theater work, who were like in their twenties and maybe into their thirties, and then they got employed by Google and Microsoft and then they're just like ((away)) from there. So I mean, that could be a story that you may be able to sell, having large educations that do this in Denmark and so yeah, but it's just like the I mean, the design school in Copenhagen have the focus of game design and I think it's called media design, which is more web based or focused on communication and and not so much experimentally, you know, I think it's super sad because it's it exactly at that age where you can come up with crazy ideas and and make experiments that can spin off into other things later.

Frej: That's very nice to hear. Okay so just how long did it take to make the Sky66en stuff, the Sky66en graphics ?

Carl Emil: Em, maybe four months in all maybe. But in many sections. Like over many iterations. So spread out over three years. And then there's also another stuff that I developed on the side that I had taken and used. For example, like, uh, calibrating the Kinect together with the projector so we could project onto people and just sort of things.

Frej: And so that was one of our other questions, so you are using a Kinect track the performer?

Carl Emil: Yeah. So we doing that to be able to do things like, she is holding a virtual light at some point and shining that virtual light onto something on in the stage and that's using the skeleton tracking so the calibration is first about like aligning the two projections the exactly on top of each other. And then at that point you can draw the stereoscopic video because you can take two virtual cameras, offset them a bit and render an image that looks like 3D. We used something called an "off axis perspective" so we can have like one position in the middle of the audience what looks perfect. So seeing from that, all the stuff that is rendered fits exactly on the stage. Like if you could have virtual chair would look like actually is exactly that. But the problem is as you move to different locations among the audience, then the perspective get skewed. Um, so it's only in the 2D plane that it looks the same for everyone. So if you want to make something like a virtual, like a physical apple that is thrown up in the air and then the virtual comes back to something, then you need to be at that exact plane. So it's the same for everyone. So that's also where we have a beam of light that should be able to light up the person. So everything is calibrated around that limitation. And then there's a physical calibration. So I know exactly how big the projection is in terms of meters. And then there's calibration of the Kinect image on top of this so that we can do. when she is exactly on that line. Or plane, then we can make the silhouette fit her like. Exactly. So that we can cut her out from the background so we can have three of

these to go all the way around.

Maja: Is it the same in Silicium you did same kind of cut off?

Carl Emil: Yeah, exactly. We're doing the same, yeah. In the last show we did, we just used a regular infrared camera and infrared floodlights because they wanted a high resolution mask and a lower latency image. And I didn't need the tracking of the skeleton. So I just put some lamps that would shine on them. So he becomes completely white. And then there's the black background and I can use that as a mask once it's calibrated. So the Kinect is both used to track the position of the body of the actor, but also the mask in there.

Frej: So that's what happens. Like when she suddenly disappears, how does that work exactly?

Carl Emil: Um, that's just the stage lights that is turned off and then she disappears and then we also take off the mask at the same time. She's sort of fades out in space. But I think it's even more magical if you replace her with something. Well, so she becomes virtual in some way. I have done this in another project. There was a long project with a group in Taiwan, and there was one scene there, where there's two protagonists and one of them is sitting on a virtual staircase that is a scan of his parents home. And he's telling the story of how he didn't dare to go down the stairs. The steps of the actual stairs that he didn't dare to go down from. So he's sitting down and telling a story. And then there's some peak in the story where he screams and then he does a movement like upwards. And then at that point we switched from.. We turned of the stages lights and switch on to the silhouette image, which is made of particles, and then we dissolve the particles. So it looks like he's he sort of transforms into a virtual of a character. And then we also levitate like a bit up and then dissolve it. And together with the staircase also dissolves. So I did something similar. In Silicium II with Bjørn, he gradually would become this virtual character. And once he was virtual and was aligned with the physical character, I could take out the physical lights. And then you just have the virtual character, but it's still live because of the Kinect. And then you can, when everything's virtual, you can transform the whole stage. So it could then take him up and replace him differently and push him out towards the audience. So he was like one and like a half a meter in front of them and was like trying to.. and he was still standing on the stage and doing this.. but I was pulling him out towards the audience. And then you can also I mean, then I pushed him back 20 meters back on the stage and he was flying like beyond the physical room space. So you can really.. that's where it becomes magical, where you can do that transition from a physical world. You construct something that is believable and then you make a switch so that people still believe in the virtual character and it's still him. And then when you transform, it really works powerfully. You know,

Frej: How come this like I said, this is like pretty crazy technology wise? How come it isn't more popular? I mean, if you could do that a stage in Denmark, like why they can't big artists i mean, the craziest thing I've heard of in a long time is like a hologram. Hologram at some rap show like. Yeah, a long time ago. Yeah. But like, I'm wondering why there aren't more who are using this to think like a crazy live effects on this. Do you have any, any idea why it is?

Carl Emil: Because it's. It's some technology that requires a lot of research and time with it to be able to work out how you can work with it, because there's a lot of compromises in it. And also the technology behind it is also something that came out of the artistic research and like, how do you make 3D stereoscopic projections on the foil? Because normally you would use polarized 3D like you do in the cinemas, and then you have these silver screens that preserve the polarity so that the pull out is when it hits and comes back and goes through the glasses. But the foil that we're using destroys that so you cannot use a regular stereoscopic 3D system. So we're using like a super old system that is now not produced anymore to be able

to do that. So things like this makes it difficult to make like a huge production. And it's also inconvenient to set up. We've done it so many times now that now we can do it in three days, but it really costs a lot just to put up the stage and be ready to play. So it's not any festival that can take it, right? It probably has some commercial potential for product presentations and things like that. And maybe we will also do that because that could fund some projects, but it's just a difficult format to work with.

Frej: So yeah, there was like a specific moment when the actress sort of had like dust like (()) was that also with her Kinect?

Carl Emil: Yeah. So, that's the silhouette from the Kinect is this 3D shape. It's just getting... like the Kinect has a depth image and then it's just reprojected or extruded into 3D space. So it's like a surface that looks like this. And then you can find which part is a person and then you have a bunch of points and then you can use those to instantiate new particles from, and then from then on it's this game of forces like trying to set up different force interactions that will make them like pop out a little bit. But then they're attracted through this tube almost with a bit of randomness into the AI and that's like again, like putting meaning into things. I've tried to every time there's a representation of data, it's always like a square thing. So through the entire play, it's a square it represents the data. So it's like small pieces of data that's being pulled out. And so this and then it just activates, when she steps in, because I know where she is on the stage. So when she steps in within one meter of the focus plane, it will start harvesting her and when she steps out again. It will stop. And that also sends signals to the music which is produced by Yann Coppier to make this sound engine in MaximusP and AbletonLive. So a lot of these interactions and events are sent to this music that like controls a lot of the generated elements. And the sound follows the visuals. And in this way the actor can also play with it. So she gets used to how it works so she can be in the middle of a sentence and if she feels like it she can step into it and be harvested and then it can answer. And depending on what it's saying and where she is, she can decide to step out, so it becomes a mechanic on the stage that she can use.

Frej: That's very interesting in terms of what we're working with and we also work with tracking. We also talk about like tracking and then generating sound from that. That's so nice.

Aba: Can I ask? I notice that you speak a lot of the Kinect, I want to ask is like, why did you decide on working with the Kinect and not other.. Because there's like a lot of other like LiDAR cameras out there that give you the ability to work with the point cloud from all that. But why did you choose Kinect specifically?

Carl Emil: It's because I tried the other ones. When there's some new interesting sensor I buy it and try it and there's this one called Zed sensor. It's quite good for outdoors, where the Kinect is not and then the Realsense sensors, they just have more noise and maybe the latency is a little lower, you know, I'm not sure. But the image just has more quality for the new Kinect, the Azure Kinect. And now it's even quite old. It's maybe four years old isn't something. But I haven't found anything better yet.

Aba: And what is.. what do you think is the best distance for the placement of the Kinect would come through work? And so yeah, you know, if you want it to be too close, then it's like maybe on the way. (()) What did you find that the best distance would be?

Carl Emil: Ideally it should be almost in chest height of the person, but in Shadow we cannot do that of course, because then it will be like right in the middle of the image. So we have to put it up as far as we can and still have a not too steep angle. Because if it's too steep, it's going to see all the surfaces and we're going to have a lot of shadows, but also because it's bad at finding human bodies if it's not straight on. But then it works. I don't know exactly, but it works quite close and up to at

least four meters where it's reliable. But also more than that, think. But I saw like the big problem with the Kinect is the latency, especially in a situation like ours, because the the mask is always like a little bit behind, you know, and it's super annoying, especially when I work with Bjørn who moves very fast. Um, so but I saw somebody who tried to solve it in a papers at least ten years ago. I just didn't have time to, to actually try it out. But they use a high speed camera, um, and the Kinect together to calibrate them so that they know where they are in physical space and they know the intrinsics of them. And then they can use the high speed camera to predict where the depth image is going so they can reduce the latency quite dramatically. So they can have like something that is projected onto your hand and it will actually stick. Stick with you.

Aba: Okay? Can you share that with us?

Carl Emil: Yeah, I'm sure it's a little bit... called a hybrid something.. I can find it. And if you solve that, please come back because I really...

Aba: Yeah, We tried solving it by adding feedback so it just looks more natural. But the latency..

Carl Emil: That's, the way to go, to try to hide it. There will always be glitches. So if you can make it look like it's part of how it's supposed to be you know.

Frej: And so in terms of like we've been working with this generative art ?methods? Like flocking boids, and flow fields and stuff like that. So are you using any of those in Sky66en.

Carl Emil: Yep, Both I guess. So yeah, you can create some really amazing things with flocking that not only look like ?Swarm of fishes? um but like the whole structure of the Shadow is held together by the same idea. It's a... So, the problem is like to run a boid simulation, you have to find the shortest, like the closest neighbour in a lot of particles. And the most optimized way I found to do that is to use something that is also used in fluid simulations. So the typical HPA it's called SPH fluids simulations where they run everything on the GPU and they need to find the closest neighbours or they can make sure the particles don't overlap and also find out the pressure so they can compensate for the pressure. So, it's the same algorithm I'm using to make sure that all the dots, all the, sort of perceptrons is pushed apart. So, you can run maybe 100,000 of them at the same. And then once you have that algorithm in place, you can try to do all kinds of force interactions between particles that can create a lot of interesting movements.

Frej: So how about with the scenes, like the artificial scenes of like the bathroom, you had like a lot of things were there, any procedural elements involved?.

Carl Emil: Yeah, there's a morph algorithm. I wrote that it takes just three scans and that series of scenes and then it's, it tries to, it takes them in pairs. So takes the first two and then it tries to find again, like the closest particles between the two models so that you will have the particle moving to the next model. But as little as possible. So checks all the possible connections between those two. And that's not done real time. So that's baked into the system. So every particle know where to go for the next one. Um, and then if you just screen it, it's going to be just like a animation that is like straightforward. Moving to the other one and that's boring. But if you then apply particle physics so that each particle has some inertia and tries to move slowly towards that target and add some noise and also add some.. use noise fields to mask areas where it should happen before others. So in the first transition there's like half the room transforms. Notice that at some point you are actually inside both rooms or like halfway between and then the rest like falls into place. So that's noise field that decides that they can then, like, change. Yeah, i use that in another project as well called Taste of Hunger. So the movie, it's not a good movie, but we made a VR experience for it where there was a physical zone and then the audience have VR headsets of course. They come in and then when

you're inside a zone, you're inside a 3D scan and as you move across in to another zone everything disassembles and assembles into another model to sort of walk, when you take a step, you go into another space. And that was sort of the same effects. I worked on it through several projects.

Frej: Do you often like take a lot of these methods.. Is it often you implement them over several projects like over the years?

Carl Emil: Yeah, that's right. Yeah, exactly. That's very easy. Um, and then, I mean, some of them I tried to also share on GitHub and some of them I think. If they're easy to maintain, then I also tried to sell them on the Asset Store in Unity. So yeah, sometimes it spins off to something that is reusable for others and sometimes it's too personal or too specific.

Frej: Um, okay. So like a more philosophical, what do you think? What are your thoughts about like A.I. in general? But in this context of a theater play, like you said, like when you're using the actual AI and not the visual representation, yeah. Is it usually a collaborator or it's like a tool or like, how do you use the AI in general?

Carl Emil: Yeah, I've tried to avoid working with it for as long as possible because I feel like it's kind of like a stew where you lose a lot of control. Um, and I like to have control of the ideas and the concepts and implementation all the way through being able to manipulate and control the things. And with A.I. its mostly about manipulating the data that you put into it and then see what result you get and perhaps filter it afterwards in a few different ways. Um, but in that way, it's a different way of working, whether it's sort of like a weird element in between that you're out of control, which is also makes it interesting. I mean, even in the other way of working, I'm also looking for that. I'm looking for being surprised, like when, when the machine is generating something that I didn't expect, then I'm succeeding because I don't know how it's going to look like in the end. I just come up with algorithms that I think may have potential to produce something and then you only really know when you see it. So, in that way is similar, but it's just you lose enough control when you work with A.I. in that way and it's a lot about manipulating the data source. The data set that you put in and, and so far that hasn't really interested me, but I can see, like now what's happening that it's impossible to avoid diving into it and it's going to be.. for us it's going to be a creative partner like to that can help us make things faster and reach ideas faster. I mean, it's really just over all the years I have worked of just seeing how the gap between like an idea and the product is just like getting closer and closer. And at some point we just have to think and then it manifest it. So and I mean, I know it's going to be very confusing and create a lot of problems, but it's also, you know, somehow the ideal state, isn't it, like that you can experiment with ideas very fast. I mean, it must result in something better because you can try out different things. So the idea is, yeah, I don't know. You're also losing some craft skills because you hand that over to the AI. So it is a different way of working. I'm not quite sure what you will end up with. Like what happens when we lose all the craft skills. Yeah. And that let the AI do that for us.

Frej: I guess it takes time to get good at making the algorithm that you are making. So it's kind of different when you can just ask the AI to do it the other way. You don't really know if you're getting the right thing.

Carl Emil: Yeah.

Aba: I mean, if I want to write something that I know how to write, where it's going to take me a bit of time is like ChatGPT. Oh, I mean, in 15 minutes it's going to be two or 3 minutes instead.

Carl Emil: Yeah, yeah. I mean, the Google copilot has existed for a while and now they're also integrating some of those features directly into Visual Studio so it will pre-generate

things for you.

Aba: Oh yeah, Yeah.

Carl Emil: And I mean, really makes a lot of sense that you don't spend your life repeating something others have already done

Aba: It also the kind of feels that like you need to know what you're doing, you know? Using the AI or you would get in things that you don't understand because it's.

Carl Emil: Yeah, I can see how you can get stuck with things when the AI fails to continue and you have no idea what it actually produced for you. Yeah, that's going to be tough. But, um. Yeah, I mean, I really don't have any idea what consequences it would have. It's, going to move very fast and i think we just have to embrace it. At least in the creative way.

Frej: I think because the last question was about generative sound and we already talked about how they were.

Carl Emil: Yeah. With Yan.

Frej: So you said that the tracking was feeding the generative sounds right.

Carl Emil: Yeah. Some of the interactive elements are communicating with the sound engine and also like um, a lot of things were meant to be fully optimized. Like again, the idea that there's something authentic about this representation of the AI. Each branch and then the ball was actually produced to represent a process on the server. And then when the process would run, you would actually see it get fired up. And so you would slowly learn that when it's thinking. It's like using that arm. When it's speaking, it's using that arm because it's more than one process on the server. It's not only that, it's also a lot of filtering of the text to speech and speech to text. But in the end that looks boring actually. So we randomized it and um, well things like this has to be exact and it has to fit with the sound. So all those events are then routed to the sound and that will also so that the visuals work together. Yeah. And again, it's also been a long process. So we started with very generative systems to be able to try out different thing. So it was not fixed on a timeline and everything had to be redone.

Interviewee:

Kevin and Marcus
Pleasure Control
pleasurecontrol.org/about

Interviewer:

Maja PEDERSEN, Abderrahman
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Interview date: 3rd April 2023

Interview:

Maja: So in the beginning, it could be nice that you individually present yourself with your own words which and describe who you are and what your like background is and what you do here. So maybe you start.

Kevin: Uh, hi. My name is Kevin, and I do lights. Um, that sometimes involve, uh, planning concept developing, budgeting, uh, and managing. Uh, it's very rarely. It's only putting up lamps. The lights or.. and it's very rarely, but, uh, it's just operating the lights and the, uh, said the notable, I guess, is that I do lights in the collective called Pleasure Control where we are collective that we use the co-creation as a medium to, to do, to do stuff together. Do in lights I guess. And um, I'm an electrician by trade and an aspiring artist, so.

Maja: So. So you started as an electrician, and just the creative thing brought you here?

Kevin: I guess I've always wanted to be creative in and just be creative with the music, which I was earlier. Um, and I found a really nice way of being creative by using technology and, and an art and mixing those things together. It really.. Yeah, it really made sense because of my technical background.

Maja: So, so cool. And you. Marcus.

Marcus: My name is Marcus and I used to do lights and AV stuff, but I was always on the more technical side. I would have been interested in technical stuff since I was a kid, like tearing apart DVD player to get the motors out and put a battery on them to see them spin. But the yeah, so I just kind of ran into the whole situation. I needed to learn how to solder because I was doing a pirate radio and some of our pirate radio equipment broke down and had to repair it. And I needed to learn how to solder. My brother was doing a job where there was soldering and he couldn't come that day. Yeah, one day he couldn't come for work. So I said, I will go in your stead and I will be I will learn how to solder and work as a volunteer. Yeah. So I did that. And then I came in with the company called the was called Obscura at that time. Now they are called Vertigo. And then it all kind of took off from there and I haven't looked back since. So, so my vision is more the technical stuff. I want to enable people to create content. So I want to make my, my, my thing the thing that I think is interesting is the medium and not so much the the content itself, but more having a medium that is interesting

Maja: Something about maybe describing what Pleasure Control is and what you do.

Kevin: Pleasure Control is a collective with, uh, a board and members and it's a collective, uh, that is created from people who felt like at the time there was a need for, uh, togetherness and community and having warmth like a warmth at the party. And I think one of the things you wrote in the beginning, the feeling of being at a private party or with your friends was kind of our pool room for people that started in the beginning. And now it's like 30 people plus minus loose ends. And the best way to describe it is maybe to try to give you an example how we work. Um, we

were looking to do an event and the way we, we, we look to do events, at least before it was just like, hmm, we feel like it's time to do something because we were kind of getting bored and we feel like meetings and then we, we, then we imagine something up. But now we are going into a more trying to be a more sustainable model where we applied for funds and we plan dates in the future and we we had a date planned which was going to be the, uh, the 15th of March, we're more than we look for the whole venues all around the city. And we found one venue that was not suitable, and then we stumble across a venue that was interesting, which was Planetarium, and that venue, uh, had a bunch of facilities. And then we sat down and we said, okay, uh, what can we do with the venue? And then we created a concept, uh, and then for that venue that fitted what we wanted to do, which was trying to, uh, create something for the International Women's Day that was not necessarily, you know, how like pride and like, 7-Eleven uses Pride is like we're going to have like gay banners and all that stuff. We wanted to be more of something subtle and have that like the overall theme and then build down from that. And having that as our like a reference point. And for this venue it was our reference point. Was it was a, was another reference point was space in general and um, try to be creative about how international and feminism can be connected to space and what that can mean. Then we created a concept and we pitched it not knowing how to do it, but having a rough idea, I guess. Like we need some, uh, some something that could send a lot of data out on a lot of screens. And we need something that can take some AI shit and turn it into visuals. And so basically not not necessarily knowing, but having like, I'm understanding where to find it. Then we pitched it, then we made the concept and made, um, um, the event and we did bookings and all of the decisions that have been made were in, in reference to the main concept. And we like not to mention the concept because I think that's what art sometimes that's what art works out for me, sometimes I feel special that people can interpret what's going on in different ways and um, and it's up to the viewer to, and me telling the, the, the face of like the equation kind of takes out the, the, the interesting part. But, but you know, knowing that there's some thought to it but not necessarily knowing exactly and we find sometimes interesting so then we created the event and then the work starts. So that's how to do what we planned to do. And then you work until you hit a wall, then you either go through it or around it and it eventually a product comes out and then and the way the product gets made that we sit in groups and we say, this is a concept we need to decide on to aesthetics, some guidelines and whatever. And we sit in groups and decide that when it's decided, we go out into different roles. Uh, then we just execute it until we come back. But always referencing to our concept and reading rules. And that's a really drawn out way, but that's basically how Pleasure Control most of the time works. Sometimes it's more of like, we're doing this, but that's not really sustainable for a community because a community has to be like inclusive, that everybody feels like the decision is made with them, not for them. So a lot of that structure I guess, was anything that I've cut?

Maja: How long does that, for example, take?

Kevin: Process took nearly five months.

Maja: Okay. That's, uh, that. That's longer than normally or?

Kevin: Way longer. Uh, normally it takes a month. Uh, but because it was so many, um, the level of installation and the layers and the difficulty of it was very demanding. Uh, and also just the funding part. We took all the, we're, we're still waiting for the last one to, to, to tell us if the event was a success.

Maja: Oh, you get the money afterwards?

Kevin: Sometimes. If you're an idiot like us. Yes. But that's kind of what we do. We are very fast to like, get an opportunity, pivot on it and jump on it. And sometimes, um, that readiness comes to a cost that you, sometimes you take very risk. Uh,

um, high risks decisions. But it's been at least my job and other people's job to try to, like, evaluate it. Like, okay, we know this can fuck up, but we feel like the, the art and output of it is worth running the risk for because of the the gains of the long run. something that it's taken me a long time to understand. (Car interruption). Um, it's taken me a long time to understand that this is not, this is not the best thing to, to, to be in debt or run high risks with most of the time if, if you, if you don't like, fuck up too bad. There's always a way to get back into like into the green. And when I look at our calendar this year we're we're gonna have a lot of events. And I looked at it in a way like yes, the event will not generate profit if it goes wrong, but there will be other opportunities to earn profit. And in our world, it's kind of like we make up our own jobs. So if we need money, we sit and be creative. And the same way we do art. So it's not always it works out, but it has. It's, it's very empowering to, to, to have so many collective minds together that can do so many different things. And then you can just like, do stuff like this building, just like it was doing this. Now.

Marcus: Yeah. I think it's also important to point out the profit is not the main goal,

Kevin: not on that of those when we're doing it minus the profit. Sometimes it can be the resources, but um, but we try to make the it's again how do you how do what is sustainable do sustainable means you go into zero. Other sustainable means you have enough money to do the next event. Mm. And it's, it's like everything here is a learning process and so like I don't know what I'm doing, but I'm just trying to do figure out what I mean. Most of the time I have a lot of friends and I learn it on the way and, and that's kind of the fun part of it. I feel like this would be other people also like that you're just learning on the job and it's a very relaxed kind of with the environment where it's okay not to know what you're doing. It's okay that if it does not go is completely abandoned. We try to just make it to go somewhere now. But yeah. So you. No, it's good. I don't know what it was, but it's good. uh, you want to add it to that?

Marcus: I think to me, what's important about Pleasure Control is to create culture for and with people and to create a more inclusive nightlife that's not about making money, and it's not about being drunk and stupid. It's about taking care of each other and being there for each other and helping each other.

Kevin: I think it's very well put.

Maja: Is it mostly volunteers or how does that work?

Kevin: So we've we've gone from just doing cute stuff to doing more and more retarded stuff. And at some point you just have to realize that like, I'm not going to get somebody to be there at five in the morning ready to do this job. If they're volunteering and if this person doesn't show up, the whole production is going to shut down. So it's kind of like a sliding scale. Some sometimes we do events that is like we can do whatever we want, like new years eve, like if everybody just want to be drunk, but we still want to do something, but we don't want to. Yeah. So then we just all volunteer and we just like, just figure it out for that to make an event for ourselves. Basically all our friends and, and the more I think we kind of do this, we kind of realize that it's like the fun part is not necessarily the event is kind of the build up because that's when we get to like be as a the community and like do stuff together and like, yeah, that's really exciting and the turnout always sucks.

Aba: Uh, yeah, I think we're going to go in for like some more general questions and then like, did this you can like, so this is more like a conversation like that. So, uh, what is your most significant project or mostly favorite project?

Kevin: My favorite project is my favorite project was the project, which I wanted to impress my friend, and that was Venera at the Planetarium I felt the one project which I really tried to I tried my best being my best because I wanted to make

sure I put my friends, uh, like, yeah, showed appreciation. Because it's no secret. Marcus have taught me everything I know the technical side, and I will always be thankful for that. And, and yeah, so this is like a bromance. Kind of thing.

Marcus: And I think you really did impress me. Um, like, production wise, it was the most successful event because everything was just planned and everything happened after the plan. There was no fuck ups, nothing, and everything was just running so smoothly. So I think that was really cool to see

Kevin: because it's not a normal thing.

Aba: What about you Marcus?

Marcus: Yeah, I think also the planetarium. I really like Party Boy 69, which was like two one half years ago.

Aba: It was actually that was the first time I heard of you guys with me going to Party Boy, like you said, this was good.

Kevin: It was also it was. It was the same kind of Holy shit, this is fucking stupid. But in another way.

Marcus: Yeah, Yeah, for sure. I mean, there were some things we had not foreseen at that event, and I think the crowd was too rowdy and they didn't take as much care of eavhother that you would have liked to. But I think I mean, we learn from our mistakes, but but in terms of like the content and the experience that and the experience it was

Kevin: and technology

Marcus: and technology, it was it was amazing because it turned out a lot of things that we still use to so. Hmm.

Kevin: So and for some reason, like we were in the beginning or at least earlier, we were kind of every time we have to do something NEW, and what you realize is the people's time is, is a resource. And if you every time have to do something new, there's a lot of time spending how to do it. And you can sometimes burn people out, even though they want to do it. But you kind of have to hold people back and say, we're doing the boring stuff this time, even though it's not boring at all. But yeah, we kind of get carried away.

Marcus: I think. I think it's important that we still keep on experimenting. So the thing is now for the viewers, your listeners who can't see where we are. We are at the new place, for the Pleasure Control community, which is going to be a more permanent instead of being nomads, traveling around, doing events and different venues, it's going to be more focused around here. And I think we're still like, we shouldn't get into the routine. We should still keep on experimenting and try new, new stuff out and trying things in different ways. But we can learn and we can develop ourselves

Kevin: because most of us have to get easily bored and for some reason we really get excited and how stupid things sound like. For example, let's build a jumbotron or a big screen out of LEDs. Yeah, that sounds like a really bad idea

Marcus: out of a laptops

Kevin: laptop. So that's like, it sounds like a really bad idea and I don't know how to do it. Let's try to be ?first?.

Marcus: Yeah, but it's also more like a challenge and opportunity presents itself. Like, Hey, I got 80 laptop from my work. Do you want them? Sure. Let's make it into an installation. So it's more like that. But sometimes you also just take one. Sometimes we take what we get and we make something out of it. Like we've got a bunch of old school projectors that we want to pair up with the laptops so we can make the entire wall turn that into like two giant 25 meter long screens and

have contents playing on all of those together. That's that is one of my dreams with this new place and have that a static canvas to paint on and we can make new content every time but not necessarily use it every time. So so I think we even though we've got a more permanent place, we should still keep on experimenting.

Kevin: And I think what more has been missing is trying to inspire people to like, you know, how this works. You know what it does. How can you make it better and how can you make it different? But the same because we've been like really good at doing a lot of stuff, but now I feel like there's an art, like Vertigo, Obscura, like there are really good a specific things, and the art of being really, really good at one thing is also beautiful. And I know trying to like become good at something, really good at something is also very I'm trying to inspire that in some of our crew members and members and then on points

Aba: and uh, you know, that. How does your work with visuals. Yeah. How is your work with would work well with your work with visuals related to like sound the music and all

Kevin: I feel like need mean the way I least tried to teach our members when we do visuals live is that you try to feel what the music does and try to predict where the music goes and try to either follow the intensity or be polarizing of doing on the set of of the music. So for example, let's take a drop or buildup. So normally in a build up, there's how do say the music would start from the lights would push all of the buttons to symbolize the drop. Another way to do it inverted is like instead of using all of all of the energy on the drop, then do it invertilly. You have a lot of a lot of lights and the build up and want to drop it. You switch everything off for a second and come back in. So it becomes like how to say off beat when you play like a drum. And that's how at least where I like when the visuals are good at a concert and at least try to see some of the new members when at least or some of the members when they do the visuals and feel like the visuals alone is super hard for me to get into. Like it feels like something's missing. Even if, let's say there was a LED wall would had really cool videos or a standalone installation takes a long time. It takes a really high level of work for me to find that alone interesting. I think what's interesting is a combination of having a soundscape and a installation or something like that.

Marcus: When you were talking about the polarizing effect, I was thinking of a story I heard once, which I think is really interesting. It's about a musician, I think, who who was playing some music and then did a mistake and instead of like trying to hide that mistake, was embracing that exact and repeating it. So the turns turns into what it's meant to be.

Kevin: Exactly.

Marcus: And then I think that's also interesting, too, to try and play around with. It was a mistake.

Kevin: And that's when I told the new members wanted to visuals because everybody's scared of doing a mistake. And what I tried to tell them, it's exactly like when you do a mistake, embrace it. Don't panic, just let it be. Because if that mistake can can give you a new perspective of what can be done and what cannot.

Maja: It's like the Bob Ross with the happy little accidents. (Trailer moving interruption)

Kevin: Mistakes are Fucking cool. And especially visually because yeah, it's it's supposed to be art and you supposed to interpret it.

Maja: So it's not like you make the you take the sound first and then you make the visuals and when you're designing installation,

Marcus: I mean in my case sometimes to do that and you can time everything and stuff, but it's you, you, you lose this. The sense that that's a human nature and you just

the computer is being preprogrammed. So I have done both. And I must say I like doing live stuff more like my if you can, it's, it's more exciting. You get into the flow and once you're in the flow, you're like, you're like, Oh, okay. (sound effects) And this you kind of give yourself a clap on the shoulder when goes goes right? And you punish yourself when it goes wrong. Bad Marcus.

Kevin: This and yeah, I think the closest thing we can get to answer is like when you when you create the visuals you kind of have in mind of what the artist does and what it does not do. And you try to kind of like we're playing hard techno. I feel like some something that is not organically shaped sometimes, but then you sometimes lean towards the what associations the music gives you, and sometimes you can also make the opposite way from it. You can make it different and that can happen simultaneously. Or you can be like one thing at a time. So you kind of have to at least have planned a bit of content ahead to kind of match the vibe. I'm always the fucking deejays and other musicians who want to tell you how they fucking lights it should be and they need to shut the fuck up because you're the one. So we are professionals and they are musicians. I don't tell them how to play the guitar.

Aba: Yeah, that would take us like, No, we talked about how you use sound to work with visuals, but what do you think those visuals to show like made for music? Like it's like a musical show. But then what do you think the visuals Actually,

Kevin: we can make a really shitty DJ feel like the best stage of like if you have a set and it's like there's no live lights. If we can get in the zone and we can catch the DJ, it's kind of like playing back to back with a deejay and you can So let's say the vibe on the dance floor is going upwards. We can accentuate that and make it feel even more forward with the light. And that's how then lighting really becomes something because there's tricks you can do to like, uh, tell the, you know, like this. It's the lot of psychology into lights you can use, lights to tell people where to go and when not to go. You can use lights to tell them that there's movement going on or there's danger. You can use lights to tell people, uh, on a color, to tell people if something is dangerous or not. And something is, is, is, is, is sharp or, or, or soft. And and if you use all of those psychology tricks by like accentuating the lights on the beat, for example, if you, if you have a lamp, um, and the people like doing do do on for, for, if you hit each note on the beat the crowd reacts to that to the beat more. It feels like the beat feels heavier and if you if you if you do it on the 18th note so something goes like being boom, boom, boom. And you go, Oh, I like that. And then it goes like, boom, boom, boom. (Rhythm clapping on the thigh) And then you make this the music feel that it's going faster than it does. So that's where you can change the perception on a dance floor and change the feel of the dancefloor to make it feel like something is is being more expressive and people reacts to it because lights is just a strong thing if it's done correctly. Uh, and you can affect somebody very drastically if you like.

Marcus: It's also about challenging, more sensitive at the time. It just has a bigger impact. I think if you have a completely lit room, I saw this video online where the deejay and the light guy were having a fight and the like. And the light guy just had it with the goddamn the deejay. So when the drop came, it just turned off all the lights and put 100% on the frontlight and it just killed me. Just smashes the mood.

Kevin: Uh, so you can really manipulate people. And that's what sexy to us, at least for me, it's like, how do you make people feel what you want to what you want them to feel? And how do you "formidle", I guess, translate feelings and a concept, an emotion with lights? And that's really fun.

Maja: do you have any.. we can link some comments now that you talked about the planetarium experience in the in the department I know the production part went really well but do you have any like so interms of the installations and visuals

Kevin: what it sounds really corny. So one of our references for having some kind of space and having some kind of a feminine vibe looking at the movie June and how the how like the color scheme and how like the futuristic kind of vibe was there and we wanted to kind of replicate that in different ways. And, and we would what somebody told me in the “trappegalleriet”, which is the gallery outside, told me all that it felt like you and June with that orange lighting. And I was like, That makes me so happy because the like it finally, yeah, we kind of nailed that. So that’s when something kind of goes right? Right. And with some time we want to go to the visuals. It’d be like, um, making, making it feel like it was your own individual and make it that immersive, having that 180 screen, were where you kind of feel your inside the content. Um, and yeah I don’t I’m not and some parts of like the the three other concepts which were underlying vulnerability support and hostility to some of those things were also conveyed with visuals and really like that and you seem to with

Aba: uh so well working on things like these, do you have any specific equipment or software that you’d like to work with all the time, or is it based on every project?

Kevin: But Big Daddy told me was resolute. And as we try to have all our projects try to fit into that because we are the most the most program that most people know and that’s the easiest thing, it feels very safe to work. Um, sometimes resolute does not fit for the job. Um, the Champsys??, this, uh, which is more for fixtures than we work with that assignment.

Marcus: Touchdesigner

Kevin: Touchdesigner is basically the, the thing we use to fix a problem. So how does the laser talk to the visuals so we can design a program or how, how does, uh, how do you create sound reactive stuff that affects the visuals? You can make that. So it’s kind of like a toolbox. Um, then you have like Unreal Engine. That’s when you want to create something more cinematic and have a bit like a world aspect to it and a bit more like fidelity in the way that the, the, how it looks. Then the stable defusion, which is one of the new tools we learned upfront. So which is basically that I you can write prompts and the AI creates images from the prompts and then you can take those images, make a hundred of them and you can put it combined into a movie and all the pictures become like a movie. Then you get flip by just writing words. Yeah, and that’s really hot and we use Pangolin Beyond, Pangolin for specific for laser interface and yeah, we use Windows. We fucking hate Mac.

Aba: Uh, all right. Uh, so, uh, yeah, you just talked about, like, how you use different things and all of that. How do you see this? The future of this like, cross media thing going by combining like, Yeah. AI, uh, different software and like cinematic elements and projection light and.

Marcus: I have no idea. It’s all very new.

Kevin: The future. The future. It’s gonna it’s kind of looking like, okay, I have like a weird feeling, like things goes in and out of fashion. Now everything is a and that’s going to be boring with and then it’s going to be how do you go back to the analog like that? That was to find a new thing and to go back before. But in anesthetics there are trends, just like clothes. And and for me it’s just like keeping the ears on the streets and seeing what other people are doing either them reacting, counteracting to it or like improving or like popping.

Marcus: I think it’s like it’s a tool that you can use, but I don’t think it’s the answer to everything.

Aba: But you know, the How do you see the future of combining it with other things that you agree with?

Marcus: Well, I think I think it’s it’s so new that it will definitely be more integrated in other tools. And right now it feels like with I it’s it’s a vibe and if you have AI you

know 100% this is AI I think in the future it will be more integrated into other software and with other styles also. So it's not like, oh, this is the AI style.

Kevin: I feel in the future we're going to be really it's going to be cool to use AI in artistic ways. And what's really going to be trendsetting is like how, how do you like let's make an AI that creates coffee or let's have AI that, um, that does that it lives in an installation and each time a person goes in front of the information, I get to, um, yeah, gets that as an input and grows involved. So it's kind of like becomes like a micro organism. And then you can teach this micro organism to open doors or paint walls or solve puzzles and stuff like that.

Marcus: I think what's going to be really scary is when they make the project manager. So it starts like, you're right, make me money, and then it's like, okay, to make money we have to is just start a business. We have to get some suppliers and some customers. And then AI start sending emails that would like produce this for me and sell it over here. And then in the end everything is being controlled by AI.

Kevin: The funny part is we, we have this venue and I wrote a role in the group to try to figure out ways we can earn money by doing push it in the daytime. Then Daniel wrote in, ChatGPT how having how do you make money, having a venue and getting money. Then he gave a list. Yoga. And funny enough, yoga is what we are also doing here, but it's just techno yoga.

Maja: So what does that mean?

Kevin: That means there is techno music and yoga. Q1 Okay. Okay.

Kevin: So. So. So that is the project manager is there. But you just needed to like to think for it. So yeah.

Marcus: But like make the text poems that it can take as an input make it even more immersive.

Kevin: Yeah. Yeah, exactly.

Marcus: So more abstract.

Kevin: You, you wake me up and you tell me how the projects are going between seven and 3:00 every day and you give me updates and how its processing,

Marcus: but also, like, that's where things can go wrong because if, if it has that abstraction level, then you write it, make me some money, and then it goes out and it starts a wall with a company that is, you know, manufactures of weapons and stuff like that. It can really. Yeah, that's true. And I think like for now, it's a tool that will help us. I'm just a little.. like the calculator was, but the calculator I was fucking open source, everybody has a calculator. I think where it becomes very is who owns the the AI who owns the means of production.

Aba: So I think one last question we have for the official thing is what is the like your dream product you want to work on like both of you? What is something that you really want to do visually? Like when it comes to visual, Was it like technical wise or.

Kevin: I think it was really done in project. This is the Dream project. Okay, this, this, the new venue. M When the dream finally come true,

Kevin: it's Venera was the Dream project, all of them would reach out to like even the Party Boy of or just like, Hey, I want to build a, a, an extra ceiling dance floor in a venue and I want to have free 60 Jumbotron. And I want the big speakers known in Copenhagen. And all of those things are just like, put the Now the Dream Project was actually getting money,

Maja: but so but then you apply for every new project that you're going to do.

Kevin: So now we're just applying for funding for doing workshops so we can sustain the place. So just have a bit of revenue so we can upgrade.

Marcus: And like the idea is not to have a Thursday to Saturday night club vibe to it's night. We do an event when we. Yeah, exactly. K That's a dream. I think that's the dream. But to have been financially independent. Yeah, yeah, yeah. M Not having to worry about money that much and just being able to do whatever

Kevin: we want to collaborate with whoever we want. Yeah, it's like, Hey, who Collective in Rome and you guys want to fly over and we do an AI that can take over the world

Maja: good idea

Interviewee:

Lea FABRIKANT
leafabrikant.com/

Interviewer:

Maja PEDERSEN, Abderrahman
MHADDEN
AAU
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Interview date: 11. April 2023

Interview:

Maja: Okay, so we actually want you to just start by pretending yourself in your own words.

Lea: Okay. Yes. Yeah. Okay. So I am Lea Fabrikant, and the. I am. Yes, I am born in Riga, in Latvia. But I. When I was really small, my family moved to, uh, to Jerusalem because they were like Jews and they wanted to do the Jewish thing and up in Jerusalem. And then 14 years ago, I moved to Berlin, and, uh, and I have been, I actually, I have I, my mom, she's, uh, a classic musician in the symphony orchestra. So I had access to music from a really small age. And my grandmother was doing photography and all but both of the things were quite ((classic)). So my grandmother was doing analog photography. My mom was doing this violin playing, you know, like classica. And, um, and because when I was growing up, I had them, it was very forced, you know, I had to practice 3 hours a day on the piano. I learned piano, and it was all it didn't nourish my love so much to music. So I had to, like, really just do like a cut for a few years I wasn't doing any music. I was very much I actually got really into photography, like the like the darkroom, and all of this. Yeah, But actually, since then I moved to Berlin and I started to go out, introduced to, like, the experimental scene of Berlin and, you know, just like, of the existence of an experimental scene, because there was no experimental scene in, in Jerusalem, at least it was such a little niche. And so and I got really into that and they, uh, yeah, I learned also, um, got introduced to yeah, making music with a computer with all kind of softwares, like the ability of recording myself and creating out of myself. So much, with that Ableton or shit like that. And then I got also introduced to Tarik Bari, who is the guy with whom I'm collaborating since ten years or more. And, and we have so I do not know if you know, ah, like maybe you checked, because we had before, it wasn't always called ZO. Our project with different reincarnations of our mutual work together, but basically. Tarik Yeah, he is an amazing visual artist and the creator developed this program for, for his finish of his studies. He created the, um, a software that is basically it was preprogramed objects within the space where he using like a little joystick. He would basically take the viewers on a trip through this preprogramed object in a three dimensional space. And when it gets closer to you, it's a "Whooohh" where it behind you. And it's like he composed all kind of pieces like that. Um, and he was performing with that department. The fact that he was doing lots of visuals too, with other people and what we started doing together is already since ten years and are on constant development of that is basically that in the beginning of the performance, nothing exists, there is nothing in this. And we basically create we are improvising and creating this, filling up this space with audio visual loops. So there is a camera, uh, that like I have a pattern when I record the pedal, the microphone is start recording the camera, start recording when I really think it's becoming an audiovisual looping and then the next one is placed in a different place in this space and, and we are composing like this and improvising. And then I have MIDI controllers whenever and we

assign that different like effects or different distortions to sound. So whenever I'm introducing a certain distortion or a certain effect, both the sound get distorted, but also images. And sometimes you completely lose the original image. And then and, and then when I'm not doing it, when it is not audio recordings, but like we're also using a lot of keyboards like a MIDI keyboard and then and then yeah, we assign to it, we collect pipes. Basically, this is pipes that are placed in this kind of like mirrors and, and then, um, yeah, we can delete it or like somewhere else, like if some it sounds like really, really bad. So this is the project that we've been working together since ten years and with, with Tarik and then, uh, and the part in this I'm doing also in doing my own music and also doing like recording, basically doing like soundscapes, improvisations and where I record live and then fuck up the sound and just patch it and then delete in like go to I don't know where I will end up, but this is something that i still do and do in many different ways in like also in my art. But I guess that you guys are really interested in my project with Tarik, right?

Maja: I mean, whatever. It's not really for the end, but there was just what I found when I.

Lea: Yeah, yeah, yeah, No, because it's an awesome project.

00;08;57;27 - 00;09;38;27 Unknown I love it so much. It's, and it's like it's really and it's really surprising actually to see that because this is a project, this is also a show that is to be experience. There, you know, like the space because like we are also like them. The thing that maybe you saw, we also had like this luck to to perform through a see through curtain because usually we're standing we're sending we're always facing one in front of each other and then the screen is behind us and we are because we are part of the whole show, you see the creation and then it is being projected also, it's like all one. But this screen we had like the see through screen in front of us. And the part of then the fact that it also was a pleasure to performances because it gave us the the possibility of the fourth wall and it felt like we are in the studio and we are just super protected and super like for me it felt like very safe in a way, also very safe, but also like it just worked so well because the protection happens on the screen. We are being lit and behind it. So you anyway, you see us, but you see them. The main thing on this, like see through screen. But I know if we are even checking them to, to buy the see through screen, but apparently it's made from little pieces of silver or something. I think. Let's see.

Aba: Yeah. It's quite expensive.

Lea: Yes. Yeah. Yeah. And it has also a really funny name, its called the Hologauze But it really sounds like Holocaust, right? I mean in the final solution for your visual album anyway, so it's something, it's really nice that it came through the video that it made you curious because I think it's really something to experience within a space. Also, the space very much influences of how we work and of, you know, to improvise is that the whole atmosphere is very, very influencing it and yeah,

Maja: yeah, that's okay. What would you like in terms of just to make it clear your professional background, is that photography then or

Lea: No, I would say that my professional then like so honestly I never like, I never finished high school and I never went to university also. So I'm autodidact and I did go to here in Germany. I went to a like a photography school, but it's like not with a degree. I just I'm just saying it because it made it hard for me to get a visa to Europe if I only knew that they needed to finish high school. But, you know, I mean, now it's all good. Like I work basically. I work with like an interdisciplinary artist and on many different levels. But my background as a as a child until I became like an adult, was a very much basically piano and composition. I was composing always a lot, a lot, a lot. And also two different

instruments. And I think I also definitely experience the the glory of this knowledge nowadays. It's crazy. I, I at the time it was like fucking hate it and that it just sucked, you know, and like so forcing and everything. But right now, you know, when I'm like even having some ideas for some when we do like a run through or something like that in rehearsals and I have like some ideas, well it really re I realize how it really helped me to construct different Yeah Yeah. It's like, it's like ongoing kind of composition somehow and, and and all. Yeah. And then. Then photography. But I'm not doing so much photography anymore. Like, I'm definitely much more concentrated around, like, performance, mainly around, live performance improvisation music, using my voice, using all kind of like whatever I find and makes it all sound. Yeah, Yeah. then and then we integrate it into, into this the software that we like. So we developed how to make it accessible for us to actually improvise within it because it's, it's really hard. It was also like for me, because I am really not I'm not very educated in this domain. I wasn't that, you know. No, I know I learned so much from like about, you know, also about just the idea of programming, what you can do with the patients you need, the all the definitions that you need to sit with. I am like very intuitive, direct, you know, And I would be like getting really pissed off in the beginning. I'm like, What the fuck? I just want know, you want to do one thing and then it takes half an hour program and then I go, I go inside. Also very much and it's like it's ability to make stuff much more precise and well thought. Yeah. And um, but yeah, basically we are, we are trying to like to define all the parameters as wide and as well for us so we can start fucking them up during our show and like playing with them. And most of the time we really don't know what will come out of it, but we're just trying to work some of the parameters that we're defining won't crash one another. And yeah, if that makes any sense. Yeah.

Aba: I just wanted to ask if you think it's because you said you don't do photography no more, but do you think that your experience with photography like, is helping you in any way like that experience you get it? Does it help you in any way with creating the visuals or thinking of the sounds that would create some kind of visuals?

Lea: For sure. I think that's like I mean, I also it's not true that I don't do photography anymore. I just don't do it like, you know, because I used to do like sometimes it was I took ((the bait)) or to like, do some jobs for people and all that stuff. But now I do it for myself. That's what I mean with I don't, but I do actually. And, but I am sure it for sure and it gave me a lot of it opened my eyes like my, my, my relationship with photography. It made me look about like how light works, how reflections work, what, how not to overdo images, how to be subtle, how to like, especially, especially like when it is digital in the digital image of even of a real image, even of input of a camera. But it's a digital image. How to make like that. So you have black and you have full white, but how to make that curved like nice and smooth and how to to have it like come together with the sound in the same nuanced way, the same like beautiful kind of way. And so for sure, and it's it's something that is very much like in my head ongoing.

Maja: Then it's like, what is your most significant project or a personal faith you have that you have them.

Lea: And so the favorite work is that I did or that I there is a in because all the world?. I don't know where to start actually with the, with the whole world because there is so much beauty and but there for me I think Yeah. So for sure my project with Tarik like because I love Zo. It's like something I never been involved with another human being, which is also a major thing to be involved with. Another human being in creating something artistic for such a long time and, and to on go develop it. Because no performance is like the last one. It's never because we have also we have the same kind of like we we are very self-critical, very, you know, and then and then we learn we want to make it. And in the end of it, we

are trying to imitate a reality in this universe that we're creating. But our own reality, you know, but we're trying to imitate the reality. We're what you're seeing is what you're hearing and like and something that would make sense to us. But it's like so definitely Zo like my project with Tarik Bari, well and, and also there is another project that they really, really loved that they made two years with the he's called Ansgar Wilken. He is a wonderful interdisciplinary artist. He's living here in Berlin and and we basically made them that. It was in Hamburg. We made an installation in a in a space. It was in a in a room. Uh, not too big room, but the we so we installed some wooden pillars in the middle of the room, like two wooden pillars. And we also like hanged and little pieces of just of wood, like just little blocks of wood. We really mounted them very, very securely on the walls in different positions. And then we tied, I think it was 47 or 48 piano strings, like from side to side, like all over the space and like, so it was basically like it was it was possible to move around. It was it wasn't like, oh, you cannot move. But it was amazing. It was amazing. And they're like, uh, and then we, we left it also, like as the installation, but we also had performances happening there. And the idea was, um, that even when you do not touch the strings, you are standing in this room and you're like, There is some resonations, you know, like there is some resonations. And the more people are in the room, the more like you start hearing different things out of the way. Depends on my voice talking to you or if I am shouting or if we're talking. Really, really. Look, it all really, really influenced. You had some weird (()) at this and the and so that that was the thing. And then also people obviously could touch the strings and do whatever they wanted. But in our performance.. we had a few ones and then instantly Ansgar was sitting on the ground in like just banging on all kind of shit and he was just and creating like all kind of like different (()) ((vibrations)) in different areas of the room. And I had the.. do you know what is.. And so you have like, you know, the bow, the bow, and then you have this, Yeah, you put on the bow, how do you call it? Yeah, I know what it is but yeah, I don't know. Yeah, it's cool. It's not sure about the name. It's like it's basically this sticky thing from the tree, you know, that is really sticky. And then when it gets hard, they use it to put it on the bow in order. Because when, when it gets crushed, when you rub it on there and this on the because this the bow is made from horse's tail, you know the hair and then and it is so this this this material that people put on their bow is to create more friction because it it it crashes into small small particles of crystals and it's and then you have more you have a louder sound you can create a louder sound because the friction of the bow on the the string is louder. So I was using a bow, but I was also mainly using my fingers. So basically I crushed this like sticky thing and I made a powder out of it. And then I was dipping my fingers in it and I was just playing on these strings as if like my fingers were a bow and like in different also ((lengths)). And then, yeah, yeah, you know, all kind of stuff. So this, this was also something that I really, really like. I really enjoyed also creating, but also like performing in it because it was like it really felt like we were.. shit, this sound was so from this space and I didn't know I really liked it. And it was very much also like influenced by this artist. I think she's dead. She's like from the sixties or seventies. Her name is Ellen Fullman. I don't know if you know her. She's she's great. So she was definitely like an inspiration for me for creating this. But yeah, so that would be like two stuff that there, there's a bunch of other stuff but these are two maybe stuff that i like.

Maja: Yeah, sounds really great. I would love to see it. Yeah. And so how would you describe how your what you do like with the visuals and sound? How do you would you describe how they relate to each other,

Lea: how they relate to each other? So mainly like, um, so apart from the fact that they are one that, that, that there won't be, you won't see anything without the sound and there can't. And if you don't see anything, it means that there is no sound. So it's like just because they're audio visual loops, they're coupled together, which

is something that I, I really like about it because I'm usually like a part in the fact that I think I am a little bit of an arrogant person and I am very critical about visuals in general. I have a problem with this like that. ((tak tak tak sound)) Everything needs to be nowadays with the visuals and it's like I want to close my eyes and sometimes even have to put my hand on my eyes because it's still flickers and then it's a little bit like, but sometimes it's amazing, you know? But like, everything is very centric, very symmetrical, very like, UUhh and I don't know. this case, we're very much trying to also break it. Uhm not to be afraid of silences of over moment of darkness or of like stillness. Um, and um, and basically like during the performance itself, Tarik is in charge of the, it's like he's the driver of the bus in the safari. He is the one who is like deciding where to drive the bus instead of the, the of the spectators in the safari. And like there is no road right, There is no real road. And he's just following the sounds that he's hearing and the stuff that appeal to him. And meanwhile, I am not completely aware of the imagery. I mean, I obviously am aware of the that there is a camera and that they have to be within the range of the camera or my head or whatever. I show to the camera as to be within the range of the camera capture. But um, I am basically creating the, the sounds and basically like doing all, all of the recordings and I kind of like the music and then most of, most of the, the work itself and the development of, of the ability to perform is happening in our rehearsals when we are like fine tuning different parameters and we are... But the during the performance, it's just it's actually like leisure. It's so nice because we can just sit back and just do our shit and like, hopefully it works, but which is, which is an interesting like paradox because I was used to always like that. The performances themselves, that's where everything needs to be tight and you need to be like on top of everything. But here it is, like finally we can share and enjoy like what we have been like really fine tuning and trying and yeah, and also I think in particular in our performances, um, that's, that's the one actually real way for us to practice because like we for sure we can do like run through is again and again in a, in a rehearsal room. But we need audience, we need a space, we need the like huge speakers that would feed back into my microphone and then I were like, Fuck, I forgot to do that check in. So, you know, like it's learning process and it will be forever, I think. But it's like the yeah, it's a live performance. It's not like for.. it's to be experienced, live but it's also for us.

Aba: Yeah. Yeah. Interesting. Yeah. Yes.

Maja: Okay so this is the kind of it's kind of conflicts when you, when you haven't seen like specifically or heard it I think. But is it like so Tarik the builds the like the kind of the soundscape and then you build upon that and controls the loop or.

Lea: No, no no, no. Um the all the like the sounds are, are coming either from my voice or from what kind of instruments or from the keyboard. And then I have the ability obviously to pitch my voice up or down or I have the ability to put shitloads of reverb on it or to do all kind of stuff to the voice. So it doesn't even sound like a voice anymore. But everything, all the sounds are coming like are being created and then like, and what Tarik did was, and is doing in the performance, he's having this literally like a joystick in his hand and he's taking the audience is flying through this three dimensional audiovisual universe that we're filling up with all kind of like audio visual loops, little like spaces that have an image and an assigned sound to it. And and then there is more added to it and, and, and all of this. So all of this is obviously programmed. Uh, yeah, it's all programmed for days, months, sitting in like really trying to fine tune and understand what we, what we want. But like the Yeah. And that's, that's what I meant also with the rehearsals, that's why we have like rehearsals on the 10 hours sometimes like easy. Yeah. Yeah. It's nice though. I, Yeah. Because it's not possible to do it one hour like let's do another because it's always bit like this, because it's so specific. You have to go so specific in order to, to be able to improvise in this world. Like you have to be super specific about everything. Otherwise it won't be nice to improvise

in this world. Yeah. Okay.

Maja: And so I'm just trying to for you, we have been going through some of. So what does the visuals add to the experience, do you think. But do you think you say that they are one? Yes. Do you think they've been without the visuals?

Lea: It's like it would be like it's almost like, you know, I could only think about you are watching, let's say, a a film about three people and you have three different people or like, I don't know, could you be a million different people? And there and they are all apparently, you know, from before, they're all from different places and they all have different accents, accents and different abilities of and pitches of how they can use their voice and everything. But you're sitting in front of the screen, you're about to watch the film and you don't hear any sound. And, you know, there is this this ability or you are looking forward to seeing this thing and to hear how they think. You see their faces, you see their faces moving and you're like, Whoa, I really want to hear this sound, you know, like what the complete. Because you see the image, it's already amazing. But there is something missing, it literally missing and the vice versa that if you would hear about these people and then you start hearing about them and you're like and something it's not let's say you are not and you're not seeing the image and you're like, and apparently they're moving and not always all of them are talking. So sometimes it's only two people, but you don't know who because you don't see them. And it's like and so that's how I would I don't know. Think about that.

Maja: Oh, good, good, good. Um, and then you talked about you have like a, a a specific software like you developed.

Lea: Yeah. So Tarik created this software that created this software for his studies. And then we in the past ten years, we developed it, but he was the one who actually created it, and it's called the Versum. So they'll soon then soon also like, Yeah. And yeah. And he developed it for his final studies in um somewhere in Netherlands and was studying music and technology and he basically yeah, he created this thing and then in the past year which is developed it as, as a, also also as a tool where we can improvise with and where we create can create a performance. But he has been using it for creating his visuals since a long time. Yeah.

Aba: So is that the only thing you're using or are you combining it with other know?

Lea: We are. I mean, we're using Versum, which is a self developed program that was initiated by him and then we've been working on it all these years and we are also working with Max for Live and with Ableton. We have obviously for the sound, we're connecting all of them together. Basically, they're all connected into into one because I am using like for, for, for the audio recordings, we're using Ableton and the end of like the thing that holds all of it together and contains all of it together is Versum. And Versum is developed with different languages, but mainly like Java and and Jitter and a lot of Max MSP and yeah, okay.

Maja: Very interesting. A So now we are talking a lot about like all of these like cross media, visual music projectors, film and cinema and music and everything. Where do you see like this, the future of all these like cross media is going,

Lea: Yo, it's, it's a, it's a thing. Because also, like, I'm thinking one of the things of maybe like sometimes I'm also a little bit bothered whenever I'm seeing like the visuals on a screen is also the frame of your like it's almost like the, like what we had during corona when everyone were doing the sharing screens and doing concerts, right? Streaming concerts. And then you are staying in your space in your room and you're having this little screen. And this screen is the source for your social kind of like experience the share and it's all it's super frame. It's always the frame. There is always this fucking rectangle and, and I really like when, when this is being a little bit broken or not necessarily used as or at least questioned

where the rectangle is questioned a little bit and um, but actually I was there so there was, you know, the Berlinale know this is like a it's, it's like the Oscars or the kind of festivals they have this Berlinale, it's here, it's happening here in Germany, in Berlin, in there. It was happening in February, and I had a friend coming from, San Francisco. She was doing some presentation there. It's like you, you, you submit films there, you win all kind of stuff. And of course there is all kind of presentations of all kind of like whatever, whatnot. But anyway, my friend, she has this company that they created now recently, it's called Four Eyes or something like that. And they are basically asking, they were asked, I went to see the presentation. It was super interesting because they were asking about the future of, for example, cinema like people don't really go to the cinema and you have all these halls and all this like amazing also sounds a possibility is right around and everything. And they were working and they were trying and so they're, they're coming. They want, I won't bore you with all this thing but basically they're trying to to see of the possibility of integrating this as to experience art like the like the technological art more like, you know, things that are created within the 3D space but as a shared experience. So because you have this surround sound and then basically everyone like these fucking headsets on our heads and, you know, and it was, it was really weird because it's honestly, it's not completely also my thing. I feel a little bit disconnected from the experience, but I definitely but I know that it's also very much me because I come from quite the of this kind of a world and it was never good enough for me. Like all my experiences with 3D are with all these things, but it's, it's the developed, it's a technology in development and, and I really am I think this is a little bit touching also like what you are asking, like what is the future of like right about how to experience and how to create, how to experience it. Audio visual or films when everything is supposedly already accessible to us in our homes and like, yeah, I think that for me at least it is like it is much less about the it's not that is the technology now would be better and better and better and better. It will help an artistic experience because I think the the technology is getting better and better and better. So the companies can sell better and better and better and better and sell more and more and more to individuals to experience individual stuff because then they can like that. All that stuff. Um, yes, I don't. I am, I am. I am obviously like a little bit I like all the festivals around with them also, like in world in order to do things where they're all like asking this question of like how VR or augmented reality and everything and it is, and most of the stuff that they show is suck. I mean, Right? It's like it just sucks it's like, don't answer in the same, like they're answering within the scope of the problem, but it's not like right They're doing like, no, but you can do something really cool about it. So like, Yeah. And it's yeah. So I don't really have, I don't really have a complete answer to it, but I think, yeah, maybe like the, the idea of like having because, because we are used to like kind of a classical experience of events where there is a big screen in the back, the sound source coming from one source, but would be really cool to have like a space where yes, using technology in development and everything, but you can really have like an inner body, like you can, you can walk through a space with other human beings, hopefully not (()) with them, and they just have this experience that I won't have the experience that you are having because you are walking on the other side right now of the whole. And we're like, But we're experiencing one piece of a whole within a limited space. But so like this is maybe something that I would wish is a direction instead of like competing with this kind of like technology kind of is because we have no chance there. It's just like I don't know and I don't really like compromising my expressions or my experience is like, yeah, okay, okay, cool.

Maja:

Yeah, I think I only have one because you're now doing that much of like improvisation and when you are yeah, things. I'm just curious, what do you think? And what makes the experience for you or for the audience compared to it being like a maybe not a recording, but something like you are standing there and

making a new experience every time you are performing, but what do you think that real time aspect does compared to the audience? Yeah, compared to like a prerecorded thing or something.

Lea: Oh, it's, it's, I think it's a huge thing. It's a huge difference. I think play on a something that is prerecorded and I think that it is a like at least let's say after like shows where I said((... And it was always obvious also in the crowd. But because they are like you saw this. But this was because you see that we all shared an experience together. We all share the creation together. They were they so created. It's so fragile. They saw the creation of it. And it was also so it's so and it was kind of like within a certain time frame so they could trust that it's that they can put their attention to it because they know it is in a performance length. It's not going to be like, you know, you start seeing a person smearing a brush on a wall and you never know when he will start, like finish this painting. It's like that is it within a certain frame? But there is something that is starting to be created and developed and super intuitive also. So it brings a lot of fascination from the people and also it's the evokes, their emotions, much more. They're like becoming like much more committed to it, much more committed to, to the the experience because it's happening right now and it's being created and it's no idea what. And if you're hearing, like, let's say a recording, then you know that someone like created it as a recording, which meaning it got approved but like as, as a, as this is, there is something so raw about it and also about like the question of like the same mistakes or whatever, because we are like full of mistakes, you know, I'm like, I'm still struggling with my like for me, that's all the technology and all the sliders and everything and way better than what I was before. But it's really complicated for me. It is really challenging. For me, it wasn't really the way they grew up to and, and so there is sometimes, you know, some slips or some whatever, but they are completely part of it. And it's really beautiful because it's raw. It's it's like and, and I think that this is like giving a contradiction to all these, like perfections that you see everywhere on all the screens and, and all the packages. And this post produced stuff and all these things. It's like it brings an element that is that I think is very needed for the people. It's like very human. It's like I think also for us, but also I always experience that from like if after the show then the people would come and they they're like very emotional about, about the experience. Like brings something really like yeah, like, like a trip, you know, like getting into a trip and yeah, okay.

Maja: Yes, very cool. I think that was actually all of our questions.

Interviewee:

Sebastian BÜLOW
AAU

Interviewer:

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Interview date: 26. April 2023

Interview:

Maja:

All right, so if you could start by presenting yourself. Yes.

Sebastian:

Uh, my name is Sebastian Bülow. Uh, I started doing working with. With lights, actually, all the way back in school where I was, uh, I became responsible for.. because it was not really having a good time in the playground. So there was a really intelligent teacher that gave me the keys to the theater and said, This is your responsibility, which basically meant that I had a place to be in the sense, you know, I was also allowed access to the local library outside of hours. And and, you know, whenever I felt like popping down there, I could just do that. So I alternated between the library and then going into the theater to, uh, which was in the basement of the school. It was also a, uh, it was called an evacuation room in case the Russians came with all the bombs and stuff, you know, that's where you would go down. So I spent most of my, my childhood, down there, in a sense, you know, But I also had access to, you know, the full stage. I can just play around lights and do what I wanted. So that's one thing. And then cue, many years later, I got involved in first I wanted to become a graphic designer. Then I wanted to be an actor. Um, and then I started at something called Kunst Højskolen in Holbæk, which is like a preparatory thing for applying to go to the Academy or something like that. And I did not give a flying crap about film or anything like that. At that point I was quite a lot into theater and I was into graphics and and fine arts and conceptual art. Um, but then I helped a friend doing some weird, wacky video stuff and I thought it was a little bit funny, you know? So cue so many years later at that time, I moved to, moved to Copenhagen and was doing performance theater and working as a sort of theater tech, uh, helping out, sitting out, you know, lights and rigging and scenography elements and stuff like that for a performance.. performance theater called "Kom de bagfra?", which means "did they come from behind". So I got involved in that in '96 or something like that. And then, uh, then I started, which became a sort of very much unemployed in Copenhagen. And at the time there was a TV station run by young unemployed people called ((TV Kurt)). And then I started getting into video and at one point I got kicked out of that long story, very long story. So we're going to skip that one. Um, and then a friend of mine that had just come back from the UK where he'd been doing his bachelors in a place called the Kennedy Institute of Art and Design in something called Time Based Media. I thought, That sounds interesting. So I applied got in like a month before I had to start. So basically I had a big party where I gave all my things away, uh, gave up my flat, gave up absolutely everything and fucked off to England for three years. And that's when I started getting into experimental film, uh, specifically something called structuralist film and material film. If you start digging into experimental film theory, you can find examples of that, you know? But I was really, really into that because it, it bridged the gap that I had never you know, seen before. So there was there was this printmaking skills and there were theater skills and the camera skills and the lighting skills. And they all seemed to amalgamate and mesh themselves together,

um, within this field of experimental film and video. So I got heavily into that, did my bachelors, came back, started working at a place called Rampen, which was media, uh, "dag højskole". Um, and I did that for about a year and a half or something like that. Um, at the same time as, uh, I needed somebody to move into my flat because I couldn't afford the rent. Uh, and that was a guy who was a bass player in a rock band called On Trial, which was, is a really strange band. It was quite successful in in Germany and Switzerland and Holland, and pretty much nobody knew about them in Denmark apart from the musicians. So it was like a band that the musicians went to listen to. It was like space rock, psych, rock, um, psychedelic stuff, but with a bit of a twist, you know, quite competent. And then the manager, the asshole. Thought it was a good idea to die at some point, but that's another story. That's how Spids Nøgenhat came about. Um, then, um, then he was like, oh, you know, you do like film stuff and shit. Do you want to go on tour? Yeah, sure. Why not? You know, I don't know. Okay. Um, and basically when you make experimental film, nobody wants to watch them, you know what I mean? I thought, Oh, that's brilliant. So you can actually produce film while being on the road because it was very much material film I was into. So exploring the physicality of film as a medium sort of organic film film, um, I thought, fuck it, why not? You know? So I concocted a weird mixture of basically any kind of device that would have a bulb and some kind of lens system I could use. So it was it was a mixture of, you know, a scrounged some old 16 millimeter footage that I found at a flea markets and stuff. Then I went to the porn shops at Istedgade where you could buy really, really cheaply. You could buy nasty old Super eight porn films. And then I'd put them in bleach to remove the emulsion and started painting on it and using glitter glue and gravel and punching holes in it, whatever you, you could do. And then I started working with making loops. So my first light show set up was a mixture of home built mirrorball machines that I made out of chicken wire and smashed mirrors and placed on top of old record players. I would place on stage and then use the stage lights to light into those instead of directly onto the band. Um, and then I started working with, I think when, when it was really in its heyday, I had four slide projectors, eight super eight projectors and 216 mil projectors, some of them playing loops and others playing a continuous film. And so I had to try and structure my way out of, you know, by the end of the show. And I needed to still have a little bit of material left, so to speak. So that was sort of that was sort of the beginning. And then after a couple of years, then somebody told me that the IT University were looking for applicants for the master education. Hmm. Okay. I still, you know, I got my first computer in '95 when I was still at the university in, in Maidstone, um, doing my bachelor's, and I basically I got some inheritance. Inheritance. And then I just bought my first computer set up for about 50,000 which comprised of a 120 megahertz, uh, computer processor, 80 megabyte of RAM, which was insane at the time. It had a one gigabyte hard drive. And then for 10,000, I bought a four gigabyte external hard drive that was capable of sustained data transfer. What that meant, and also had a video capture card in near VHS quality. So what that meant that all of a sudden I was I was liberated in order to produce material myself. And that was such a game changer because all of a sudden it, it became possible to to produce films and started making music videos. At that point as well. So it became possible to produce video. But I still haven't had a problem with how to actually take that digital material and transfer it onto a stage because no way in hell could I afford a projector. It didn't exist unless you were, you know, corporate entity or the Kongelige Teater or something like that. So I would I would get a monitor and then basically frame by frame copy my, my experimental videos onto film. So that was just the first way of doing a transfer. So I you start working with projections and Super eight. Oh my God, it was really hardcore. But then I got into the university and I started fucking around with doing weird compositing and 3D modeling and stuff like that. And it was actually not that much into doing live shows anymore. I only did that once

in a while for friends and stuff and what happened. And then I got out of that. I probably omitted something. Yeah. Then when I, when I, when I did my masters, then I fell in love with a girl from London. And so I moved back to London and lived with her for about a year and a half. And by that time I had gotten a job at the Royal College of Art and the animation department. Later on I got headhunted into the it was called something called the ((Silver)) Room, which was called Center for Media Experimentation. They needed a technician. So I worked there for three or four years, something like that. But basically to cut it short and I got really tired of London. It's a lovely town to visit. It's very hard to live there because you get cynical, you see so much crap. So at some point you either leave the place or you just close yourself down mentally or emotionally. And I didn't like myself, so I basically thought I need to get the fuck out of here. So I went back to Denmark where a friend of mine that played in that band had become the technical boss at a venue, and he had always said, Well, you know, if you ever feel like moving back to denmark or just let me know, I'll hook you up. Then you have a job waiting for you. Yeah. Okay. So I went back again and started doing life shows. Uh, and then very quickly, once you start talking to people and find out, you're actually pretty capable. Um, I started just doing light shows all over the place with whatever bands wanted me or whatever venue would hire me for an evening. What I did concurrently with that, because that was conventional stage lights, but parallel that I was really adamant that I wanted to introduce the upcoming technology of using computers and real time visualization systems with projection technology in order to enhance a live show. So that was pretty new. It was something that was happening within the electronic music stage, but almost exclusively and almost not at all apart from very, very large set ups. Like, you know, I think Rolling Stones or Nine Inch Nails or something like that that could really afford the quite expensive equipment. But, you know, by and by it became possible to use conventional, you know, office video projectors and actually get decent results on stage. So I started doing and integrating my own live visuals setup, saved up for about half a year to be able to afford the laptop to start things off. So I did that and then I started just doing for whatever, you know, what I would have as a sort of parallel thing. Yeah, I'll do your lights. But I also got projection and so I sort of snuck it in doing reggae, jazz, metal, hip hop, rock, whatever would actually who ever wanted to do stuff. And that was that went quite well. You know, I live below ((double)) level in terms of level of income, but I could actually make a living doing live shows for a couple of years. Then I got headhunted for a company called The ((Suit)) that was specializing in holographic video design. And that was a totally different kettle of fish because now it was no longer the local rock band at Amager or something that wanted to hire me. Then all of a sudden I had to deal with pretty much only around 100. So that was like, you know, Toyota, Lexus, Chanel of, you know, huge, you know. But good example, I flew to China to set up a three meter inverted glass pyramid that projected extreme high quality wine bottles of various brands. And then I had to stand and look at that at the six star hotel. Yes, apparently there are six star hotels. I didn't know. You know, and then I had just done a look at that thing running for about three days while I got pissed in the evening, good wine, you know, hamburgers made out of Kobe meat. I can recommend that, you know. So I did that for about three years or something where basically got paid very decent money to fly around the world and business class and set up stuff, you know, for various clients. So that was really, really interesting. But I actually I really missed I missed working with real time and being in that moment because it was quite limited, you know, in terms of the real couple of times where things were real time and it had to be done, you know, instantaneous. But everything else was preprogrammed pre-planned, everything running off at times. If it was a live event, if not, it was video installations, you know, it was like have a company in in India produce a realistic animation of some Gucci bag. I did a Gucci launch which was five simultaneous launches around the globe. So that was in, you know,

New York, Milan, Dubai, Moscow, Paris and some shit like that, you know. So then we would divide up. So I would I went to for that one I went to, I went to Milan in New York and I from London, the other London thing as well. And then somebody else went to the other countries just to set it up with them. That was just insane. Um, but I really missed doing live shows and I did it a little bit, but not that much. And the band I was mainly doing stuff for was in hibernation at the time. They had also produced an album around that time, um, with a band called Spids Nøgenhat, which was like just an offshoot of that. Now what happened with that was that, um, the, the manager was basically, his name was Ralph Riley, and he was basically single handedly responsible for setting up and, and running the development, the early development of the psych and garage rock scene in Copenhagen that became really, really big. Um, and then Spids Nøgenhat had basically done three shows. That was it. And they did a vinyl. Then that became cult. And then Ralph, the Idiot, decided to die of cancer what an asshole, you know, but that, that happens. Um, and they made a second album called We Come in Peace, and for some obscure reason that became an absolute massive national hit. So we started doing some, some touring just a little bit for a laugh, you know, And then it just exploded. It's like holding a bomb in your hand and you went what the actual crack. So so you go from doing small underground venues and then within the space of one or two years, all of a sudden, you know, they call from Roskilde. Then we did a night show there which became legendary. Uh, and then there were some other people that called. And then. And then, and then. And all of a sudden we're doing Avalon stage with 25,000 people. We're doing Fredags Rock in Tivoli in front of. I don't know how many can actually do that. You know, it just absolutely ballooned to the benefit of that for me obviously was not.. well the money was nice but but the benefit was that now I could actually afford to call the company and say hello. I would like to have 30,000 lumens set up and scaffold in Tivoli pointed that direction. I'll just hook up to that. Thank you very much. You know, and that's when things started becoming really fun, you know, So concurrently with this, I've always had my own interests in terms of aesthetics and and in terms of, you know, temporality and physical objects in the stage and how you can illuminate and actually augment and or enhance the audience experience and also the musicians experience of being on stage, that's sort of my main interest in has been all the way. And because I started early off with working with psychedelic bands, obviously the psychedelic experience was very much prevalent. But there's one really important thing in terms of that, because the second you say psychedelic people go, Oh, that means you're doing drugs and you want everybody to be tripping. They're (()) on acid whenever they go to a concert and nothing could be further from the truth, at least not for me. Um, my point was actually to own my sort of self-defined assignment was how do you set up a sinister, fake aural psychedelic experience for somebody who's not under the influence of anything? How can you actually make make light and projections and sensory stimuli based upon the visual politics and how we perceive images? Um, how can you bend and twist that in conjunction with a live experience with music in order to create something that feels close to a psychedelic experience? That's my point. And that's what I've been trying to work on for donkey's years, you know, And, and as a result of that, you start looking into there.. there is sort of a technological under current or subtext that's lying there because it was actually technically possible at any one time, not just in terms of budget that how much can your computing power actually be pushed before it starts vomiting or wanting to do the blue screen of death or something like that? Um, so, so you start off with simple patterns and spirals and you can control how fast the spiral goes, how many arms are on the spiral while color it has and stuff like that. And then quite early on, when it became technically possible, I became interested in setting a live camera and then integrating that live camera feed and modifying it with the effects and meshing it together with graphical patterns to try and create feedback systems that I could modify and enhance, but in essence run themselves,

so to speak. So, you know, it's the intervention of graphical patches or other video signals that modifies what is happening. So in a sense, you could say that I'm sort of I'm sort of interested in creating a sort of perpetual stream that I can that I can swim in, if you will, you know, a pixel stream that that can be modified and bent in various ways. And then on top of that, you have the whole sort of stage technological aspect and control aspect, which means I need to be able to also take that system and place it within a stage context, which means I need to need to be able to turn it on. I need to be able to turn it off really basic stuff, you know, But how can to control the levels of intensity so that things just don't go white out or black out or blue screen of death or something? And then it's just an ongoing battle trying to make that happen in a life context, and that really gets the adrenaline going. So yeah, that's the sort of short version of me.

Maja: Just checking if its still recording. So we'll get everything. It looks like it. And so just with a few words, what do you do now?

Sebastian: I don't do few words. haha

Maja: Haha okay but you're a researcher now?

Sebastian: Well, no, I'm again, you know, I have never fit into any single box. You know, they keep on trying to put me in one. They keep on jumping out of it. No, formally, I'm employed as technical administrative personnel at Aalborg University, where I've been for the last 12 years. And I'm employed within what's called the Institute for Communication and Psychology. And on one level, my job is to to run a pool of equipment and lend that out to students that need to use it. And instruct them in it. And then pretty much at my at my job interview when I started here, I was told that there might be a little bit of teaching involved. It was like, okay, I've done teaching before. That's that's fine. I can do it. So on my first day, they were like, Oh, cool, Welcome you here. We need somebody for the media production course. Can you take that, please? Okay. How many students? Oh, 150. What the fuck? Yeah, I'm supposed to just be you know running some laptops, running some computer to show them how to do that. It's that kind of thing, you know, new. Not not really an option. So I started doing that, and then I got in touch with a professor here called Rolf Nordahl, you know very well was a professor at Medialogy, and they needed somebody to teach AV production. And so to do that did that. And of course, I know all the formalities of, you know, conventional cinematography, editing, principles, dramaturgy. So on and so forth, you know, conventional film production. So I taught that for a couple of years. And then they had another course at the master level also in Medialogy later on that became meshed together with Lighting design. So before I knew it, I was running AV production on Medialogy and I was running a course called Advanced AV Production, also an Medialogy master level both in Aalborg and Copenhagen, and then also media production for the communications students. And then I started doing a course called Technologies at Aalborg Aalborg, which is a collaboration. It's in Erasmus Mundus education. That's a collaboration between four different universities in the world, sort of top dogs in the field, and then the students are basically jumping from semester to semester and then piecing together the master education from that. So on, at the at the technologies course, it was a question of trying to have students sort of sketch with technology rather than using a conventional pen and paper. So it became not so much a question of looking at product, it became a question of having a concept or a notion and then try and work with various bits of technology, typical, you know, microphones, cameras, a computer, some kind of a control interface. But it need not be that and projection tech and whatever else you can put your hands on, you know, stepper motors and that kind of thing, you know. So at one point I had a I had a group of students, good example of how far we can be taken. This notion that a group of students that were their assignment was to create a a piece that should be centered around a big conference on media history that was happening at the same time.

So they became an integral part of the exhibition on what they did, and I thought it was one of the best projects I ever seen, that basically here in the.. (()) internal rotunda at Aalborg university in Copenhagen that goes up four stories, they set up a stepper motor that was hooked up to a string that had a large helium balloon, and then basically they got hold of the IT Department that gave them real time data as to how much data traffic was happening on the special conference wifi. So while people were using the browser and surfing and being on the internet and doing all the presentations, you got a visual definition of how much CO2 was being produced from the electricity that this Internet current was generating. And fucking genius, you know, just love. Beautiful project and very far away from live visuals. But in a sense I don't see them as being separate. They're they're all sort of experiences that in some way or other will help change and or enhance your understanding of the world as it is. You know, I just happened to be interested in a small faction of it. So. So yeah, again, I'm sitting right in the bridge between theory and practice and have done for many years. That was very few words.

Maja: Very, very nice. And so we talk about the balloon, but is that your most significant project or favorite project or do you have one that you have done? And it's like, wow.

Sebastian: Well, I've done over the years. I've done something like 500 plus concerts and probably about 350 or 400 of those have been utilizing live visuals and some guys or other over the years, you know that obviously there are some who think you know well in terms of scale, which that could be one way of looking at it. The most insane project I ever did, and that was really insane. It was only me. And then a friend of mine who's he's actually one of the very first psychedelic light show pioneers in Denmark. He started doing shows in 1971. That was six years after the Beefeaters started doing live shows or psychedelic shows of the 1965. That's guy's called Søren Danielsen and that they were doing the very first light shows in Denmark and I'm even then the Rock Museum with him, which is really funny way. We both got interviewed for the Rock Museum about psychedelic lights, but I was we were doing a that was when when Spids Nøgenhat had was really, really just exploded. And we could actually.. we had a venue we basically booked a venue called Pumpehuset, which is a quite large 750 people venue in Copenhagen, and we've sold out. We had three days sold out, the whole thing, three days in a row, you know, Friday Saturday Sunday. There's something absolutely fucked. But at the end of it. But that was, that was interesting. But what I did for that venue was really cool. I basically got hold of every single projector I could humanly possible get my hands on. Just standard office projectors. Good thing working in and the IT department. I was hooked up at the time. There was a big changeover. New projectors had to come in. What do we do with the old ones? Just give them to Sebastian. He'll know what to do with it, you know. And you know, there's been a number of of courses that has benefited from me scrounging whatever old tech I could get my hands on. You know? So I had.. I ended up with a triple screen projection on stage. So that was three individual projections using a special piece of tech that allowed me to to share one HDMI and in and then split that reassigned the pixels and then split that into three individual projections using something called triple head to go that would do the splitting and then a guy called Spark, he made something called a Spark diffuser, which was basically a modified, a modified transporter unit that will allow you to mix between two computers using this (()). That was the shit at the time were only a thousand copies of this piece of hardware made. I've got one of them like, Oh, you know, so but using that and then a shit ton of splitters and VGA distributors and stuff, I've got 19 video projections up and running at the same time at Pumpehuset, which meant that there was not a single surface that was not being projected upon. Some of it was running off media players. The roof was just stuff I had prerecorded with various trippy patterns and then just covered the entire roof of Pumpehuset and all of the all of the walls on the floor and everything was just

the same three main projections happening on stage repeated endlessly. So when you came in, there was not a single surface that was not moving and actually heard the people who went to that was some people who wanted to enhance their concert experience, poor fools. So they they have they ate some magic mushrooms before they had to go and see the concert. They had to leave before the concert started because it was too much sensory information for them, which is, you know, that's when I know I've done my job right. And no, don't do that. I'll give you the trippy experience don't enhance it, you can't take it. So that was absolutely magical. Imagine. And then basically one of the really magical moments is when you get pieces of hardware that works well with your type of setup. So until quite reasonably, thank you Apple, bloody assholes, if this shutter is deprecated now, but I had a fantastic piece of hardware called The Leap Motion. And the Leap Motion basically defines a sort of area in space, which is around 40 by 40 by 50 or something like that, centimeters, where your hand can be seen, a depth camera in essence, your hand can be seen and you can identify again, depends how far down you go. It can actually look at each individual finger. I didn't use it for that. I just used my hand in an open and close position. And then you defined the x, y and z parameters of it, but you also have pitch roll and yaw, which means that you can actually transform your hands, becoming a visual music instrument. I've got to say the visual music is my main interest and have been for donkeys years is not enough in the sense to call it live visuals. Visual music is a much more, much broader term, I think. But anyway, that basically meant that it lent itself extremely well to video feedback systems and this both virtualized video feedback systems. That means that I run video feedback systems that are purely software based, they're not based around an actual video input coming that could be a graphical patch saying it's a spiral or something. And then I can repeat that endlessly and fall into it. Fall away from it. Choose how many iterations or repetitions of a given signal I want and whether it should be larger or smaller and if it should rotate and what it should do and in what direction. And so on and so forth. So mapping the controller to a Leap Motion meant that I could almost physically fly in through video feedback systems. Now imagine if you have a screen that's, you know, 18 meters wide by a five and a half meters and you do that shit and basically that you get a feeling of being the puppet master. Because if I twist my hand and it's a packed audience in front of you, twist my hand slightly and I can physically see the audience slightly tilting one way or the other. So I'm like, basically I'm using video and light to move your head and you don't even know that kind of stuff is just grand. Absolutely fantastic. There's also been a number of moments, mainly with Spids Nøgenhat, but also with others where you you said have you reached the pinnacle in a sense that that you you are so much at one with your interface and you know what buttons to push and stuff that that you no longer think you know logically about it but you're just present in the moment in the same way as musicians can be present in the moment and. You know, all the technicalities of when to count the bridges and you know what to play and when to play it. But they just sort of have that and then you have that extra layer that you add on top. That's when you know you have a good concert. You know, this same thing with me. You know, if I no longer I'm actually acutely aware of what is my next layer on a and what so on and so forth. You know what, I'm actually just playing when I've done my groundwork. So that the mapping is correct and I can actually play with the musicians and then no longer quite know whether or not I'm triggering the bass sound or I'm just making the stage blue. You know, that moment, that's that's the sort of that's what you look for.

Maja:

Do you have like a specific approach depending on the project or the music.

Sebastian:

Yeah, pretty much always. Obviously I run some repeats. I have to say that that what I'm the software I'm using is a piece of software called the VDMX and it's it's very, very unusual in that you basically you start off with nothing you start from scratch and then there is a whole host of modules. But basically every single

function inside every single module can be hooked up to everything else. So you can build all kinds of weird shit with it. I build up for, for example, a small kiosks system using the system for a conference on a media art, and we basically set up X number of IMAX with the system where people were sitting with a Super Nintendo controller and controlling the interface of listening to various historical pieces of sound out, you know? So It can do that, but it can also hook up a massive multiscreen system being controlled by the weather or whatever the fuck you want. You know, I'm mainly run it using sort of slightly conventional. So I have just to explain very briefly, I have a setup with where I have a bank of still images that is running a perpetual slideshow and I can choose how fast those images are fading in and out of each other. That's one thing. Then I have a couple of layers which is running graphical patches of various descriptions. Most of those is something called ((yellow)) cell shaders, which means that very low on CPU usage. So I can get a very high frame rate. Every single one of the layers have a bank of effects and most of those are mapped up to either low frequency oscillators to give some kind of a movement. And then I can control the low frequency oscillator or directly onto a button where turn it on or off overall, there's a clock running where I can choose the speed of the clock and that will make things go, all of it go slower or faster so that whatever is happening on stage, I can match that tempo wise. And so, you know, my main sort of system is somewhat predefined and I know kind of what works, but what I almost always do is whenever I have a new band or I have a new event happening, I tend to build everything up from scratch again to try and push my own perception of my own practice all the time so that it's never is never quite the same. That also means it's sometimes extremely confusing because the buttons are not supposed to be, but you kind of have to live with that. I think is really important in terms of just others are just running clip triggering so that it's the same show every single time. That can also be really, really important and relevant. If you typically if you're running larger shows or a type of music where you have need to have a very high level of control, you can run everything off. Time code In a click track, that's fine. You know we can do that. But my, my interest is developing visual music instruments and play them alongside with the band. You that's, that's my, my thing so to speak. So and then I use a host of controllers and because my leap motion broke or (()) Monterrey broke my leap motions when I can't use it anymore. I had to find another way. So I now utilize my telephone that has a built in magnetometer and accelerometer and a sort of gyro gyroscope. So I use that. And then I concocted using a little tripod stand and various other bits and pieces, a sort of way of navigating that a little bit like using a joystick. I've also used a joystick. I've also used steering wheels where I got the that was from an electro concert that that was another good of concepts that were really fun. That was I was responsible for running the electronic music stage at something called Start Festival. And then I hooked up, I got hold of a car seat and then I placed it so they would be around a meter and a half from the floor with some steps up. And then I invited and then I had a set up, you know, those gaming controller steering wheel and and speeder and brake and the gear stick. So hooked up basically as if you were sitting in a car. And then I map that up to various effects and again, the virtualized video feedback system. So when you press the speeder felt like you were driving faster and you can steer it left and right. That was also a ((triptych)). The triple screen projection. And then I invited members of the audience to come up and. Drive the car. You know, it was like, Oh, you come on. Okay, get in the fucking seat. And then I got the audience. So they would be sitting there driving while there was live music playing. And if, if they were driving really poorly, of course I had a my controller, I had a little AV mixer. So I was like, Right, you really should have driving. This is not fitting with the music. And then I would just take control. But sometimes they would be doing really funky stuff with the buttons and everything and then just I just let them run, you know? So that was another way of doing (()) participation, because I'd leveled it up, Everybody in the audience could actually see what the Fuck. Is

that going on over by the front of house, you know? And so there was a by the end of it, there was a queue of people wanting to to drive the visuals, which was also hilarious. You know, that was before that artist made the virtual drive. And the bicycle thing is a big thing. But I did that way before. This was in like 2007 or something Like that, you know?

Maja: So you do have like a specific thing for electronic music or specific things.

Sebastian: No, I don't. I started off I started off the psychedelic rock and I and I like that. Absolutely. But, you know, my my own musical interest is all over the fucking place. You know, It goes from really, really evil, mean, hip hop uk hip hop to, you know, (()) or, you know Steve Reich, stuff like Philip Glass, Frank Zappa, reggae dub, metal, whatever, really the things, because I've done so many concerts and I've here, I've had so much different and varied live music that at the end of the day it's not so much a question of genre, but it's a question of whether or not some people have something in the heart that they want to get out. If the music is well meant, so to speak, you know?

Maja: And then just to chime in.

Sebastian: Yes, absolutely. And it's it's an interesting thing. And I mean, if if you should talk about psychedelic experiences, it actually that's where it is. It's not the visual eye candy for me. And and I think that's one thing that people actually miss with with regards to the psychedelic experience is not about that. It's about ego loss, you know, it's about the realization that, you know, your ego is null and void and you know, you're at one with the universe kind of thing, you know, And you get the same with transcendental meditation, with various spiritualist Buddhist practices. And so stuff like that. You get and get descriptions of the same kind of experience, you know, just certainly something to say. Near-death experiences have a sort of similar feeling to it, you know, So so I've actually and I've never had this sort of ego thing where my main point was for people to see how good I was. The main point has always been to try and enhance and experience that it's already there, you know. So if I can if I can come in and I can actually support and supplement that in such a way that, that what I'm creating with the musicians onstage is something that is greater than the sum of its parts, You know, that's when I think I've really hit something, you know, But it's never about, you know, whether or not I'm fucking good with a middle controller or something like that. It's, it's not interesting, you know, And that's the sort of, you know, the ego that you sometimes get a lot with, you know, conventional film people, for example. I'm not saying everybody is like that because they're not by any means, but I've been enough in the film industry to know there's a couple of assholes out there, you know, where that's the main thing is to throw your own weight around. I mean, look at this whole thing we have with Jon Steffensen right now, you know, from a leader of some of the largest theaters in the nation and is a fucking psychopath for, you know, surprise. So, you know, that power has never interested me at all. It's more the knowledge sharing and the the sort of communal experience that you get. That's interesting.

Maja: Cool. So in terms of like experimenting with the visuals, you do that every time?

Sebastian: Every single time. Absolutely. Yeah. I think it's really important that you that that just as the musicians, there's a good chance that everything will fall flat on its face every single time. It needs to be out on the bleeding edge to a certain extent as much as possible. That doesn't mean that I can't, you know, set up something fun and and obviously, having done enough concerts, there's very, very slim chance that it actually does fuck up absolutely royally because that has happened before, obviously. But but I think it's the notion of it being live, live and being played live is absolutely essential to maintain because that's when you get the nerve or if if you don't have that, then in essence, you could argue that all you have is scenography, you know, (staffage). Then you have a set up that somebody performs in. But

then, yeah, is it life? You know. If it's if it's pre-produced to an extent that nothing will go wrong unless there's a harddrive that crashes with the nerve in it, you know, when, when, when, when are you actually present enough to be able to feel yourself in the space and reflect upon how can I actually enhance what is happening in front of me rather than the other way around where you're like, yes, it looks fucking cool, press play. And then all of a sudden, you know, I've actually heard that one time there was a visual this guy spoke to and he was like, Yeah. And then I prepared all of this and then they started improvising. He was, he was it was insulted. He, he, you know, that was not part of his plan. He wanted them to play the fucking clip track with. All the media assignments that he had something from. And one day veered off because something fascinating was happening with the bongo drums or whatever. He didn't know what to do. I thought that was fantastic. Okay. Remind me not to do that. Ever. You know.

Maja: So the real time aspect is important.

Sebastian: Yes, very much so. The real time aspect is.

Maja: You talked about the VDMX, is that the only software you use?

Sebastian: By not by a long shot you know, over the years I started off doing VDMX pretty much just when it changed name from Grid to VDMX. You know grid was a slightly unconventional media player, but not based around the use of graphical patches, fonts and and vector graphics as what it is now. But I've been using as a huge fan of obscure "weird-ware" I like to call it if you if at one point I found this program that will allow you to take two pictures and then predefined X number of points and then it will, it would generate a morph for you. You know, that was like way, way early, early on when it was, you know, personal computers became a thing pretty much, You know, with my first machine. But being able to do morphs like that was like, oh my God, you know? So I was just piggybacking that one all the way into the rise in as much as I could. But I also so I use a number of yeah, strange various bits of software. This as I mentioned, GLSL shaders. It's basically it's a, it's a pen patching language or it a graphical language that will allow you to use code to actually define some kind of parameters that you can later on pick up on inside of VDMX. But before that there was something called Cross Composer, which was like spaghetti programing. So in a sense you can say that the VDMX is like a container for all kinds of other programs as well. It speaks nicely with Blackmagic design products for example so I can control a Blackmagic switcher directly inside VDMX. I can also program graphical patches, but I can also program effects that are placed inside with the VDMX that I created myself or I enhanced other stuff that somebody else has produced put online and then whenever you make a change, you'll obviously put your version online so somebody else can. So this whole sort of sharing mentality is, is running as an undercurrent all the time. And then we have all the control protocols as well that you kind of need to circumvent some of the bugs that are always inherent in a system, especially when you're trying to do something with it that wasn't intended in the first place. So I use a really old antiquated video mixers, and then I found somebody wrote a really good API that would actually allow me to use the USB stream, the low latency. Thank you for that. Then I brought that again into VDMX. Then I use, at the moment I use Oscillator and MIDI pipe. It uses an app called Gecko, which doesn't work anymore. And then obviously all the usual suspects in terms of video editing programs, getting graphical patches up and running. font programs. So I could, for example, take a font, get the vector of it if it's open source. Of course, I started looking around for that. I'm actually quite heavily into that, if you it's really important to expect respect the Creative Commons, but conversely, it's also important to pay for if using software that you actually like and use an installation where you you're obliged to actually pay for it. These people are actually working with this and it's really, really important. I started playing around with something called Wekinator, which is

really interesting as well, and obviously I'm also experimenting and looking at other pieces of software that could be Isidora or VVVV or some other bits of software that has sort of come along over the years. But as of yet I have not found a program like the VDMX that will allow me both to experiment and then take that experiment and it's stable enough for me to be able to take it to even a very large stage and actually pretty certain that it's not going to fuck up too much. You know, I only ever had a single blue screen of the in all these concerts, you know, and that was only because Ralph pulled the plug on my video distributor midshow. He needed to charge his phone like, for fuck's sake, Some technicians do you know what I mean.

Maja: So do you have any thoughts about where you see the future of this crossmedia fields is going?

Sebastian: Oh, that's a good question. I think it's always been extremely fragmented. Also, if you're looking at it from a historical point of view, because one thing is one thing is doing the sort of show type thing, some of them you need to have more control with, others you can experiment more. It need not be down to the scale of it, but the type of people that you work with. Some would need to have a higher level of control because of their image of the brand or something. Like there was a band called a group called Underworld. I don't know if you know of them early Electro, very cool. Check it out. But they work together with a designer group called Tomato and Tomato were doing global Nike launches that kind of level very, very, very high. London's Soho Graphic Design Agency. But with Underworld, they got to play around and experiment. So I think there's a lot of that. You know, it's not a question of whether or not you're working in a particular way and or having a particular methodology, but you're also doing is, well, there's a Danish word called "virke", which basically means both to work and to function and also a job at the same time, you know, and it comes from, you know, manual labor, so to speak, you know, people who are craftsmen in various guises. But I think it's a really beautiful notion because it's not so much a question of what you're doing specifically, but it's a question of you being in process and being in a constant sort of interaction with that which you're trying to work together with. That can be a gallery project like there's an artist called Tony Oursler, for example, who's working exclusively with video, almost exclusively with video mapping before something before mapping was a thing. He did it by setting of physical sculptures in his studio with the projector and then do the video and sort of manually readjusting it. So he's got, for example, a cylinder, and then he's set up a video recording of a cigarette smoking itself, and then he projection mapped the cigarette smoking itself onto the cylinder. So it's a gallery space piece but is still tapping into something entirely different, you know. So you have these sort of concurrent streams of live concerts, then you have the staged lighting, then you have the projections and, and all the interactions with that and scenography Well, and that can be both really, really large, you know, full scale opera type thing, or it can be a small underground venue. And in a sense I don't see the difference. But what I'm hoping for is that the sort of the notion of of visual music sort of keeps on being something that is an active part because it's very, very easy just to turn on a visualizer and be happy with that. But in essence, I see it a little bit as, you know, fake in a way. And I suspect also in the sort of near-future, we'll be seeing a shit ton of AI happening for, you know, automated control for live systems. And I think we'll have a merit absolutely. I also think that if you're not extremely careful in the content production phase of what you're doing and the preparatory phase of your training AI is you're going to end up with something that is just a sort of a sort of regurgitation of existing visual material, you know, where, where, where is the new inputs coming from, you know, whether you have the AI inspired by the, you know, sand drawings of the people, the Bushmen living in the Kalahari. I don't bloody think so. You need a human being to think that's interesting because it's not immediately apparent and the AI are working only

with what is immediately apparent and what you are asking it to do and then is sort of self feeding itself, you know, and it becomes a little bit like in the (()), you know, the snake eating itself over and over and over again. But nothing is actually developing from that. So it'll be really, really interesting. I think on a technical level, I could quite easily see, funny enough, you guys working on it. The the more streamlined use of depth cameras as they come of age and become cheaper and more long range than Kinect because that is just not funny if you have slightly larger stages. So I can see that happening and the sort of real time extraction of set data on from a from an image stream and what you can do with that, that's going to be interesting. And I think also there will be gizmos that will allow on a very cheap level. Again, I mean, you can build a novel than a plane, but, you know, people haven't got time for that kind of shit, little trackers that you place on stage and you can actually automate where the musicians are moving about. So you could actually in principle have the artist and the symbol level a different color and each of them completely different from the background, you know, turn them all into Teletubbies. I don't get, you know, different color. Another background and that happening in real time. I see that happening quite a lot. And I think it'll also branch out. But that's more in terms of visual culture and not necessarily within within stage. I think we'll see a lot more of event production which will be merging... For example, fine dining with video projection tech that's already a thing in the in other countries than little Denmark, which is very little when it comes to animation. So that you see, you know, little flames around your plate as you're eating your chili steak or whatever the case may be, you know, So hopefully that will that will be happening soon. But this sort of really optimistic notion that some people had at one time that that the generation coming up would be so creative because they were digitally natives and born with an iPad in their hand, I actually see it much more as a handicap for them than than people like me who's an old bastard that grew up in an analog world and then had to deal with the, you know, the notion of the digital in its own right, because I sort of I see the benefits of it, but I also see the downsides. And I'm sort of inherently used to forcing to change my way of thinking around something rather than having the hardware or software do my bidding, so to speak. So this sort of interaction with both the digital and the future of the physical world is actually a huge benefit rather than just letting the software do it for you because you end up being the software, so to speak, you know? So yeah, there's a lot of basis for really interesting discussion.

Maja: So yeah, And then just a final question is do you have any dream project in mind that you want to do.

Sebastian: Yes, I do, very much so, yes. But I don't have the computing power for it yet. But one of my big, big, big heroes is an American experimental moviemaker called Stan Vanderbeek. And Stan Vanderbeek had this notion that he called the movie Drome. And it's basically imagine a big fuck off planetarium style dome where you have free projection on with whatever means that you can actually have. And he was very much into collaboration. So with just whoever could you know, bring your own beamer kind of thing, overhead projector, slide projectors, whatever you know but but no being able to do live visuals inside a dome and controlling the entire bloody thing and standing in the middle of it and waving a hand about, Yeah, I could do that.

Interviewee:

Mikkel MEYER
Vertigo
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Interviewer:

Maja PEDERSEN, Abderrahman
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Interview date: 28. April 2023

Interview:

- Maja:** If you present yourself with your own words.
- Mikkel:** I am Mikkel Meyer. I'm a part of Vertigo, which is an artist collective consisting of six people working in the crypt full time. And we're doing, uh, light installation sound installations. Then we're doing a lot of, uh, scenography for theatre and music. Mm hmm. Yep. And that's exactly it. So it's projection, LCD laser.
- Maja:** Cool. And then. And what is your, like, a professional background?
- Mikkel:** Uh, I am originally, uh, a programmer.
- Maja:** And you studied programming?.
- Mikkel:** Yeah, programming. And, uh, have done a lot of, uh, computer games before. And I know I've done a lot of, uh, electronic music, uh, in the nineties.
- Maja:** And how did you come into doing this instead?
- Mikkel:** Uh, I used Frederik, who is also a part of Vertigo, uh, VJ in the beginning of the 2000. And, um, and then, yeah, we've been working together for over 20 years. 25 years soon. Uh, he was, in fact, he had the first projector in Copenhagen. Oh, okay. So that was just like, WOOW, then we could put up a screen behind the performer and then all living images, and that was before there were uhm VJ software. So he was just standing with a mac, uh, QuickTime and just shifting videos super fast. And before that, he had a lot of, uh, Kodak carousels, and he did, uh, what do you call it.. dias shows. Okay, So it's way before. And, yeah, we've been working together for quite a lot of years. And then, uh, five years ago, I was involved in more or more projects. We simply just to got closer and closer together. Suddenly it just made sense to merge the whole thing together.
- Maja:** And how long have you been in this? Of Vertigo.
- Mikkel:** Uh, I've been a part of Vertigo for five years.
- Aba:** Okay. Yes. Uh, and what would you describe your part of Vertigo? What will you do?
- Mikkel:** What I do, uh, I do a lot of, uh, what you call it, the initial project description of art pieces. Like what things do we want to work with? Uh, what kind of what concept of looking into. And then I have this fluffy ball, and then, uh, normally Vibeke, takes it. She is, uh, doing all the content and then Frederik takes it. He is the structural guy. He's the one which can see... How are we going to build this? Oh, is this going to be realized in in, in real life? Mm hmm. He has a huge imagination of, uh, how shadow light works. Like, I don't know how.
- Aba:** Uh, what would you say is your most significant project or favorite?
- Mikkel:** That is a good question. Uh, I think, uh, the Wave that we have done several times around the world an 80 meter long installation and then, uh, we had a, an

installation made for Copenhagen Contemporary, which was 100 meters.

Maja: And can you describe them a little more?

Mikkel: Uh, and the wave consist of, uh, 40 triangles. Yeah. Uh, which is a stretch out on a.. Yeah. An 80 meter long row. And in there we can do all kind of movement with the light and sound that's also also and speakers, the build into the waves. So we can do really a piece about movement. Uh, and then, uh, Ekko, which we did for Copenhagen Contemporary. Uh, that was really a piece about size. Uh, we had, uh, four masts of 36 meters high, which have, um, a LED sticks in them which could, uh, light out in what to call it in four ways. So we could have an expression that you could experience inside or do call the piece when you were inside, the masts that was surrounding a big, big area and you could walk in, in there. There was also sound that you could experience, but then be able to have had an outer part, um, which you could see all the way from Bellahøj, like from the most of, uh, of Copenhagen. So it was a piece that you really need to move around in a big distance to really experience the piece, right? So that was more about your, your own movement.

Maja: And those are the two favorites.

Mikkel: Well.. We also have Refrakto, which is, uh, a piece we're doing with, uh, Den Sorte Skole uh, where we are... It's. It's made for cathedrals. Where we're taking people on a historical trip through religious music. So that, uh, and also art.. so there are of the piece is from, uh, Muslim, buddists African whatever just merged together and put it into this, uh, sacred room. This normally, uh, proposed Protestant church. They can allow it will try to be.. we are in fact going to India and put into, uh, some temples on here. So now it's happening. Um, but it is really a piece about, uh, what to call it belief, and not just Christian belief. All kind of. Yeah, uh, belief. Then it's, uh.

Aba: So working on projects like these, like, I hear, like, a lot of them are different. We have like, something like when it comes to the approach of the project that you like, like a specific approach that you take in each project or is like each project has its own approach and its own way of development.

Mikkel: Uh, our projects is normally really site specific, so it's really about going out, feel the room, feel the space, like what can we do with this space?

Maja: And that's how you start.

Mikkel: Yeah, it's like, okay, where is this going of what is the, the possibilities, What is, what are the physical able to do? And then we of course have a lot of tools down here and then we start, okay, we, we have this, these materials to be able to do these things and then we really can looking into what kind of concept we want to do. What is this? What does this space want?

Maja: Yeah. Now, you also said you didn't have pieces that you move around, do you then change them when you move them.

Mikkel: Uh, we have the Wave, uh, which is move around, but it's more like a medium that's moving around because it is 80 meters. Then it's really hassle to get it to fit in. So you really have to go out and look at the room and see, okay, what you have, of course, when you come from, when you're coming with something that big, then it's just like it doesn't work. If you don't look at the space, if you just come with 80 meters and just like, Yeah, and it looks like shit. So we really have to go out and see, okay, how can we get this structure to work? Like we had it? Uh, in Athens where it was placed at the roof of the National Library, which was hell because it was, what do I call it? It had a slant of a certain degree. So like when we are normally putting out the wave, then we are having our lasers and everything in level. Yeah, we could move stuff a lot of stuff out of with Rain, it was just like.., but it looks super nice in

Aba: Uh, although you've been talking about a lot of the work also have of and all. So how does your work with, like, installations and visuals, uh, is related to working with sound as well or music?

Mikkel: It's more or less the same. It's like it's, uh, uh, like we have ears, we have eyes. We're using that to, to navigate through our spaces. Okay. Uh, with LED light, we can make movement really precise movement in the light, which is, uh, quite related to what we have been able to do with sound since we invented, uh, panning around in speakers. They were able to do that. I think, in the sixties. So we are frankly using quite a lot of the same tools, the same approaches, ideas as you have with sound of panning of sound. Okay, we're just doing it with light. Also, like when you are having a laser beam and see the structures in the laser, it's it's also just a single beam, but while, brain like combining things together, it's the same with sound. We also combine like if you make a still image of sound, you can't do that. You need time to experience sound. And it's it's the same for our light pieces. Like, yeah, you can make it still image, but it's not about the actual image. It's it's about the movement of light, and the dynamic in the light. Yeah. So they're quite related. Like when you experience the light in our pieces, then you have to experience it over time, you cannot make a still image.

Maja: But they don't all have sound.

Mikkel: No, not all of them. It's just the same approach about this. But you need the time to experience the piece because normally you can like take a light piece and you can make a still image and then you have an idea of what this is. Mm hmm. Uh, for us, it's very important that you can't do that. You have to be there physical. Mm hmm. Also, if we are able to make things that you can't get with with a camera, like when we are having our piece, Refrakto, so we are having lasers both from front and from behind. Uh, you can't nearly see the lasers when they are from behind. But what happens is with when the audience sit there and experience a piece, when they start to move their head, then the laser start to light up. And then you are, then you then you suddenly don't have a single point of view. Like when you are having a normal concert, then you're just looking in one direction up to the band and you experience, uh, Refrakto, Then you suddenly have the feeling of being in the middle of this performance, this piece, because you also have light coming from behind. So, so it's like that. There are no.. uh.. center of the piece, it's all around and you can, uh, can't get that experience with, uh, with a camera. Yeah. Because you have to be, you have to, like, move your body. Even though you are sitting on a bench in a church cathedral, and then you're still moving your head. And when people start to realize but also things happening in behind the.

Maja: So this is also about like in, uh, like the experience itself, you think like you. Yeah, you said it already.. but like feeling the room..

Mikkel: I think for us it's like it is what we call it, digital art pieces. But I think it's important for us that you experience it as a human being when with our senses like that, it's really, uh, getting, uh, getting physical. You know, you experience it as a person, not as one that's like like looking at a small screen, which is a window into a digital world. But you, in fact, sitting there in this part in the middle of this digital world is your long had, you know.

Aba: Uh, so with these different projects, do you have like some like, uh, like go to, uh, like either like software or like hardware that you usually use that you prefer using? Or is it also depending on each project and what you want to?

Mikkel: Uh, we are using a lot of, uh, Touchdesigner, uh, Maximus P, and then we are also using a lot of, uh, Madmapper. And then we're using our own tools, like the LED medium we using. We have built that on our own, that our own controller and everything.

Maja: And that's what you use for the wave or?

Mikkel: Yeah, that is completely custom built. Okay. Like we're getting the LED built in, uh, in China. Mm hmm. And also our controller prints. But it's like we have coded the whole firmware. Okay. Uh, uh, ourself. It's from the small arm chips, and then we, uh. Yeah, controlling it over on it. Yeah, not really, but it is like, completely our own. Yeah.

Maja: And that was important to you because we want to, uh.

Mikkel: We want a high refresh rate on it. Okay. Yeah. And then, uh. Okay, that's mostly it. We really want it to be smooth, super smooth. And then, uh, um, LED medium. We really want it to be, uh, super sleek, super thin, so it can disappear in a room. Yeah. So, um, our LED sticks are really really small compared to, uh, how much light there's coming out when you're looking at a normal, normal LED sticks, like, yeah, a space around this. We don't have that. It's mostly, uh, behind the LED. So they have really, really thin. Uh, and then we have a really high density of, uh, pixels. I forget how many pieces do we have for media. Is it, uh, 190 and... (()) Yeah, we, we have different mediums. We also have a new medium lying down there on the, on the floor, which is a test we made. It's um, also elitist, but it's like a really, really thin screen. Like we're using five rows of, of LED which is in fact enough. That we as humans start to see images. So it's, in fact, it's sort of in, uh, LED, but we can get this feeling of images. It's, uh, what is it, 15 centimeters wide. Oh, okay. Oh, yeah, yeah, yeah. Right. And then because the distance from the piece to the and the distance of the is this.((shown stuff)) So yeah, a lot of our own stuff. Also our lasers is also like, yeah, home build software and then it's uh, a swish guy that has built the controls for it so they can fade really smoothly. Normally when you are having all these like then the fade is like shit, but he has made, uh, a controller so you can feed the simple LED. laser and LED it's like, it's not the same, but the works like the same. They need a, a certain power before they, they start. But he has made a controller where you can it's, uh, divided into stages. So he has in fact he measured when each the, the starts to like (()) where the physical project stuff and then you can make this really slow, really precise face which also, uh, makes the color of them really it's really good color.

Maja: So it is about making a medium that can make exactly what you want.

Mikkel: For us, it's like we are driven off, like experimenting. See? Okay, how can we do this new technology? How does that fit into our world and stuff like that. And then we find these, uh, limits in conventional technology and then it's just thinking this try, try to break that, uh, but then we also are able to make expressions that nobody is able to do. And that's what I think why we can continue doing our stuff. Then it's like you've seen all these shows, but you need something special and then they call us. Yeah, and see, can we do something nobody has seen before?

Aba: Yeah. Well, uh, I think the last question would be so one before the last question. Uh, what do you like what you're talking about? Using, like, so many different mediums and technologies and all of that. How do you see this like cross media going into the future and like using different like, not even only, like hardware or software? all of this gathering together to create and like the visuals installations,

Mikkel: uh, they are now, I think what we have really missed to like crack with technology is the screen. Like now we have VR glasses, but you still like when you put VR glasses on, then you still. It's only your eyes. Yeah, they're experiencing something. It's not the whole body. So I think when we get some kind of medium where you can make this these 3D spaces physical, that's what we are trying to do. And then something happens also with AI like, we are using A.I. quite a lot as as tools to helping us. Like we can create videos with, uh, with A.I., but we can also see it's very limited in time. It, uh, it really has problem in, in remembering time. That's why it's so bad doing music. Yeah. Uh, it's also really, really bad doing, uh, doing films. If you want to do films from scratch, it's easy to like, get it

to replace voices or anything where everything that it can look at as a still image or still text or whatever. Then they it's good when it needs to experience time. Look at time to make something. Then we are not there. Yet. Yeah. And like we are working with movement. We are working with time. So yeah, this. But I'm really looking forward to see when it starts. Then to be able to make music and make moving images from the scratch, then that's if then it's going to be okay. Yeah. Yeah. I don't know what is going to happen in the

Maja: Are you scared about that or is?

Mikkel: No I'm not because it's really bad and getting ideas. I it's also really bad in uh, doing mathematics and what we are doing is really depending on mathematics. Yeah. Like how to we like have to get the right angles. It's really about geometry. Yeah. And I don't know, like, I don't think you can get uh, uh, an AI to replace, uh, Frederik and Vibekes ideas because they give us things like no.. and so really bad at being in the physical world. Well, in the sixties, they said we, the we will never reach the moon right.

Mikkel: So yeah, but, but the physical world is a bitch. Like, uh, having data cables and, yeah, physics is really destroying the digital world. Yeah, we can see it when we, uh, like when we are doing our own LED stuff and having our own cables and stuff, like, then you have to look in to radiation and of course, you know, digital stuff. It's zero and one. Yeah. And, uh, when these pulses starts to get involved in the capacity and resistance and cables, then these tools and they're not looking like perfect shapes and, uh, looking like all kind of shit. And then you have misinterpretation in our LEDs in all of these and it can look like shit. So. So I think this like, No, I'm not afraid of AI. I'm afraid maybe I'm afraid when you start allowing the to make decisions of the physical world, because if it don't understand the physical world, there are no physics in computers. So we knew what we are defining ourself. And when you go out and experience that, it's a really, really complex thing. And especially when we start to get new technology like phones and stuff, then the whole surrounding is, uh, is changing. Like we can really see it, uh, when we start to have phones, then all this electricity going into cables and then interrupting signals. So we are not seeing it ourself. But again, we are changing all the world,

Maja: Im just gonna go a little of this script because you're talking about screens. I'm just curious about do you have any opinions on like holograms and stuff like that?

Mikkel: But, uh, I think, uh, yeah, holograms is nice, but I really enjoyed the day where I can enter a hologram,

Maja: Go physically into it.

Mikkel: Yeah. Yeah, I think. I think we experience, uh, our world with all of our body. Like we are moving around and, like. Yeah, we using our, uh, yes and eyes, but there's also something about being physical present and like, look at things like when we're together with others and when we're putting on 3D glasses. Yeah, we can experience extraordinary spaces, but I'm not there. Yeah, I have to go in there with. With the whole body and, um, and together with my friends before it's really starts to get interesting. And that's not with my friends as an avatar, that's with my friends next to me. I can smell them, feel like you can, you can feel people. It's not what they're just what they're seeing. It's just the physical presence is really important.

Aba: I think this would be organic. Yeah.

Mikkel: Yeah. So when you get the digital and the organic smell together, then, uh. Yeah. And the subsequent is true.

Aba: Uh, I think the last question would be, what is your dream project?

Mikkel: Dream Project is just to get a space, uh, get a lot of funding and see what we can do. I think our problem is always funding and time. Yeah, time is. It's always, uh, you have to make a living. We have families and stuff like that. So funding is the big, uh, break for us.

Aba: So let's say you have the unlimited funding. Uh, what would you do then?

Mikkel: I will see. And then I will try to look into how we can make, like, uh, make these, uh, digital worlds, uh, more physical. Big room with a lot of LEDs. See, what kind of structures can we build? What kind of, um, movements can we do? Like, we are building these big installations and, uh, they take space, and normally you can't get a space for a long time. So when we are building something, then we are trying to, we are preparing a toolbox from home and then we go out and then the only thing that we are able to do, in fact it's open this toolbox and see what tools works in the space. Yeah, we don't have the time to like see, okay, we are here, it looks like this. Who would try to do this, spending a month doing this? Yeah, and that could be interesting. Like if we had a space and just like, how can we, uh, for to make this more perfect? Yeah, Uh, we had a, uh, a quite fun experience. We had, uh, Jeppe had found what some.. I don't know what have, what happens in the, in his brain. He had have some ideas about some, uh, sinus curves of light going back and forth and, uh, and in a certain certain speed, like linked to each other. And when we put that out in, uh, in the room, then, I mean, actually, like, uh, our eyes couldn't focus, so we, uh, dissolved the space completely. And it, it was not just for me or for us. It was, in fact, also for for the audience. It was one which needed to leave because she was just like, okay, I am just flowing like, this is not working for me, but like, then we like it these things and then we like have one hour to, like, fictionalize it and then we need to wait for the next time we have an hour in these big spaces. Yeah, because we can't visualize it. And it's like we are working with 3D glasses and stuff like that, but it's not the same. It's not the same. And like, we are having, uh, like really, really big graphic cards that you can buy for money. But again, like when we are having, uh, hundreds of thousands pixels out in a room like what you call it, "påvirke", uh, affect, uh, affecting the, the shadows, a computer can do a lot like then we have to summarize it and then we end up with, uh, how many light sources have enabled put out? Try with with 40. 40 and the and then you, when you use that, we want to do volumetric light as well, like we, it doesn't make sense to do a visualization if it's not going to look like how it's going to appear in the real life. Right. And then we might as well not do it. But then with volumetric light, so like, uh, affecting like, uh, kind of a foggy, uh, uh, if imagine you have ((pacer)) running as well and, and casting shadows on the whatever audience we can kind of, uh, fake in that it, it just, the computers just die so much to do in real time, like everything is usually done in, in the.. like Pre-Rendered. Yeah. And, and I don't want to do that. I want to try to do that. You can actually when I have 3D glasses and kind of experience that. Yeah. The production before it and it's really, really hard. It's uh, I'm not sure we are totally there yet with like graphical capability, but the it's getting close.

Mikkel: Yeah. Yeah. I don't know. Yeah. When you can have 40 lights in but uh, medium you are building having twohundred thousand light sources like. Yeah.

Aba: What do you use for the visualization?

Mikkel: Uh, Unreal Engine. Yeah, that's what I'm working on. Makes a lot of sense to use a real type of animation and yeah, like a game in that sense. And Unreal is really, really good. Like, I think it's quite optimized with, with the way it handles lights, but, but game engines are not made to have that much. Yeah, that many light sources at once. Yeah. It's just too much uh, rendering power that you need to, to spend. So I'm pushing it as much as I can. Yeah. And then you have, I mean, okay, so I say that we want it to be as close to what it would look like in real life. And that's obviously the case. But we don't want to replicate each and every pixel. Yeah, that is impossible for how it is right now. So you can kind of make

each light source. Each pixel is just one back. Yeah. Because then you will take an average of whatever light will come from that and then you can, but it's still, it's still in the vicinity of. Yeah. I mean if we have 100 sticks up in the production then we need to have a 100 lights and then we need to program it. It's, it's like Yeah. So yeah that's a, that's a challenge. Yeah. Working on slowly progressing but it is fun.

Mikkel: So yeah, Dream project, uh, some months in a big space where we can just, uh, to get to our stuff. Perfectionize it. Yeah. Cool. Instead of always cutting corners.

... Small Talk about the thesis...

Mikkel: You know, we're doing the Gloria stage at Roskilde Festival?.

Maja: No, we don't. Tell us about that.

Mikkel: God is, uh, we're doing all the light and the visuals that if you know that stage,

Maja: It's been a long time since I've been there.

Mikkel: It's, uh, so. I mean, the only, uh, black box festival stage in the in the world. So, uh, we are doing scenography there. We, uh, are doing a different scenography every second year. Okay, we have done an LED sticks currently. Uh, we are having a really, really big LeD screen covering the whole back of the building, and we have got a system, so it's actually following the building and then it's not like flat. It's set in the triangle. So again, people's depth perspective. It's going haywire completely. And then and then we are having these structures over there that we are hanging up and then we project on them, okay, Oh, the all these black wire. Yeah, over there we are hanging them up and we are mapping them. So people's depth perspectives, just like "pprrrhf" gone, and then there's.. at Gloria stage. It's, uh, normally small bands, so they don't have, uh, light people or visual people with them. Some have, but most of them don't have. So what we are doing is like, we are of course listening to, to the music and then the band normally comes to all before the concert and then we say, Hi, what should we do? And then it's just improvising.

Aba: Oh, that sounds fun.

Mikkel: So four days of just improvising visuals than we normally standing to visual people and to light people to make every concept because nothing is preprogramed like we really have to put, Yeah, yeah, put everything together and just like, you don't know, the concert's. So it's really just like, okay, I'm feeling the whole thing. What are they going to do? What is going to happen with it? It's super fun. Yeah, you are getting very tired. Like you really have to be awake. Yeah, but also no. So.

Maja: But that's also sometimes like there's things that keep going later and the other stage isn't it.

Mikkel: And they, uh, I think a few days it goes until five book and then they normally start up around the sort of the, the status of the room first. So it's around ten or 11:00 in the morning. We are not only us from oh, here we are. 16 people in all to run that. Yeah.

Aba: Because otherwise you are if it's only four people that are.

Mikkel: No, no, no, no, no, no. We are 16. Oh yeah. But that's really VJ gallore. ... Somebody has the mac stuff, somebody has to touchdesigner stuff, arena, whatever. People just come with the tools. Yeah.

Maja: Sounds cool and don't use any like and other input from that. It's just like from the computer. Yeah.

Mikkel: Oh, like we're coming with our own laptops. Then we also have for what to call it, uh, POV cameras, like motorized cameras that we can blend in if you want. But, uh, we also had an ant farm with instruments. We, we have cameras on that this year. Like, it's all kind of weird stuff.

Maja: And is it what kind of music as well, or.

Mikkel: Oh, yeah, it's world, it's electronic, it's metal, it's whatever they put in there and we just have to figure out what goes with that. Yeah, somebody just wants like strobe a red light, but most of them are just like, Yeah, okay, so what, uh, what do we want to do? ... And then we are also doing, like, we also have a metal band doing stuff for VOLA. Uh, Amalie is going on tour with them. She's gone for a month. Mm hmm. US tour last year, she was away for, like, two months just touring for the book, but, uh, in Den Sorte Skole and Spleen United, you know, then we are also doing a lot of, uh, classical music. We are working with Copenhagen Phil at the moment.

Maja: What are you, what are you doing? Like I could image that that is a bit different than for VOLA or is it roughly the same?

Mikkel: It's, it's not as blinky. Yeah, but it's, uh, it's in fact, it's the same. It's, uh, I would say it's more complex. Of course you don't have. You don't have the beat. You have to follow.

Maja: Uh, flow almost?.

Mikkel: No, what is it called Danish "Partitur". Uh, you're sitting with notes. It's like counting. Yeah. And looking at the other director. Yeah. Yeah.

Interviewee:

Marius NIELSEN
Engelsholm Højskole

Interviewer:

Maja PEDERSEN, Abderrahman
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Interview date: 19. May 2023

Interview:

Maja: We would like you to start by just presenting yourself with your own words.

Marius: My name is Marius Nielsen. I used to call myself a VJ and visual artist. Now I tend to focus on myself, you know, in terms of my actual job at the moment, which is an educator here at the Engelsholm Folk Highschool of the Arts. Um, I have to admit, that's what I've been doing for the past five years. So I guess that's my main occupation. And yeah, I used to do a lot of freelance stuff working with, some Copenhagen based companies, doing freelance work for them, doing projections and live performances, and also doing a bunch of stuff on my own. I still perform from time to time. I have a performance next week on a light installation and the next by town Vejle. Uh, but my current purpose is teaching the art to students. I have two semesters each year, of approximately half a years length and my students are newcomers to the field. And I try to teach them what I know and have been gaining of knowledge for the past 11-12 years. So that's me, I guess. I don't know how much further. I am 29, and I like Lego bricks in my spare time.

Maja: Nice. So, um, so your professional background, what would you say that is.

Marius: My professional background. I have a bachelor's degree in in visual communication from the Danish School of Media and Journalism. Uh, way back in 2017, I graduated with a bachelor in the specializing in interactive design. Um, so I'm. I'm trained in graphic design, tuned towards screens. Um, I will say, though, that even though I really enjoyed my education, the focus of the education was media that I do not find as exciting as the media I dealt with on the side. So I've been trained for making print stuff, web stuff, motion graphics and the like. And I'm quite proficient in all of the softwares related to that. But everything was focused around being content produced for people to view on their cell phones or computer laptop screens or maybe some print media or whatever. But nothing of that sort really intrigued me as much as making large scale projections or live performances using light, you know, light being used as an artful medium and not just like, you know, spotlighting someone on stage, but being used as a more creative media, I would say. Yeah. So, I have a I have an education that I've that I've enjoyed and I've gained a lot of skills that I use in my current current job and have been using also as a freelancer. But most of the stuff related to visuals and the VJ'ing scene is self-taught and I began doing that before I started my education. So there's no formal education for this sort of field. And then I'm sure you're aware, and this is the closest approximation basically in all of Northern Europe. I had some student from Catalonia this last spring. And they one of them told me that a university in Madrid was offering a course of, like, I don't know, two or three months focusing on LED screens and large stages and stuff like that. That's the closest I've yet to see, you know, in terms of like formal, formal educations. I wish I would have attended this school maybe when I was younger. Uh, this course that I now head, has been under development for the past ten years, and it sort of coincided with

when I started doing amateur visuals way back in 2012 that I could have gone here, but I didn't really know about its existence and everything I did was self-taught. And then I slowly gained knowledge through the Internet and I don't know, and I have done some internships with Vertigo. I don't know if you know, the company is in Copenhagen. So they also taught me a lot and showed me a lot of stuff. But most visual artists I know, especially in Denmark, also from abroad, they are all self-taught. So it's a pretty it's a pretty weird field to be in.

Maja: So directly out of school. What did you.. just freelancing or?.

Marius: Yeah. It's funny. I just have a lecture on and I starting out as an artist for my students the other day, actually. So I got to rehash my own history, I was 23 when I graduated, so I was quite young and maybe also too young to be honest. So I was 23 and I had my diploma and my bachelor's degree and immediately I had two opportunities right out of school. Like in the week that I graduated, either I could get a shit job as a runner doing tech stuff on Nordisk Film, a job that I'm very happy didn't happen it, because it seemed to me that the work environment was awful, but that was basically one direction I could go, and the other was to forgo every notion of getting a stable job and just working part time at Vertigo who had just in the same at the same year at Roskilde Festival has just been production a large scale LED stick thing like we were producing a lot of light fixtures for this big event in 2017 for Den Sorte Skole. Having gone to Vertigo I'm sure you know. So basically I've been mass producing that with them and I had the opportunity to go to Roskilde with them and set it up basically. Also being a runner still but that was more in tune with what I wanted to do. So I chose that direction. And then ended up after Roskilde Festival, being completely free of a job in any sense of without any direction of what to do. And then I just stumbled into different job opportunities and it just so happened like immediately as I would get the notion that this isn't sustainable, I can't make my rent on time. If I keep on doing this, I would get a new I would get a new job offer that just barely cover my expenses. So I would be sort of lulled into the idea that I could be a freelancer. And I started a small business did that for a year or so. So until I got a job offer here at Engelsholm. So my freelancing career is very short. It's like from, I guess like August 2017 to March 2018. And I had also done some.. through Vertigo I had met Lau Linqvist who has created this course here at Engelsholm. And he had hired me two times as a guest teacher. And then the second time I was here, they offered me a job full time, coerced me into applying, which I was very hesitant to do because I didn't think I would qualify at that time. But here we are now. So I so I guess I kind of like do right? So that's, that's basically my career and in a nutshell. So, as a professional, having to lift from the skill set that I'd gained both before and during my tenure at the School of Media and Journalism, um, I sort of lost track. Uh, like my professional career is only that. And then before that, I had done various like odd jobs and worked with various smaller theater groups and, uh, artists and musicians doing small gigs at like cafes and stuff in and around Copenhagen.

Maja: So do you have like a most significant project you've been working on or personal fave you have done?

Marius: It's difficult to say because you have to gauge between what I've achieved, like the premise I keep from having been a part of something and the premise of being a business like a freelancing agent, doing all the work by himself.

Maja: You can tell both.

Marius: Yeah, definitely. The experience I had with Vertigo, making the light fixtures and being at Orange Scene doing all the... I did none of the creative work. I was solely a guy running cables and making sure that stuff work. But that experience has a pretty big significance for me just in terms of like having the sense of accomplishment, of being a part of something bigger that's aside from

this whole thing I'm doing right now, because that that brings me a lot of pride on a whole different, level at the moment. But my most significant project would be... I have a long term collaboration with a band called Yör, who is an upcoming band. They've had some radio play in Denmark. I personally know the lead singer, Marie from my youth, and they asked me to do a performance in Empire Bio in Nørrebro. You know, uh, this was in 2021, I guess.. something around May, maybe something like that. Well, I did large scale projection visuals their like, first big show, uh, in a movie theatre. So obviously a nice large projection screen and for once a projection screen not being hindered by sunlight and light fixtures and all the like. So that was a big thing where I developed visuals solely for them. And I have a pretty close relationship with those guys. So that was lovely to do. And I'm, I'm happy that this fall I get to reignite that whole project because they're coming here to perform and they're kind of working out whether they can get access to some venues that also have room for visuals. It's not always the case. So most of the time when they play, they play without visuals. But that's basically how the scene works in Denmark. Either you do it yourself or you have the one in a million chance of doing it in a place that actually has a projection screen or where circumstances are right.

Maja: Why was that special? Because of the band or..

Marius: Both in terms of me having a great love for the band and the stuff that they do. But also because it allowed me to, It was the first time I performed using new tools that I had developed just for that specific purpose. I think I have a brain condition where I can't really get myself to learn new stuff without having something to tie it to, like a project with a deadline or something that requires my, skill set to be home to that specific thing. So I, I sought to teach myself Touchdesigner in order to.. I just just purchased this laptop in front of me, which is a Windows based computer. And this does not allow me to use the software that I regularly use. VDMX, because that is Mac. So I had to switch and I wanted to learn Touchdesigner and this was an ample opportunity for it. So that was one thing that was pretty risky of me, like putting on a whole show in a software that I barely knew. And the other thing is that I've.. during Corona, I gained a love for analog gear. Analog video gear. We have some of some of it standing around here. So I had also built a analog system that was that would be a part of the effects process with my my digital stuff I used to do solely digital stuff. So pouring stuff into analog systems and then capturing them and projecting them back out was quite exciting. So it was a very new, very novel and very risky system to to base a whole show on. But I did it anyways and it turned out great. Um, so that the I think my both the external obvious pride that comes with having accomplished a nice show that people seem to really enjoy and also my personal enjoyment of having access to all of the knowledge that I needed to and processes all and accomplished a nice aesthetic from that. It means a lot to me. So it's a project I really enjoy.

Maja: So how would you say that the visuals you develop and the sound relate to each other?

Marius: When I, when I go about presenting this sort of question to my students because obviously.. We are called Audiovisual art and VJing. So, so there's a, there's supposed to be a direct connection somehow, but usually you can go one or two ways. Either I go the way of basically just using my human brain to interpret music and assuming what will come next and turn a dial in accordance with that. Basically just turning a knob and counting beats. And hopefully the beats will be in 4/4. Otherwise I can't count it. I can maybe do a waltz or something. Right? But basically that's one way of going about it. Uh, having no technological, uh, link. And the other way is doing audio reactive, which requires a lot of technical skill and also a bit of bit of steady hands because it might go wrong. Um, I tend to be able to do both, but I always rely on my human brain. In the end, I

always rely on having and having the sound is something that like not being, not being tied up to a cable that might break. I in the case of having a sound reactive system, you would you would require some sort of linkage between a sound system, which you don't operate, and yourself. Uh, and that all comes down to whether the sound person is nice or whether your stuff doesn't break or whether the stuff being output from, any performer is reliable and is reliable data source. So I found myself very interested in it when I started initially. And then I've sort of gone away from doing something that is all audio reactive as I've progressed in my or in my experiences because it seems to me that it was a lot of hassle and most of the time people don't actually know. People can't actually tell. Basically, if you have the ability to make loops, you and you're able to kind of beat having something sync to the music doesn't require the sound at all. You just have to be able to tap the tempo and then the audience will make the connections in the brains. Also, I've done a lot of ambient music where it's hard to use a sound source that has like a very... wherever the entire sound spectrum is pretty densely populated. So you can really pinpoint what stuff should react to. A But in my experience, if I just do something that visually fits the aesthetic of the of the sound and the connection between the sound and the visuals will be made in people's minds. And so people will find patterns wherever they can. And as long as you just nudging them off in the right direction, then you're golden. So basically you can I tend to tell my students you can actually do what we do and I do this with quotation marks. You can do ambient visuals to a beat oriented set, but you can't do beat oriented visuals to an ambient set because it's difficult to have a visual beat being applied to something that doesn't have a beat to it. But it's easier to make connections between some sort of, I don't know, we tend to call it pixel soup, which is just basically flowy colors and stuff that can easily be applied to music that might have a very strong rhythm or something like that. It's easier for people to make the connection if they are not being, you know, coursed to think in a different direction. So this field, I find, requires you to consider what the audience will experience. And you can also, uh, rely a lot on the audience making the last few true connections between what you are doing and the music. I've had people come up with me, come up after show and told me that was wonderful. Everything seemed to fit and all the transition seem to work. And of course I put a lot of stuff into anticipating how, how music will develop and how I will fit my my visuals to it. But most of the time it's just random occurrences. It's just people making the connections in their minds. So I think that's maybe it's because this is still a sort of exotic field to, to experience for most. But basically I think the human brain is, is very much tuned to, to just find patterns where there are none and in turn becomes a great, great opportunity for me to do the work that I do and and make it seem magical. But I won't say no effort for not the amount of effort that you could think that it require. Yeah. When my students come in having students is it's a great way of like re-experiencing the thoughts and mindsets that you that I would have early in my career. And one of the things that they are all very keen on is having something and I again put this in quotation marks, actually, react to music. Again, like having a kick drum, drive a scale of, of a shape or drive the tempo of something is magical because you can sort of lean back and just let the visuals flow and see the system work. But it's very risky because what if the drum sounds change just enough so that your reactivity doesn't really work or the filtration doesn't really kick it off or whatever, and then it suddenly doesn't work at all and the magic is suddenly gone. And they are very interested when they find the initial place where it works, but they also find out that that requires a lot of like fine tuning afterwards. And, thus it is easier just to train yourself to, to anticipate beats and find other ways around those sorts of problems.

Maja: Cool. I guess it kind of chimes into the next, do you have like a specific approach for a specific project or genre of music.

Marius: Yeah, I would say I'm not the kind of VJ that that gets to perform every week.

And I have never been on a month-long tour doing like festivals and such. So I've never had the opportunity to, to hone a, a personal aesthetic that fits that someone would ask for. And so I always make new projects. So it's pretty hard for me to answer that. Like next week I'm doing a performance on a light installation that I haven't made myself. So the entire project revolves around me, like deconstructing the code that someone else has written and like hacking it and trying to see if I can make a new tool for it. And, and most of the performances that I've done have been novel or unique in such a way that I've sort of conjured a newer static for that specific thing. And then it's never to be redone again. So, so my projects have been like, so random. Yeah, I don't know. Does that answer the question?

Maja: Yeah. Would you prefer to do it in that way or would you prefer to have a...

Marius: I don't know. I haven't experienced anything else like I've, I find it exciting to problem solve and I'm not and I like, like developing new techniques and new skill sets. And new esthetics. So so it's it kind of fits me to do that sort of thing. And I think I come from a design background like formally. So, so I have an interest in designing something for someone that works. And when that someone is for instance, I've had some collaborations with the artist Rumpistol, I've enjoyed making stuff that fits that particular performance that he would do. And I enjoy making a specific aesthetic for and for Yör, the other band I just mentioned, but I don't know if I would say that any of those aesthetics are inherently theirs or mine. I think it's somewhere in between, but maybe that's like obviously there are some techniques and some skills that I develop and tend to enjoy more. And I can see how certain effects and such have been very prominent in my earlier productions. And now I've, I've, I've gone in a different direction. Yeah, but I don't know it's been so, it's been so serendipitous what I've, what I've done so I don't know I think I'm all over the place and sometimes it bugs me because I enjoy the artists where you can see a clear, distinct aesthetic and I sort of yearn for that, that whole thing. But I also know that I get excited about the opportunity to learn new stuff and new new develop new tools. And I have a very big thing about developing tools. I like machines. So the opportunity to make something that.. where I basically I designed something for myself, an interface or a, a VJing specific tool for that one specific purpose and just works, but it rarely works outside of a very specific niche anyway. So, so it's I've just I think I've come to accept that I will spend a lot of time doing something for one project and with the chance that it'll never reappear or maybe even that my skillset will have progressed so much from the last time I do something. One specific job and when that band gets to play again, I will have progressed so much on my skill set that I will basically start over instead of like rehashing what I did before. I think I'm still in a place in my career where I am, you know, exploring. I know plenty of VJs who basically found this that years ago and just keep pushing buttons in the way that they've always done, but then they progress in other areas and do other stuff. I'm still I'm still tied in with like trying to figure out what I like.

Maja: I guess that also relates to the next thing. Wow. That is like, do you have a preference in like software hardware that you use.

Marius: Being a being it being an educator right now? I need to be I need to be aware of the tools that are available. And for the longest time, early on in my career, I used VDMX, which I thoroughly enjoyed. I really like. I don't know if you're familiar with the software.

Aba: We know about it.

Marius: Yeah, basically it's a it's a modular based software. So the idea is that you, uh, is that you make a VJing software with all the things that you need for one specific purpose. So if you want an LFO, you, you make an LFO module and it pops up just like it would in a modular synthesizer system. And that means you can build a lot of stuff which I tend to like, but I also will will admit that the reason why I

chose VDMX is due to it being the software I could crack when I was 18. So that's why I ended up with that. Why didn't I go Resolume? I don't know. Everyone tends to love Resolume and I've actually been it's on the cusp of Resolume for the past couple of years, but just recently we started using it as the main tool in this workshop because it's an easier entry for most students and also bridges the gap of like, do we have to use a mac to have to use a pc? And I tend to not give a fuck about that, but I have to give a fuck anyways because otherwise my students can't learn anything. So I also enjoy them when I also think Resolume has made some interesting progress in the last couple of years. Yeah, but I do not use Resolume. Uh, personally, I do not use VDMX anymore in one part because I had a hardware system change, but also because VDMX seems to be out of um, the, the development has called it, it's basically been in beta for 20 years and it doesn't progress beyond the state that it's in right now. So even though I'd like to, I also felt hindered by the fact that the software would not like develop wouldn't gain, there wouldn't be any new modules. So even though I love it because I'm familiar with it, there was also some places where I could sort of feel myself being like locked in, and that's basically why I've turned to Touchdesigner as my, my, my main tool at the moment, because Touchdesigner basically allowed to do everything from scratch from the base up. And that means that anything I want to do in 5 minutes is not accomplishable because everything will need to be hand build. Uh, you want some cool effects, then you have to make them through hours and hours of watching tutorials and seeing how other people do it. Um, but I enjoy that process because it makes me in charge of the entire system and I feel like I have an ownership of it, which I think is great. Other than that, I use MadMapper. I was teaching wonderful software, though they progressed quite a lot and often and that's exciting. And I, I also work a lot in Processing the coding environment. Um, you're familiar? Yeah. Uh, so again, because it's a tool that I've been familiar with. I was taught it at my school and I've been using it quite a lot and I like the simplicity, but, uh, I've yet to progress to more advanced coding environments, like, I don't know, Open Frameworks and Unity and whatever. And I find that right now the market is so densely populated with tools that are basically... For entry level software there are like a few tools that are and they come with a price tag. But they work and they're pretty nice. And then there's just a plethora of different tools. Like, I don't know how to summarize is a ((Tool)) or ((Tool3)). Uh, Practices Live, Unreal, Unity, Open frameworks, Processing, all of these coding environments that can do all sorts of great stuff, Cinder, whatever. And how would anyone be able to pick between all those? I have no clue, but it's exciting. But they're all... It's very densely populated, but it's also a very niche thing so it can get annoying that tools pop up and then people are excited for it and then development halts and then fizzles out and nothing works anymore. And like there was this great live coding environment a few years back, (()) was called it was basic little program. You could write code and it would make generate some simple 3D and 2D graphics, super cool. It had a syphon output so that just funnels in right into into MadMapper. I was very exciting for it. And then half a year later and one update of Mac was... it stopped working the development halted, you know fizzle out. So it's basically like learning tools that might disappear is a terrible experience and thus Resolume remains the victor because they seem to like be stable and and have a really nice business model that works for them and everyone else. But I, I don't prefer a Resolume as my tool of choice so that's a way of thinking, uh, in resolution that is not in line with my way of thinking about making stuff. And I don't know how technical we want to get, but basically that's the short end of the answer. That's, I think the tool that we use shape a lot of the aesthetic that you make and also the way that you perform, which is quite exciting to, to sort of experiment with. But, but I also find it that boring when I can judge a piece of visual art based on me recognizing all this is basically just this, this and that effect in Resolume that you've done and now you're tapping. That's important. So again, I think I think I was telling this to my students, a

visual artist, like it's it's broken from the day you start here because you sort of get to analyze it and you can't just experience it raw. It's like magicians looking at other magicians making tricks. You can just easily tell the tricks that they do and the sleight of hand and stuff like that. So, so but for me, like, I get excited when I see stuff that I can figure out how it's made and I can't figure out what tools they're made with. And and that happens from time to time. And right now I'm deeply into Touchdesigner, so I, I can sort of see that esthetic and see whenever it's being used in installations and, and it's quite nice to be at that point. But I'm no way like I'm not as proficient with it as I was with VDMX. So it's still exciting for me to like figure out what it can do and hold my own skills. Yeah. I will say, though, that one thing that I find immensely.. that maybe I don't know if you found this, but I tend to see like two lines of practice being done in the field. Like, I tend to do generative stuff that is made on the fly and stuff that is made by code, usually some sort of code and, um, but a lot of the mainstream visuals that you will experience are made in linear editing software like After Effects, Blender whatever speeds software people tend to be for and stuff like that. And it's all clip based and I don't use clip based stuff. If I do, it's like video that I film basically, or stuff that I scraped from archives or something that is gritty and weird and not as polished as some of the things you will find at a big mainstream EDM festival stage where they have access to all the great stuff, uh, tech wise. And I do not enjoy that sort of content and it's not interesting to me in the same way that I don't know, simple graphics made on the fly. And so that's basically and it's also not what I teach here at this course, but I don't know. I don't know if this, if I can assume this, but I tend to think that visuals in general are associated with that kind of aesthetic. And it's I think I'm in a niche within the niche. You could say it's just not something that that keeps my interest maybe, unfortunately, because there's a lot of money to be gained in that in that arena if you wanted to do stuff and I'm not saying that the people who does that kind of thing are without skill. They're not at all. But um, but it's a, it's a whole different scene from what I dabble in. So I make one off tiny concerts and Denmark and other people make loop pegs and sell them across the world and also get to perform at Coachella and Tomorrowland. And what do I know? It's just basically not the kind of thing that I do. And maybe that's okay with in Denmark, because it's not a there's not a scene for that, really. Not yet anyways. And maybe for the better of it. It sounds very judgmental. But I don't know. I Yeah.

Maja:

Where do you see this cross media field going.

Marius:

That's a pretty a big.. Last year I went on a journey to um, through Europe. Eastern Europe to find other the people who dabbles in what I've come to realize it's called New Media Art in most of the world I've we, we had to call it something for this course to be like named and put on the website Audiovisual art and VJing what the fuck that that means. But New Media Art is actually the term that I've come to recon is the is the term. And the reason I'm mentioning that is that I went on a journey to figure out where this stuff was headed, what's going on, what is what is interesting. And well, it's still an anecdotal study, you could say, because I went to Slovakia, Poland, Hungary, the Czech Republic, and Austria and Germany. I would say, though, I didn't actually end up having any scheduled meetings in Germany, which was unfortunate. But I got to talk to a lot of artists working in this field and companies, and that was pretty exciting. And my the general gist of it, no clue. There was like what was interesting to me is that there's an old generation, the what would you call them, the flash developer, web 1.0, 2.0 generation, the people who are now in the forties and running, maybe media companies like the people of Vertigo who dabbled in doing projection mapping and stage visuals way back when it was something that you have to like cobble together from bits and pieces. And a laptop was very expensive back in the 2000s. And they've sort of like honed that craft to the point where they make big media installations now, and then there's a new younger generation that is trying to see if there's a career

to be picked up after the firstcomers they've been.. What would you say the the patriots of the craft. And they all seem to be hard at work just trying to find their own place in the and in the niche and all the while I don't know if a general audience appreciates it more now than they did before. Like, don't know. I don't see that many technologically based art installations as I would reckon that you would see like 15 years ago. Like seeing high quality media, like tech installations is still hard to come by. It's more and more impressive. But still, the art scene in general is populated by the same crafts. Uh, ceramic design prints, paintings, stuff like that. And rarely do you see a piece of media art presented in the same fashion. Um, and in terms of the live scene, I will say that there's a, there's a nice progression, um, a large part in due big festivals, I'm just thinking about Denmark right now. A like acquiring the gear necessary, like Roskilde festival has, has put LED screens on basically all the stages and they hire Vertigo each year to make a full on stage design and that's exciting. Uh, the venue Radar in Århus has invested in a big projector, but still it's not that much more common than it was 15 ago. I think I talked to a nice guy Stefan Kainbacher in Vienna. He's one of the, uh, one of the first movers and he runs a company. And I asked him what, what, what his experience was. And he said, basically, I found it quite interesting. He said that it was on the rise and then the financial crisis meant that this art form in general took a big hit because this stuff is expensive no matter how you push it. And it's the cherry on top of stuff. It's not necessary in the product. Um, it's an extra experience. It's a nice addition to stuff, but it's in no part necessary for the kind of art form that people enjoy. Going to a concert requires a band and a sound person and a stage, maybe lights, not all visuals, but if the visuals people enjoy it. But, it doesn't get as much attention now. And it didn't get as much attention back in the day and maybe, in maybe the second hit was the coronavirus. I don't know. So I'm hoping basically that there's more opportunities. But I can also see how my students have the same struggles of finding gigs, finding stuff to do. And basically they tend to do what I did ten years ago, just buying their own projects of sitting up at various small cafes and clubs and having a nice but also sometimes awful experiences trying to do their craft and have it be appreciated. And that's basically the same thing that Stefan told me that he did back in the back in the 2000. So I don't know. I'm not saying that it's a stalemate right now. I'm not saying that it's not pushing forward, but I'm saying it's still very much a niche and I think it'll continue to be a niche for a long, long time. And I can also see that having dived a bit into the history of, of visual art, I did see that it basically is the same experience that I have that people making me would like to watch in the sixties. It's also it's expensive, it's extra, it requires a lot of manpower, it requires a lot of gear, it requires a lot of time to do and in the end it's not, not appreciated, but it's not as appreciated as it... It doesn't like the amount of effort put into it, doesn't balance out the appreciation for it, I think, yeah, maybe that's a bit of a depressive move. But I don't know. I think I think I, I've just come to realize that I do the stuff that I do and I teach the stuff that I do because I enjoy it thoroughly myself. And um, and that has to be a main motivation because it's not, it's not, uh, it doesn't seem as if all the venues in Denmark would be putting up LED gear for next five years of buying projectors, us or investing in having an in-house VJ or whatever. It's not at that point yet. Not at all. Not even from the biggest festivals, unfortunately.

Maja:

Do you think it will happen or ?

Marius:

Maybe. What I find quite interesting is that.. we live in a country where there's like more like night hours of like it's like there's more darkness than in most other countries. And still there's fewer light projection festivals in Denmark than there are in Spain. It's so weird. Like there's a of stuff going on in Spain, France, Belgium, the Netherlands. They seem to be on the forefront of it or they seem to be investing heavily in it. Again, it's still like the mainstream visuals that I mentioned earlier, But but still, something is happening and it's happening in a

much grander scale than you see in Denmark, which both have. We have easier access to tech than most other countries, especially in relation to like Eastern Europe. And we have more hours of the day of the year that where it's accessible, like making light projections and stuff like that. It's not at all like.. Copenhagen Light Festival is the only somewhat ambitious light festival that I can think of, and they are still like running around being excited for, I don't know, lamps being put up in various places and lasers being shot across buildings. Like it's cool, but it's like nowhere near the amount of investment that that's something like there's a big light festival in Berlin for instance and what they do and there's not like I can still see companies like Dark Matters and Vertigo struggling to, to find people who will actually pay for the ideas that they can produce. Um, Vertigo is really getting some recognition these days which, which they, uh, which they've, they've earned it. Um, but they're still not making as much money as they might be able to do in the United States or in Japan or in Spain maybe. I don't know. Yeah. I've never worked in those spaces, so I have, it's hard to tell, but it's a bit like lost in Denmark. And it's weird to me considering our economic situation and our access to the educations and the and the means that are necessary for this craft to blossom.

Maja: Then I'm also kind of interested in why do you think it's important to have a course like this available?

Marius: You ask me why I appreciate something that puts food on the table for me.

Maja: And no, I mean, why is it important to venture more into VJing or is it important to have it being a part of concerts?

Marius: Oh, yeah. Um, it depends. Depends. Sometimes adding visuals to stuff can be stupid, can be, can be, uh, nonproductive or not focus the attention where it needs to be focused, like putting visuals to something that needs to feel... like it comes down to you to, to the visual arts is being able to recognize what the situation requires. We are always a second fiddle. (If you force it on) in addition to the music that someone has already made, then it's it's very important that you recognize what it requires, that it's not overly flashy or ambitious or something if it doesn't suit it, otherwise the experience would be ruined. Um, but I also feel like there's more and more projects coming up where there's a, there's a more integrated connection between the visuals and the music, like artists who work together to produce stuff instead of having it be a second fiddle kind of situation. I'm thinking of two artists right now as far as one can call there's Carl Emil Carlsen and Bjørn Svin who works together, creating an art piece that doesn't have one thing without the other. That's really exciting for me to see how two persons who masters of their craft can do something that works in tandem. That's amazing to see. I don't know if you've ever experienced one of their Silicium concert.

Maja: No but we talked to Carl Emil Carlsen.

Marius: Of course. Wonderful guy. Yeah, that's an amazing project. That's what there should be more of. But again, it's expensive. It's so ambitious. It's hard to sell to, uh, I don't know any, any big ventures like, like festivals or whatever because it requires a lot of setup. But anyways, that's really exciting. And I think that shows the potential of what this craft to be. Then more low key there's someone like My Lambertsen an Odense based musician and V.J.. So she does both at once. My students went to one of her performances, I think was two weeks ago, on to where she she makes tactile visuals. We've we've come to name them, which is her pointing a camera at a desk and then placing stuff in front of the camera and then doing some slight post-processing in Resolume. I think she uses mirror effects and stuff like that, but basically everything she does requires let's move objects in front of the camera and then it turns into these like weird shapes. But due to the use of the mirror effects and stuff like that. And she does this while singing and while performing the music, which is really exciting because that that,

that of course, requires a lot of, uh, of craftsmanship and a lot of artistry. But also it shows that, um, trying to access both the eyes of the ears of an audience is really, is really, really exciting. Wonderful to, to see and try. Uh, yeah. So those two are sort of like showing where they art form progressed to but it's also, it also needs to acknowledge that it requires a lot of technical oversight. Of course, you have to you have to mean it physically in order for it to to function. Uh, otherwise it just turns into mush or something that is non incoherent. And maybe that's also why a lot of... especially... This course is designed to make it accessible that I'm trying to teach people that it's not as difficult as it could be that they can produce visuals using a beat up laptop from 2015 or earlier. Um, that they have the skills required to, to make stuff that is exciting both for them and for others. I'm hoping to create a subculture of young artists who use it as a way of making visuals is just a learning to make visuals is will be just as just as normal as learning the guitar or something like that. And it will never become that sort of thing. But, but still it's I think it's it's shrouded in all of this mystery and like the dark arts kind of vibe. And, and I'm trying to make it not so I'm trying to make it accessible and you can see this workshop. We have enough gear that's worth thousands of "kroner". And also that's hard to acquire. But by facing all of these fucking predictions are bought an Elgiganten it's basic stuff. This is from a school. I think this video makes about the coronavirus photos some great things that is cheap streaming gear, so gear that allows you to mix two images together that costs less than a laptop, basically. Um, way less than that. So I think that one cost 2000 "kroner" cameras, but like my students make great visuals using the cell phones because the cameras are so great. So they need to acknowledge the technology we have access to today is so great compared to 15 and ten, five years ago. And they just need to learn how to use it in a way that is not making TikTok videos or YouTube streams something that is that is brought into, I don't know, the real world, something that you can show others in a more intimate setting then, I don't know, sharing something online. I can you can hear me referring to my formal education that that sort of pushed that agenda. I've yet to accept. But I like I like using technology, too. So like if people come together instead of like just access each other through some sort of medium, the medium should not be necessarily be something in between people, but something they can experience together. Wow, that's very philosophical. But basically that's the sort of that's the sort of thing I'm going for when we do this kind of thing. And I've just now been thinking about how the next and I have students who are 18 years old and I can see how they are very differently, accustomed to technology than I am. Like I grew up with VHS tapes and VHS recording cameras and stuff like that. But but my students grew up with iPhones and they have they have knowledge of all of this stuff, but they don't feel connected to it. They they don't know what they can achieve with their fucking phones and laptops. There are Facebook machines at first, and then I can show them how simple online or even just free software can, can can produce great stuff. And they're really excited about it because they they feel they feel like they understand the tech more and some enjoy being a techy more than others. But but what's clear to me is that what I can offer people here is, is access to the knowledge that they somewhat already understand. And and then they can use it to to produce art in the same way you would pick up a guitar or a pencil and just learn to draw, play or whatever. So that's basically it. Yeah. Even though it's hard, I would say. Yeah.

Maja: Who I think the final question is do you have a dream project that if you could do whatever you wanted, what would want to do.

Marius: Oh you mean on a local scale.

Aba: if you had all the budgets in the world and all access to those..

Marius: Oh, do I dream about anything. I tend to it to just dream, uh, on behalf of my students and, and pour my ambitions into them. I don't know. Sometimes it's

difficult to think outside of the scope that I'm in right now, which is the school and the stuff that we do here. And I think I think I'm as I mentioned, I'm still I'm still learning a lot. So I would like to be more proficient in the deeper knowledge that I find is hindering me in the common things that certain things I find, uh, tools like shader programming immensely, immensely fascinating. So if I, if I had the ability to hire people to come and teach me how to do sort of the really advanced stuff, that is what would into I have no like or I would like to build a stage made out of like hot air balloons. I have nothing in that regard floating about in my mind. I've I've maybe it's a more humble, humble wish to to just know more about all of this stuff that is moving right now. It could even be something like using a I don't know if I'm that excited about AI at the moment, but but it would be nice if I would be able to gather a lot of the knowledge that is both in Denmark and even in Europe, also in the rest of the world in one place and have a space for these people to meet and share this knowledge, because I find that to be the most exciting about this scene right now. The fact that it's composed of a lot of people who have done everything by.. that they're being self taught and they're very excited about it. So when people come and ask them to help out or or and I'll just share with them what they what they enjoy that makes them insanely passionate and my journey showed me that whenever I called someone, they were equally as excited to meet me and just show me what they were doing as they were curious why I would even contact them. So if I could do that, maybe I would fucking make a conference of some shit. I don't know. I think the craft can grow more if there's a physical community tied to it and each nation, especially in Europe, has like a small, very select few does this kind of thing, and they rarely have enough money to travel. And so they rarely meet and it's all online and that's not the best way to, to engage in that excitement. I hope for the same thing that I was at Super Booth last year, the, the electronic musicians big conference and the energy there was quite exciting to be in. But I'm not a musician, so I was just like walking by seeing people like turn knobs and be all excited for whatever new synthesizer module or whatever. And I would wish for for that to be the case. Also with with this visual art community, there's been, there's been some a few efforts, but, uh, barred by corona barred by expenses expenses required to do this whole thing. And yeah, if I could, if I could be the big ass, philanthropists, or just throw money at a convention and allow people to take time off to come and talk to each other, that would be awesome. Yeah, that's a very Høj Skole kind of thing to say, I recognize that, but I don't know if that was what you aim for when you when you turned that question. But I mean, honestly, it's what I hope for. It could also be a festival. But like, I think there's already...

C CODING OF INTERVIEWS

C.1 Affecting the audience

Sebastian: "So I'm like, basically I'm using video and light to move your head and you don't even know. that kind of stuff is just grand." Sebastian: "How can you actually make make light and projections and sensory stimuli based upon the visual politics and how we perceive images? Um, how can you bend and twist that in conjunction with a live experience with music in order to create something that feels close to a psychedelic experience?"

Mikkel: "But what happens is with when the audience sit there and experience a piece, when they start to move their head, then the laser start to light up" Mikkel: "I think for us it's like it is what we call it, digital art pieces. But I think it's important for us that you experience it as a human being when with our senses like that, it's really, uh, getting, uh, getting physical. You know, you experience it as a person, not as one that's like like looking at a small screen, which is a window into a digital world. But you, in fact, sitting there in this part in the middle of this digital world " Mikkel: "So again, people's depth perspective. It's going haywire completely" Mikkel: "I mean, actually, like, uh, our eyes couldn't focus, so we, uh, dissolved the space completely. And it, it was not just for me or for us. It was, in fact, also for for the audience. It was one which needed to leave because she was just like, okay, I am just flowing like"

Lea: "But this was because you see that we all shared an experience together. We all share the creation together. They were they so created. It's so fragile. They saw the creation of it." Lea: "And the more people are in the room, the more like you start hearing different things out of the way. " Lea: "it's a live performance. It's not like for.. it's to be experienced, live but it's also for us." Lea: "And in the end of it, we are trying to imitate a reality in this universe that we're creating. But our own reality, you know, but we're trying to imitate the reality. We're what you're seeing is what you're hearing and like and something that would make sense to us."

Kevin: "lights is just a strong thing if it's done correctly. Uh, and you can affect somebody very drastically if you like"... " how do you make people feel what you want to what you want them to feel?"

Lasse: " Okay, so who's the hero? Of course, it's the audience. The Benched audience. We have 800 heroes that were taking their own travel through this concert and the whole thing was to make our own world. "

Marius: "But also it shows that, um, trying to access both the eyes of the ears of an audience is really, is really, really exciting. Wonderful to, to see and try. Uh, yeah. So those two are sort of like showing where they art form progressed to but it's also, it also needs to acknowledge that it requires a lot of technical oversight."

C.2 Immersion and venturing inside the medium

Lea: "he's having this literally like a joystick in his hand and he's taking the audience is flying through this three dimensional audiovisual universe that we're filling up with all kind of like audio visual loops, little like spaces that have an image and an assigned sound to it" Lea: "it's a live performance..." "it's to be experienced live, but it's also for us"

Mikkel: "Like when you experience the light in our pieces, then you have to experience it over time, you cannot make a still image."

Kevin: "making it feel like it was your own individual and make it that immersive, having that 180 screen, were where you kind of feel your inside the content."

Lasse: "I mean, it's another thing to experience it in life, but if you have seen something really, really big just in the flow TV, at home, just doesn't impress you as much when you go outside anymore, much more about creating a right atmosphere instead of just making big with and I really like I really like that the people have to not just crave money to get technical hardware budget, but actually make something that makes sense in the room with the people, which could be interactive. It's not for the sake of interactivity, but it could be a thing could use to make another experience." Lasse: "And everyone in that concert venue were at the yellow light and doing like this and walking through back and forth and hands and taking pictures of them being in the light." Lasse: "if they can get it at home, why should they go outside to experience it? Yeah, people I mean, people's televisions is at home now. It's like 70inch or something. They re immensely huge. Usually people are like, Why? Why should I go to the cinema? "

Carl Emil: ", then I pushed him back 20 meters back on the stage and he was flying like beyond the physical room space. So you can really that's, that's where it becomes magical, where you can do that transition from a physical world. You construct something that is believable and then you make a switch so that people still believe in the virtual character and it's still him. And then when you transform, it really works powerfully." Carl Emil: "i think we all waiting for the headset that we'll be able to merge the two realities and it will eventually happen"

C.3 Mistakes and the Real-Time aspect

Kevin: "Don't panic, just let it be. Because if that mistake can can give you a new perspective of what can be done and what cannot. ... Mistakes are Fucking cool." Marcus: " musician, I think, who who was playing some music and then did a mistake and instead of like trying to hide that mistake, was embracing that exact and repeating it."

Lea: "you know, some slips or some whatever, but they are completely part of it. And it's really beautiful because it's raw. It's it's like and, and I think that this is like giving a contradiction to all these, like perfections that you see everywhere on all the screens and, and all the packages. "

Carl Emil: "Um, so one time it was completely timed and another time it was completely improvised where the instruments were talking together. And then, and another time it was like an in-between, where some things were timeline, some things we all had controls where certain elements were left for improvisation."

C.4 Art

Lasse: "Make them feel instead of telling them what to feel"

Kevin: "And especially visually because yeah, it's it's supposed to be art and you supposed to interpret it. Kevin: "And we like not to mention the concept because I think that's what art sometimes that's what art works out for me, sometimes I feel special that people can interpret what's going on in different ways and um, and

it's up to the viewer to, and me telling the, the, the face of like the equation kind of takes out the, the, the interesting part" Kevin: "I found a really nice way of being creative by using technology and, and an art and mixing those things together"

Carl Emil: "And it is difficult for me just to create visual expression without any kind of meaningful drive."

C.5 Sound and Visual relation

Lea: "so apart from the fact that they are one that, that, that there won't be, you won't see anything without the sound" Lea: "Uhm not to be afraid of silences of over moment of darkness or of like stillness"

Marcus: "And the light guy just had it with the goddamn the deejay. So when the drop came, it just turned off all the lights and put 100% on the frontlight and it just killed me. Just smashes the mood" Kevin: "If we can get in the zone and we can catch the DJ, it's kind of like playing back to back with a deejay" Kevin: "if you hit each note on the beat the crowd reacts to to that to the beat more. It feels like the beat feels heavier and if you if you if you do it on the 18th note And then you make this the music feel that it's going faster than it does. "

Sebastian: "I can actually play with the musicians and then no longer quite know whether or not I'm triggering the bass sound or I'm just making the stage blue. You know, that moment, that's that's the sort of that's what you look for."

Mikkel: "You need time to experience sound. And it's it's the same for our light pieces. Like, yeah, you can make it still image, but it's not about the actual image. It's it's about the movement of light, and the dynamic in the light. "

Carl Emil: "So visual music is one of my subjects that I keep returning to. And I have also in the past been doing VJ-like things."

Marius: "People can't actually tell. Basically, if you have the ability to make loops, you and you're able to kind of beat having something sync to the music doesn't require the sound at all. You just have to be able to tap the tempo and then the audience will make the connections in the brains." Marius: "It's easier for people to make the connection if they are not being, you know, coursed to think in a different direction. So this field, I find, requires you to consider what the audience will experience. And you can also, uh, rely a lot on the audience making the last few true connections between what you are doing and the music. I've had people come up with me, come up after show and told me that was wonderful. Everything seemed to fit and all the transition seem to work. And of course I put a lot of stuff into anticipating how, how music will develop and how I will fit my my visuals to it. But most of the time it's just random occurrences. It's just people making the connections in their minds." Marius: "And it's the cherry on top of stuff. It's not necessary in the product. Um, it's an extra experience. It's a nice addition to stuff, but it's in no part necessary for the kind of art form that people enjoy. Going to a concert requires a band and a sound person and a stage, maybe lights, not at all visuals, but if the visuals are there people enjoy it."

C.6 AI

Carl Emil: "I think a single person is going to be able to produce way more. So it will be possible for one person to do a production like Shadow, and it will just spin off a lot of creativity."

C.7 Experimentation

Lea: "we are trying to like to define all the parameters as wide and as well for us so we can start fucking them up during our show and like playing with them." Lea: "But like, everything is very centric, very symmetrical, very like, UUhh and I don't know. this case, we're very much trying to also break it. Uhm not to be afraid of silences of over moment of darkness or of like stillness."

Lasse: "we always try to do something we haven't done before or do something unique. So you have to approach it in different ways...But most of the things we get in are people that want something that is different than normal. So you can't really lean towards what's normal."

Marius: "I think the tool that we use shape a lot of the aesthetic that you make and also the way that you perform, which is quite exciting to, to sort of experiment with." Marius: "So I've never had the opportunity to, to hone a, a personal aesthetic that fits that someone would ask for. And so I always make new projects." Marius: "I've, I find it exciting to problem solve and I'm not and I like, like developing new techniques and new skill sets. And new esthetics."