The New Spaces of Sonic Art

```
SynthDef("gendytrouble", { | out = 0, freq = 440, pan = 0, amp = 5, dur = 7, mfreq = 10|
    var sound, env, minfreq, maxfreq, modfreq, mod;
    env = Env.perc(0.02, dur, 1 -2);
    minfreq = rand(100, 500);
    maxfreq = rand(600, 10000);
    sound = Gendy1.ar(6, 1, 1.0, 1.0, minfreq, maxfreq, 0.3, 0.05, 10);
    modfreq = XLine.kr(mfreq, 1, dur);
    mod = sound * SinOsc.ar(modfreq);
        Out.ar(out, Pan2.ar(mod, pan) * EnvGen.ar(env, doneAction:2) * amp
    )
}).play;


Tdef('judith', {
    15.do { |i|
    (instrument: \gendytrouble,
    minfreq: rrand(30, 50) * 10,
    maxfreq: rrand(100, 1000) * 10,
    dur: rrand(4, 10),
    amp: 5,
    where: i
    ).play;
    ([0.5, 1, 0.125, 2].wchoose([0.1, 0.2, 0.7]) * 2).wait;
    };
}).play
```

MA Thesis: New Media & Digital Culture

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Overture

The current collaborative processes, tools and motivations of new media technologies are being put at risk by rapid iterations in technological development. Specialized forms of making that once required advanced knowledge of computing are now being condensed into commercial software with easy-to-use interfaces that seemingly allow any person with a personal computer to engage in making. Examples from the field include desktop publishing as well as photo retouching. As it concerns using the computer to make art, these changes are especially prevalent in the field of audio.

As the computer has become a common machine, the software that drives it has become a constituent. A sensitive connection, perhaps even only fleeting, of inputs and outputs is made among human, binary code, an electrical signal and acoustic energy. Reproducing, recording, or synthesizing sounds and creating ways to interpret these acts have not always required a computer. Yet asymptotically, it is today one of the most common tools of production. A computer is also the primary means by which the products of making practice are consumed.

Using the visual terminal to manage the creation process has become essential to sonic art. However, there is a trend emerging in using programming languages in combination with, and sometimes instead of, graphical user interfaces (GUIs) during production and performance, specifically in electronic sonic art. Sonic art as a field of study has a long and convoluted history. Bijsterveld & van Dijck (2009) are publishing on the impact of sound technologies and their influences on cultural practice. Douglas Kahn (2004) has built on long-developed theories about avant-garde sound and the meaning of its making, which need to be revisited in light of new opportunities. The changes described above exemplify not only the need to represent formerly unimaginable sounds, but also a shift in experimental production practices. Acoustic and musical concepts have been transformed to representations in graphics as well as in programming languages. New media theorists Bolter (2007) and Manovich (2013) are hashing out the interstitial space between code and interface through direct evaluation of artistic new media works. Chroniclers of experimental music Cox & Warner (2006) and new media audiologist Frances Dyson (2009) have made definitions for composition of experimental music that are being extended by generative manipulations of hardware and software by sonic artists in the Netherlands. The need to engage in these academic debates is initiated by emergence of alternatives to the making practices documented by these scholars. Furthermore, the diversification of the outcomes of these practices warrants a critical consideration of the aforementioned established ways of reasoning about the impact of technology on the work of sonic artists.

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This original thesis project seeks to increase what is known about acts of working with the software in regards to the sonic (sound and/or audio; music), or to create music and sounds on a computer through interfaces. The observation that prompted this research was being exposed to and investigating a the ways that sound designers and musicians in the Netherlands are using technology to make what they classify as "art" — hence, the use of the term sonic artist. What the argument of this research seeks to certify is that the emerging new spaces within which to use technology are changing the ways sonic artists are interpreting their craft.

Research Question:
"In what ways has the work of sonic artists in the Netherlands informed technology, and vice versa?"

The qualitative data for this study was collected via personal interviews conducted in the structure recommended by Smith & Brown (2007) for Interpretative Phenomenological Analysis and Karen O'Reilly (2012, 2nd ed.) in *Ethnographic Methods*. Using the IPA method creates a cumulative thematic analysis from the examination of interview transcripts, explaining how the relationships between sound, software and the artist are changing. The results are thus limited to the in-depth consideration of specific participants' experience in their cultural context and cannot easily be generalized to larger populations. These experiences are further considered in a case study, the best method to analyze the influence of interface and code on processes of making in the context of participatory observation. The subject matter and vocabulary may be dense at times, but this is a conscious choice made by the author in expressing the essence of her attitude about the subject of study.

Methodologies

The methods used to produce the results of the study are interviews, literature review and participatory observation. Karen O'Reilly's *Ethnographic Methods* (2012, 2nd ed.) informed the interviewing technique. Guidance on delivering semi-structured interviews was specifically useful in regards to arranging the context of the interview. Her structure uses a technique to uncover sociocultural influences by examining practices with a phenomenological treatment. She describes a practice as a way of thinking through processes, series of interactions with a set of inputs and subsequent outputs. With this lens, the enactment of practice concerns human actions that are "reasonable adjustments to the future, not rational calculations, not necessarily the product of an identifiable plan" (ibid, p. 8). Thus, the method calls for consideration of events from a first-person point of view to understand the experience of participants in regards to the phenomenon of technology having an effect on their work.

The construction of the interview schedule followed the suggestions of Smith & Osborn (2007) in that questions are neutral and not value-laden, and learnt in most part by heart before each interview. Fifteen potential contributors were contacted, and there were eventually nine participants for the one-hour interviews; the sample was made up of two females and seven males, ranging from mid-twenties to early sixties in years of age. They have all elected that their real names not be used in the study, therefore the results include fictional names to represent these individuals. The results of this diverse study show in some cases distinct perturbations or motivations, regardless of whether the practices described are for leisure or commercial purposes.

As a result, the transcripts reflect a question set that occasionally strays from the interview schedule to pursue a particular concept in more detail, allowing the participant to be a storyteller. Some of these instances are very specific to the nature of the work of the participant and his attitude towards my research goals during the interview. By being decidedly absent of any specific connotations of technology within the interviews, it was possible for participants to express their opinion on a variety of reasons why, potentially, their own work practices have changed. Interview responses were not envisioned to understand how these changes might affect the operation of more encompassing forces. Rather, the goal is to uncover how these specific sonic artists conceptualize their work, and to obtain information about their particular subjective experiences of technology.

The analytical technique used to answer the research question was guided in large part by the Interpretative Phenomenological Analysis (IPA) method of Smith & Osborn (2007). The published texts about their own applications state that employment of this methodology requires a relatively small, homogenous sample of participants who deliver conversational responses to a prepared semi-structured interview questionnaire. Collecting semi-structured interviews with a relatively small number of participants allows a complex analysis at a local level, following the prescriptions of "acceptable" IPA (J. Smith, 2010). Smith & Osborn's (1998) well-cited health psychology study on chronic pain serves as an appropriate example of describing a method for analyzing the data of semi-structured interviews. Transcripts of interviews should be made and extensively reread in order to develop a sustained connection with them. This data should be analyzed to sort or organize it by emergent superordinate themes, which helps to make the idiosyncrasies of individual cases applicable in other contexts of discourse.[1] The act of analysis on

[1] Interview questionnaires, annotation schemes, and annotated transcripts can be found in the Appendices.
[2] For example, see Wiering (2011) for further reading on musical meaning.

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these data is validated by presentation of enough evidence to allow the reader to corroborate or repudiate the interpretation of the writer.

I personally made the transcripts, and clustering activities took places in a series of PDF annotations and several tables/matrices. The interviews were conducted before the ensuing case study was compiled. This was intended as a way to maintain the strain of exploratory research, and avoid abusing the IPA approach to prematurely confirm hypotheses. Rather than trying to uncover "fixed attitudes", this method considers in-depth participant accounts as being useful to understand a phenomenon: "we believe they are complex, dynamic and shifting entities, formed and reformed" (ibid, p. 80). They distinguish between accounts structured rhetorically and those that try to empathetically uncover what the participant is trying to express. The IPA method is described as also serving well for a single case-study research technique, but as most authors about qualitative techniques mention, "this is not a prescriptive methodology" (Smith & Osborn, 2007, p. 67).

Thus, the task of analysis for the interview data pursues an interpretative method that tries to mediate between ontological and epistemological ends. In a phenomenological discussion of practice, the difference between theory and practice is not the technical application of a concept to some action: "Rather, the phenomenology of practice involves a different way of knowing the world. Whereas theory "thinks" the world, practice "grasps" the world – it grasps the world pathically" (Van Manen, 2007, p. 21). The idea here is that the knowledge of an individual about his own sense of self is actional, or relational. An understanding of one's own practice develops from a defined series of interactions. Rather than theoretically define the things that can be known, the 'pathical' description serves well to guide the generation of meaning from interaction with a series of transcripts and incorporating the results of a literature review.

Thematic analysis forms the basis upon which the textual associations between the interviews were made, as a subordinate part of the IPA analytic method. It is another form of qualitative analysis that focuses on using the 'what' of the narrative rather than focusing on 'how' participants express themselves (Riessman 2007, p. 53). Riessman's thematic analysis method can in some instances be useful because it can further develop high-level theories and generate results that are applicable in other contexts by examining each case perspective serially. However, I did not choose singular thematic analysis because it is incapable of reflecting the dynamics and tension between the responses of participants and leads towards thin textual interpretations rather than considering the situation of the participant and the situated position of the researcher. Thus, I chose IPA in order to make a cumulative thematic analysis; each of the annotations of each transcript was iteratively revised to reflect new

learning from interaction with the other transcripts and other annotations. The limitation of IPA, thus, is the relevance of the results to a broader, generalized group who are also affected by the phenomenon of study.

These iterative cycles of IPA support the crafting of a narrative argument in the results section by connecting the superordinate themes as they emerge (Smith & Osborn, 2007). I attempt to use the IPA method here to recreate a situational consideration of the events through an evocative textual rendering. Responses are as well deduced and situated with an integrated presentation of a literature review. The literature review is included with the interview analysis as well as with the case study to present relevant and applicable theories that elicit what is already known about the phenomenon being studied as well as where gaps exist.

Finally, a case study is presented that reflects the participatory observation conducted during my internship to produce a sonic art experience for a fashion show. This allowed me to observe sonic artists while they were working, as well as gather additional data from the field by questioning them about the outcomes of their work. The use of a case study as a medium to document these results is based on the concept of *Doing Cultural Studies* (Du Gay, Hall, Janes, Mackay & Negus, 1997) where the Walkman is studied both technically as well as the ways in which it is made meaningful. The work for the fashion project shows the collaborative nature of the research situation and exemplifies the intricacies of the relationships between artists and technology in-situ to examine the phenomenon exactly where it occurs.

What Has Changed: Technology and Artist

I began the questioning with a participant by sharing that the goal was to understand changes in the work practices of sonic artists that have happened in the last five to ten years. Participants were given an opportunity to comment on specific instances of changes that affected their work before I moved into the structure of the interview questions. All names used here are fictional.

The views of the participants tended to persist that using a computer to manipulate sound was a given component of making practice. What became apparent was that participants appropriated the hardware and software driven by this computer in very dissimilar ways. While some seemed to rely on the conventions of the computer and its software, others played an active role in developing new conventions. Consider the perspective of Alex, a sonic artist in his mid-thirties with a small business that offers sound design and composing services. Two particular projects he told me about were organizing a crowdsourced collection of natural sounds from the Dutch landscape, and the topic of his master thesis,

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designing a new spoken alien language for a contest-winning 3D animation. He describes how working with a GUI to make edits to audio data has become easier as well as made his work easier in the past ten years:

> It was linear, and now it's multidimensional. It's awesome, I mean, there's another company, Melodyne, and you can play a chord on the piano [rolls his fingers over the piano keys to produce a sound] that chord, it will hear it, it will tell you what is the note, and you can drag it up, but you could also have a track or recording and he's one note off, you can drag it and push it up a bit, for example. {*Me: I sort of get a grin on my face, I think, 'Hmm, authenticity'*} You can fake anything these days. {*Me: Well, except for those damn water sounds.*} It's realism, you need it. The best stories aren't told because they're true, it's because they're a great storyteller.

His response to a question of what has changed indicates that he finds useful the advances in specific audio software that can alert him to the need to make certain decisions, as well as identify or change musical information. His piano is transformed into a source of visual data, which can be manipulated with the mouse and alphanumeric keyboard, as well as accordingly reproduce precise air vibrations perceivable by the human ear. Although he was not asked if he was aware of the exact calculations the computer was making to determine the visual depiction of the note he played, he seems to inherently trust the application and its replication of the data to produce a sense of auditory realism.

But most algorithms used to process audio signal follow a lossy compression model, as sending and storing data has costs, including financial ones. Thus, space-saving formatting can in fact get rid of up to 90% of the data from the original sonic source (Corbett, 2012). Film scholar James Lastra adds that processing digital audio signal can elect to ignore certain features of a sonic event in favor of others, similar to what happens during the act of listening (as cited in Altman, 1992). That is how some of the most common algorithms work, particular frequencies being deemed by the algorithm as less important (S. Smith, 1997). The features of the sonic event the initial processing algorithm chooses to ignore are not necessarily represented in the data or the image of the sound the user sees. However, Alex regards the ease of use of the software as relevant because of a particular function of the sound he creates. He is using the sound to create a sense of realism, one that listeners who are unexposed to the recording or modification experience can appreciate. Plus, a difference can be measured by an algorithm and

then visualized in a simplified graphic, yet that does not necessarily mean this difference can be heard.[2] What remains clear is that the intuitive interactions made possible through the graphical user interface and audio data processing functions have not changed the purpose or principles of the narratives Alex himself is trying to create and share. It is interesting to consider the effects of augmenting the sound data with the clicking of his computer mouse and then somehow fulfilling a desired form of correctness. The idea that the software can improve or perfect his making process presents a visible divide in the field of sonic art, in that Alex seeks here to produce a predictable experience rather than an improvisational one.

The viewpoint of Siegfried, a Musicology PhD who plays keyboard in a gothic metal band, concurs with Alex's idea that in some cases relying on technology to automate sonic signal production is desirable. He describes his experience at music concerts where he tries to uncover the influence of technology on the sounds he is hearing:

> I am a musician so I'm looking at it from a different
> viewpoint. I'm also always checking what is happening.
> I can imagine many people just don't see it or don't
> hear it like that, they just enjoy the show as what they
> expected because they heard the songs on the radio,
> or on the TVs and everything, what else, and yea, also
> I think sometimes a pity for me.

An argument that realism is always necessary in sonic art is dismissed by the fact that listening audiences are conditioned to and have expectations of certain sounds. Audio has a different set of contexts in which the "same" sounds can be heard, as these sounds also may be predictably reproduced on the radio, on the television, on personal mp3 players or in other locations. What Walter Benjamin (1936) has remarked of photographic art has seemingly become true for audio: mechanical reproduction has shifted the act of making towards a practice of designing interfaces for sound reproducibility: "to ask for the authentic print is absurd" (IV). As it concerns the computer to reproduce these sounds, users like Alex get a feeling of control over the sounds and their interface because of the ease with which they can be created. Yet, this technology is not always availing the user or his audiences of the extent to which his control is being controlled.

Film sound theorist Rick Altman cautions against "the ontological fallacy", a situation where one generalizes the functioning of sound: "May we affirm with confidence that that an object's structure can be predicted from its

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[2] For example, see Wiering (2011) for further reading on musical meaning.

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nature? ... it is essential that such speculation not be taken as a prescription, as a binding assumption about the way sound must work in all cases" (1992, p. 37; 39). With this reflection, the way the sound is perceived or the way it behaves does not necessarily directly coincide with the way it is made or conceptualized by the artist. Sonic art produced directly from communicating with the computer through GUIs as opposed to other ways is not yet proven to be an inferior form of making. In fact, some sonic art might only be intended for a perfected, predictable listening experience, while other instances may include generative accidents that occur(ed) during the making process.

Before digital hardware and software started to take precedent ten years ago, Max told me about his experiments making new music on analog equipment:

> Oftentimes something would get forgotten or something would get plugged in the wrong hole accidentally, and you'd come up with something amazing that would sound - well on the synth it sounded terrible - the accidents are what makes it interesting. Those are part of the creative process.

In this sense, making use of electronic audio components to produce sonic signals was once considered to be inherently experimental. The trial-and-error process that Max considers to be part of the making process also implies that the technology he chooses to use can inspire him to make new decisions. Max has been a producer for pop stars, recorded his own experimental music and most recently has been developing art installations. Max also described having written scores for orchestra musicians that they say are "physically impossible" to play. His explication of his idea of how the creative process should proceed, being full of errors, is not analogous to the 'perfect' sounds proposed by off-the-shelf digital audio software like Alex uses or the experiences of sound to which Siegfried refers.

In contrast to working with analog equipment, when I asked Max about making experimental music with software interfaces, he states "whilst extremely powerful, they tend to lead you in a certain direction". The analog knobs and buttons he once used are now being replicated in graphical form with conventional haptic interactions, representing a shift from direct hard circuit control to indirect software control. The desired applications, functions and qualities of the sound do indeed inform the decision to experiment with various forms of technology, as well as the formation of personal preferences or affinities for a particular way of making. Despite the critique that GUI-driven software masks or obfuscates

the raw signal data, it has not been shown that these truths have negative impacts for every participant interviewed.

For example, Reinhardt founded and runs a small business that makes adaptive music for interactive games and art installations. He tells me that he learned to do most of his work by transforming input from the piano, using combinations of off-the-shelf software and sometimes virtually patching them together himself. He indicates that although the products of his work could be classified as sonic art, his particular field demands specific qualities that separate the making processes he uses from "any other industry that needs music". When asked about the pitfalls of this making process, he discusses the assumptions made by sonic artists from other fields:

> I think they underestimate how different it is
> composing music for games, because even in film,
> you think this is for media, or for a medium, that
> process should be just about the same as what I'm
> doing now. It's really not, because even films are
> linear, games are so not linear.

Reinhardt conceptualizes the sonic experience he creates as a system that receives input and adapts its sounds to guide the actions of the player-user. He describes that in this way the sounds act as a nonvisual form of communication, as well as a way to immerse the game player.[3] He implements the interactivity of this system within a set of parameters. Thus, it is understandable that non-linear sonic art has different making practices than other forms because it requires incorporating input from someone or something other than the artist during live playback. He contends that the production of sonic art in some instances requires accomplishing specialist tasks beyond a singular GUI, in that sound is designed and implemented as a system rather than a linear piece. Reinhardt does indicate that despite the end result requiring these specialist tasks, he does usually first use an audio software with a GUI as a brainstorming tool.

There are a number of widely accepted proper ways of representing audio signals as visual image, considering the wide dissemination of software. Yet new media Theorist Jay Bolter maintains: "Many, perhaps most, digital artists today (including [Lev] Manovich himself) are really artists of the interface: that is, their concern is with the experience that the application offers to the user, not the code that constitutes the application" (p. 33). The paradox here is that everyday interfaces that share common affordances are lowering the threshold of effort and necessary knowledge

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[3] For further reading on the functions of sound in games see Collins (2008).

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for one to become a maker of sounds that can be considered sonic art. Max neatly synopsizes the challenge to developing standards for craftsmanship:

> Hobby on the side, yea. Well the problem nowadays is lots of people can make music. A lot of people make music in college and also people do it for fun at home. There are more people making music, which is a good thing. The tools for doing it are on any average laptop or even freeware that you can get off the internet. The problem is not people doing it and deriving pleasure from it, the problem is, as I assess it, how do you assess how good it is?

Max here refers directly to the availability of software as a reason why its getting hard to distinguish between hobbyist and professional, implying that there are open resources anyone who would like to call himself a sonic artist can appropriate and feasibly use. Reinhardt's viewpoint agrees here - despite the availability of information by which to acquire expertise, it is difficult to compare or define a quality standard across genres of or even between the processes by which individual works are made. Media scholar I. de Vries has explained at length that much discourse on and around audiovisual technologies stems from a resuscitative idealism that holds the mythical promise of perfecting communication (2012, p. 116; 118). I argue that his interpretation of media discourse coupled with this interview response data indicates that subgroups can exist who create and appreciate sonic art where the communication process between the artist and his software is not optimized. Despite their perceived accessibility and ease of use, interfaces and code to create music and sound do not offer immediate satisfaction for every user. Neither the ease of use nor the degree of flexibility is necessarily considered valuable in instances where the artists needs to create sounds that have qualities not describable in pictures or in numbers. Marjolein, a relatively young sonic artist, describes having to overcome technology is an essential part of her work:

> I can't make dance, but I love to make music for movement, for dancers and I studied music technology but the technology is more an instrument and I'm not very virtuous on this instrument. But I need it to create things and to make music and work out my ideas. Sometimes I reach the boundaries of my knowledge and then I need other people to create some new possibilities to work out ideas. More the poetic aspect of music, or the more artistic qualities.

Notwithstanding the availability of 'optimized' options and a plethora of problem-solving functionalities, there are still artists like Marjolein who find it challenging to work with software and technology. A translation of Huizinga's thoughts on play-forms in art serves here to highlight her difficulty: "Musical forms are determined by values which transcend logical ideas, which even transcend our ideas of the visible and the tangible" (1949, p. 158). Therefore she seeks alternatives from others in her community with whom she collaborates to create new ways of working out her ideas. When the interface does not offer the features or control desired, it becomes clear that developing the interface itself to create sonic art can bring about new forms of mastery. Complacently using software to transform data into sonic vibrations does indeed contradict the idea of progress and innovation of the making practices of sonic art. Consider the "exploded" piano, where Jonathan Cage bowed and separated the strings of the piano first with dinner plates and then more permanently with various screws and then used this contraption to make sonic art. Frances Dyson calls his creation a "tinkerer's act", where "the crowning technology of tonality, the virtuosic instrument *par excellence* became a hybrid — a noise machine" (p. 60-61). It seems analogous to how Alex describes how he started using technology in making sonic art when he was a child:

> That was when I was about eight to ten, then I started listening to music on a record player. Destroying records by scratching them because that's what I saw on television. I was making mixtapes, listening to music with my friends, and well more or less getting inspired by them. Started making music on the computer, and later a synth, and then more or less everything evolved. I think that's how it went down.

There might not have been anyone who heard the results of his destructive techniques, but Alex considers his own experiments as key to his current feeling of mastery. Even Pierre Schaeffer's *musique concrete* was at one time transitioning from cutting up phonographic discs to magnetic tape. Audio expert Mark Katz states that users in fact "discover" the influences of technology, in that their relationship with it becomes one of adaptation, compensation and exploitation (2010, p. 9). Not only the features of the technology determine how it is used, but the purpose that this use will serve, as well as the audience for which it is intended.

A participant named Felix has been making mathematical models of sound waves and having to manipulate the math formulas in order to try to achieve an appropriate and representative image He has been studying

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musical notation for over ten years, and is participating in several music information retrieval projects of his PhD students:

> For a computer scientist, that's fine, it's a great
> result. If you're a musicologist and you have a score
> with 80% correct notes, then you're not so happy. No.
> But you can sort of reverse those things, so you do a
> preliminary consider of the audio, okay, can we
> create a tree out of this, if the tree is very messy
> than you can maybe see that something is wrong
> with the audio. {*Me: Ah, diagnose*} Yea, you can
> come up with a better interpretation of the diagram.

What Felix describes is how scientists perceive a precision standard in data or in systems apart from the musical or functional qualities of the sound. Learning by ear to recognize how the image of a particular sound 'ought to' look in the interface seems here to implicate the nature of the sound itself. In fact, the precursor to the record-playing phonograph, the phonautograph, was designed as way to visually depict and analyze the relationships between vibrations of sound waves (Whitaker, 1928). Yet, the move to photocells in the 1930's provided the artistic opportunity to make drawn or recorded graphic elements audible (Thoben, 2010). The adoption of the cathode ray tube in the 1950's provided the ability to generate images of acoustic signals electronically. In a famous lecture of sonic artist Karlheinz Stockhausen, he describes how these "electro-acoustic apparatuses served to determine the attributes of sound" (as cited in Cox & Warner, 2006, p. 371). Despite the fact that Huizinga claims that musical ideas evade visual and tangible comprehension, representation of sound was born out of a scientific as well as an artistic interest in classifying musical and non-musical acoustic vibrations. Determining the attributes of sound, for example the "poetic aspect" that Marjolein describes, is a quest that informs the way visual representations of sound are devised as well as the way artists understand their own work. These ways of interacting with images then begin to persist over time. The way that sound and its constituent attributes are represented in images are clearly not only a matter of aesthetic design choices, but computational ones as well.

Phonauto-graph Tracing

The account of Marloes, an experimental sonic artist that studied physics and acoustics and is an artist in residency at STEIM, tells me that there are differences between someone trying to appropriate the scientific to achieve the avant-garde and those who executes sonic tasks on a purely technical basis:

> {*Me: So you were, like a technician for this event?*}
> Well, that's again back to that complicated thing. In a
> sense, yea, I think maybe you should call it musician.
> It is a technical system. Back to that strange
> distinction you were mentioning before then. Well,
> strange distinction maybe that's not the right way to
> describe it — the distinction between artists and
> technical.

Marjolein's inability to overcome the technical side of her work despite her artistic inclination surfaces here as further evidence of the distinction between a technician and an artist. Sonic artists using computers are in essence operating technical systems, per se instruments, but Marloes' response identifies that the sonic arts' making process is critical to defining the role of the artist as opposed to any technology she might use. To further corroborate her statement, I asked Marloes to give details about this event. She told me how she created sound for a performance driven by a series of sensors that were attached to an interpretive dancer, and that she then modified the mapping of that data using programming code to change the sounds generated by the computer:

> It's basically; I think in this piece all the sound is
> generated by the computer. But at times I'm also
> manipulating what is generated. How it is generated
> and the art of changing the mapping from the data
> that come from the sensors to the sounds.
> Sometimes I change that during the piece as well.
> {*Me: So if an arm wave is at once suddenly hearing a
> violin on A*} Sort of. Changing these things. Basically
> the whole thing I programmed as like my instrument
> that I play during the performance. So in that sense
> you can't just, its not that easy to exchange the
> person doing that. It requires quite intimate
> knowledge of how the piece is working how the
> instrument is working.

There are multiple types of human-computer interactions occurring simultaneously, reminiscent of Reinhardt's description of developing sonic art as a system. Marloes describes her role in the performance as critical, despite the fact that the computer is generating the sound. She considers her relationship to the room-instrument, a complex system of programmed sensors, as an intimate one. Perplexingly, she admits that despite having used the computer and programmed the room as her instrument, there are still elements of the sonic art that are out of her control. When computer music systems are examined that can be considered "creative" of their own accord, we realize that the distinction between human and nonhuman

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actors becomes less interesting in the face of the outcomes of their interaction. Tod Machover of the MIT Media Lab has created 'The Opera of the Future', augmenting traditional instruments with digital technologies to create what he calls "hyperinstruments" which have the goal of "extending virtuosity" (n.d.). These interactive systems are designed to measure human expression and feelings and translate those through programming code into nuances that extend the act of playing and live performance. Like glitch artists, who work with code directly to produce a visual product, it appears that experimental sonic artists rely on traditional conventions in the sense that they can practice breaking them. These sometimes-radical practices are signifiers of explorations in new media, especially as they involve aesthetic-artistic or experimental-scientific situations where a technology is used to represent, record, synthesize or manipulate sound.

At the other end of the spectrum are the newly budding sonic artists, students who are just beginning to work with code, and software, those who might one day produce innovative instruments like the ones just mentioned. Rupert is a music technology teacher who has spent his life working in the music and music technology industry. He comments below, albeit sarcastically, on the typical experience of first-year students who enter the classroom to work with commercial audio software:

> How odd, that's the first window when they open Logic or Cubase that is default and has a tempo track in it from 120 beats per minute. They start making their music in this default. {*Me: They are making it in this black box.*} They are not even aware that you can change it or that you can even work without a tempo, or several situations in tempo for example. Then you see technology is influential in a subliminal and dangerous way. It's still there, the interface is so slick, and so *verleidelijk*. {*Me: Leading.*} Yes. So we have to make our students aware of this and that's the only excuse. First when they come in they are making music. They think they are making music in a very intuitive way. They have a lot of ideas, and they are making music and songs all very nice. So we have to make them aware of the side processes. What are they actually doing, what is your work, your way of making music.

Rupert's description evidences that education about audio software is complicated because the software is already quite accessible to students before they reach his classroom. It seems that these types of tools that are first appropriated are the first because of their ease of use, rather

than their flexibility. Rupert also remarked enlighteningly how his perspective on education has changed over the last ten years. At first, the teachers and students struggled together with the technology, whereas now the design activities have become process-oriented and being aware of the actions of the computer as a result of the actions of the artist is a prerequisite for success in the field. Implied here is that if the students will become the next generation of sonic artists, they need to increase their awareness of the coded operations that are a function of their manipulations of the GUI.

To close the textual rendering, I present here a quote from Mark, a Canadian experimental composer who operates out of Amsterdam and also teaches in the fields of music technology and computer music:

> Electronic music is like you hear something about this restaurant, it's absolutely the best food in the world, so you think to yourself, wow I have to go there. And you go there and you realize that there's nobody serving tables, there's nobody in the kitchen, but the kitchen is amazing, they've got every ingredient you can imagine. The thing is, if you want to eat anything you have to learn how to make it yourself.

Software can of course be responsible for the making process in electronic music and sonic art, but the user of such software must be responsible for his own self-education in how to overcome the interface and get direct access to the code that drives the synthesis of sound vibrations.

CONCLUSIONS & ADDITIONAL LITERATURE

All but one participant, when asked if anything happened in his field in the last ten years that he would consider radical, revolutionary, or drastic, he first replied in the negative, but then reconsidered and presented a change affecting on the way he carries out his work. There is indeed a multiplicity of approaches in the production practices of sonic artists in the Netherlands. Various emerging modes of making are getting heterogeneously combined into experiences that may appear holistic, at least to audiences who are not subject to the discrete knowledge of the underlying processes of making. The limitations of this study and analysis are the fact that the conclusions reflect applications and considerations mostly regarding experimental sonic art. To recite Henry Jenkins: "None of us can write outside our own historical contexts, and none of us can foresee how future developments may overtake our best guesses about where the culture may be heading" (2013, p. 10).

Generating ideas about these concepts requires a critical literacy of the technologies involved. Software used in the recording, synthesis, and

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reproduction of sound in creating sonic art is here less of a way to prevent or disguise human error but a way to extend the medium of expression. In 2004, Douglas Kahn writes in Smith's *Hearing History* that the most of the basic premises of art and sound are being challenged by technology:

> with an impending subsumption of sound to an ordinance of information. The emergence of digital recording, synthesis and transmission, and virtual audio in particular, will fundamentally transform the relationships among sound, technology, and art only if new ways of thinking also emerge (p. 43).

Evolution of software to work with audio data with visual skills, has indeed required sonic artists to develop the new ways of thinking to which Kahn refers. There are two sorts of visual skills that transpire from the interviews: making using a GUI and making using programming code. In the diversity of the sonic art environment, these artists are beginning to create new codes of realism in disparate ways. A conspicuous analysis from Jacques Attali (1985/2006) provides a preliminary context in which to consider these reconfigurations. Attali names changes in the methods of making "the destruction of codes":

> The form of the music is always influenced by the transmitter and the medium...Today, with the *superimposed* presence of networks translating different codes of production, the unicity of both the musical order and the economic order is gradually disappearing. The aesthetic networks have broken down and the modes of production have changed. (italics original, p. 37; 43)

The networks to which Attali refers are the different spheres in which music is created, comparable to Altman's differentiation of the function of sound. As will be discussed in more detail, the mastery of an interface (regardless of the output) influences the development of making standards for other artists. In fact, the shift of making practices of sonic artists from working primarily with graphic user interfaces to working primarily with programming languages represents the introduction of new sounds as well as new connections between artists. To paraphrase one of Bruno Latour's (1994) prefaces to actor-network theory, every interaction with the sound and image simultaneously is a socio-technical response to input. In the sphere of electronic computer music, the role of software is being called into question more often, causing sonic artists to rethink their modes of production.

Software as a tool for making is itself a generally malleable element that in theory can be tweaked, hacked, or in other words adapted or customized for personal uses. Yet, despite the number of users any one piece of software may have, many of these users do not have a fundamental understanding of machine languages that were required to

create it. In his book *Software Takes Command,* Lev Manovich identifies that software simulates existing media, making the computer a "metamedium" for this simulation as well for developing new media (2008, 2013). In many ways, electronic sonic art does mimic existing media as the software used to reproduce sound seeks to do so in a way that would be unrecognizably different from the "real thing". Software as well as its foundations in code can also be used to create sonic environments that do not exist in other media. The use of software by sonic artists in the Netherlands is reshaping the concepts used to design as well as operate interfaces to make sonic art, discussed further in the following case study.

Making Changes: Artist and Technology

FASHION FOREWORD

The case study to illuminate the ways in which technology has informed the work of sonic artists in the Netherlands is based in large part on a project conducted on behalf of the Amsterdam Fashion Institute.[4] A team and me were tasked to develop and deploy an innovative way to use new media technology during an annual catwalk presentation of their in-house fashion brand. The concept of using sound and music to attempt to intensify the audiences' interpretations of the collection was pitched and accepted by the assigner of the project; thereafter a team of sonic artists was commissioned to collaboratively design, produce and perform a sonic experience. The creative director of the fashion show was strictly opposed to the idea of using personal headphones or similar in-ear tactics. There were still many other possibilities in terms of using external multi-channel sound delivery but this was not easily accomplished considering the equipment available on behalf of the venue. The shared goal of the project was creating an artistic sonic experience that could survive after the performance and, more importantly, that could open a communication channel with the listener to tell the story of the fashion collection. This context of fashion provided a specific set of audience expectations as well, which played a role in the decision to keep the results of specific making techniques used by the artists. To continue this investigation from the interview analysis and support the claims made there, the case study now turns to discussing in more detail the relationships between sonic artists and technology uncovered during the making of the sonic art for the fashion show project. The names used here to refer to interview participants are fictional.
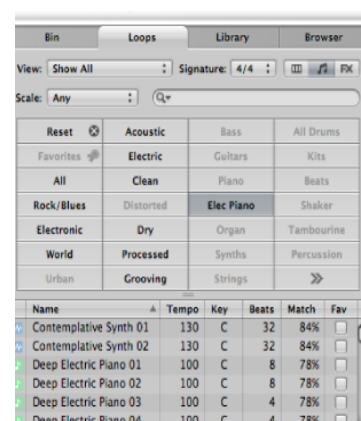
LOGIC PRO

Firstly, the results of the interview analysis prompt a deeper investigation into how commercial software can enable as well as inhibit the sonic artists. Logic Pro is a proprietary software program marketed as a Digital

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[4] More information about the internship can be found online at http://medialab.hva.nl/individuals

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Audio Workstation (DAW).[5] Hardware components and instruments that were once analog are now represented virtually in graphical form, as a sort of studio-in-a-box. According to the abstract of his guidebook, digital music expert Colby Leider states: "DAWs are not only revolutionizing the way music is recorded, but allow new forms of electronic music, created entirely in the computer, to be written and recorded on the desktop" (2004). These DAWs are remarkable for their ability to manipulate audio data that has been recorded elsewhere, but also the fact that they now come equipped with built-in software instruments. These instruments can produce sounds formerly only possible to create with physical musical instruments.

Apple Loops is one example of these instruments, included standard with the Logic Pro software. Apple Loops is a proprietary library of sounds, but according to documentation the sounds have an advantage over standard audio loops because: "they can contain additional information that Logic Pro uses for a variety of purposes...may include metadata tags...thus ensuring the best possible playback quality...and have them sound good" (Logic Pro 9 User Manual, 2009, p. 325). According to Lev Manovich, metadata is data about data created by the computer, which

Screenshot: Apple Loops Browser

allows operations to be automated and allow the user an interface with which to manipulate the original data (2009). It is this metadata that is both a blessing and a curse — it enables a sense of flawless reproduction of a sound in an easy to execute technique, but constrains the user and his ability to adapt the Loop for the purposes of his project. The interface design is responsible for "channeling" user activities, which can occur in subtle ways (M.T. Schaefer, as cited in van den Boomen et al., 2008, p. 148).

The constraint occurs when the metadata associated with Apple Loops invisibly and automatically assists the user in making decisions about aspects of his sound, such things as tempo and duration, and sometimes based on actions he has taken in the past. Sonic artist Max denotes this experience in his description of fighting against the power of the software to lead him in a certain direction, as does Marjolein in her claim of reaching the limits of her knowledge. The situation he describes is one where the user does not have access to the source code that drives the synthesis and can only alter the attributes of the sound using the functionalities of the GUI for Apple Loops. There is no way to directly alter

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[5] See Thurow (2010) for further reading on the history of Logic Pro.

the algorithm that informs this automation. Subsequently, it seems the sonic artist does not have a choice of outcome other than the "good" sound created with the help of this metadata.

Screenshot: Apple Loops Waveforms

I was watching while Alex showed me how to use Apple Loops to automate the sound of a saxophone instead of making a field recording. Rather than giving the sound a real context of being recorded in upholstered theater rather than a concrete hall, the program is pre-loaded with a series of uniform experiences (Pinch & Reinecke, as cited in Bijsterveld, 2009). Although these forms of electronic music in Leider's words may be 'new' in the sense that they are not old, his statement is misleading in the sense that the outcome is new in the sense of being original. Because millions participate in it, certain practices for reproduction seem to be an interface design requirement, which reduce the technologies of the culture industry to the "apocryphal field of the amateur" (Adorno & Horkheimer, 1944/2002, p. 95). DAWs like Logic Pro proffer the ability to have sound data incur mathematical metamorphosis, usually with a very minimal time cost and without an imperative for musical or acoustics knowledge. According to game theorist Karen Collins (2008), the original function of a loop during audio production for filmmaking was to reduce the cost of talent as well as time in post-production. Thus, there is also a consideration of using the Loop to save time without sacrificing quality, which is exactly what Alex was doing in trying to provide a proof of concept for the sounds we could use for the final piece. The consequence here then, is that these types of making practices involve smaller margins for error, as neither Alex nor I need to decide in advance the specific calibrations of the mathematical techniques that are used to produce his saxophone sound.

His choosing to add an Apple Loop to the workspace on the screen caused a waveform[6] to appear. The literature review confirms that these waveforms are a generally accepted way to visually represent sound. Whereas such a wave was once produced by hand-cranked stylus impressions in lampblack on glass, the earliest medium to record sound

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[6] A waveform is a visual diagram of the continuous variation in pressure, or amplitude, occurring over a period of time. For further reading see Evens (2005).

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as an image[7], now the process to generate them operates invisibly and illegibly. Alex remarked that if he were to become accustomed to seeing waveforms of these built-in perfected Apple Loops, his work would likely strive to create waveforms that visually resemble them. In this sense, the uniformity of experiences in essence reduces the artist to a technician who executes commands on behalf of the machine rather than considering alternatives to this diagram. Sound design critic Philip Brophy has said of such an interface and sound:

> While these technologies continue to rejuvenate old hippies, excite young cyberpunks and bolster business lemmings, the past decade of hyperbole...has demonstrated scant critical awareness of the complex and compound effects that result from sound-image fusions (1999, p. 112).

By commercial DAWs creating an efficient way to synthesize sound using visual representations, they have a tendency to produce a predictable listening experience as well as a predictable making process. What is discomforting that the idea of science is to make a process repeatable, while the production of art is one-of-a-kind.

The software designers of Logic Pro have decided on a system of defaults that have been optimized on behalf of the user that are not easily overcome. These limitations are as much a hallmark as they are a form and function of the interface design. Donald MacKenzie (1996) writes in *Knowing Machines* that it is not only *desires* for faster processing and mechanization of labor to create persistent patterns of technological change, but user's *expectations* of that change (italics added). Sonic artists having the expectation of audio software becoming easier to use in turn leads software designers to create means of making that satisfy these expectations, a self-fulfilling familiar pattern of reasoning. These realities are causing sonic artists in the Netherlands to seek alternatives to sound generation.

EXPERIMENTING WITH ALGORITHMS
Not only do these image-driven ways of working challenge the sonic artist to overcome the limitations of software, but also the mentality that "good" sound is always desirable. To venture into different making practices, then, must be experimental, but not necessarily in an overtly scientific sense. Max and Mark both considered experimentation, the process of trial-and-error, to be a critical component of learning new ways of making, in that the this process prompts discovery of and adaptation to working with
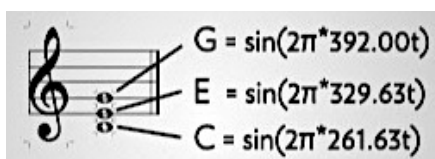
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[7] A phonoautograph was invented by Leon Scott and patented in France during 1857, which was developed with Rudolph Koening who soon thereafter made the first primitive mechanical oscilloscope. See Pantalony (2005).

audio technology. This is not only true in the sense of getting to know how to overcome the behind-the-screen actions of the GUI, but in working to develop entirely new ways to generate sound using a computer. Experimental sound artist and theorist Jonathan Cage proposed in 1937 that there will be a time when:

> the use of noise to make music will continue and increase until we reach a music produced through the aid of electrical instruments...compact technological boxes, inside which all audible sounds, including noise, would be ready to come forth at the command of the composer (as cited in Dyson, 2009, p. 379).

The prediction of Cage came true, beginning with the work of scientist-musicians who first started to develop the mathematical properties with which to create sound computationally. The divisive Stockhausen himself admits to being first a proponent of the total serialism movement of the 1950s, which pursued the organization of musical parameters based on the rules of serial composition (Cox & Warner, 2006). These serialists attempted to define a complete system of methods by which algorithms could be used in replication of musical patterns and sets of interactions with them. Aden Evens (2005) suggests that this idea of totalitarianism in sound is due to the psychoacoustic nature of sound itself, in that the sense of hearing is based on perception of waves of sound that can be precisely mathematically represented. But

Musical Notation to Sine Wave: Fourier Transform

$G = \sin(2\pi * 392.00t)$
$E = \sin(2\pi * 329.63t)$
$C = \sin(2\pi * 261.63t)$

Stockhausen's *tractations* reveal that he, too, began to question his own belief in the idea of the Fourier theorem[8], that any sound no matter how complex could be represented by an aggregation of sine waves.

While experimenting with the electronic production of sine waves, the equipment to generate the sounds was challenging his outlook on being able to develop algorithmic parameters: "All I can say about the first 4 examples of electronic music is that I don't hear anything musically meaningful in them, but that they indicate pathways – once one tries to hear just single sounds in isolation" (Toop, 1979, p. 389). The sounds that Stockhausen

Karlheinz Stockhausen – photographed in 1971

refers to do not use data from existing music, but are entirely generated by the computer and the rules set up by its operator. Thus, the unexpected

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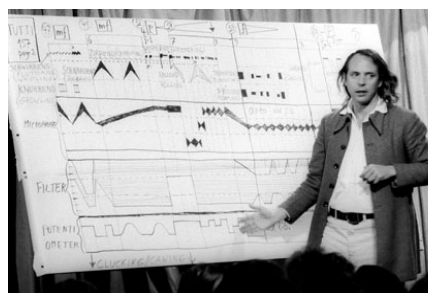
[8] The many variations of the Fourier transform theorem are commonly used audio processing algorithms to determine the individual waves which make up a sound. For further reading see Evens (2005).

outcomes that happen during the making process inform new ways to conceptualize the range of possible qualities and quantities of sound. Breaking the rules of such serial systems using computers can lead to new discoveries in the field. Experimental artist Laszlo Moholy-Nagy extended the idea of using the way sound can be visually manipulated by using the visible lines of recorded sound that run along the edge of optical sound film (M. Smith, 2004). This idea of "drawn sound" represented the European avant-garde in the very early twentieth-century film scene.

In *Audio Cultures*, Christoph Cox makes a neat job description for an experimental music composer: "designs a set of initial conditions (technical, sonic, conceptual, verbal, social, etc.) and then leaves them to unfold more or less on their own" (2006, p. 207). At Mediamatic, a Dutch organization that supports the avant-garde arts, I observed two sonic artists from the project who were performing at an extracurricular happening titled Echokamer; a space for them to share their work with the public. There, it becomes clear to the ears of the audience that what the sonic artists there are doing corresponds with Jonathan Cage's idea of experimental making practices: "acts the outcome of which are unknown" (Cox & Warner, 2006, p. 211). The sounds were cacophonous and at some points seemed to be entirely improvisational and surprising to the artist himself.[9]

Burraston & Edmonds (2005) support the claim that a culture of generative electronic art has been emerging from artists' interests in algorithmic and computational processes. These interests serve not only measurement and modeling of sonic events and environments, but also purposes of experimentation. In generative art, composition is based largely on measurable qualities of sound, in that its conditions in space and time can be evaluated in discrete quantities, and these quantities can be then further manipulated into space and time. While developing a general framework for evaluating generative art, Dorin et al. posture that generative interaction between artist and work is different from traditional art in that "the creator typically manipulates the outcomes through the intermediate layer of the generative system" (2012, p. 246). As an intermediary to the sounds of the Mediamatic experience, algorithms modulated instruments that had been modified by cabled connections and driven by computer code. After the performance, an artist unaffiliated with the fashion project shared with me that he had programmed his keyboard to make sounds other than that of a piano. Yet, to make possible such advanced sound reproduction techniques using software and algorithms today requires an increased level of "mathematical intimacy" (J. Reus, personal communication, June 20, 2013). To communicate directly with a

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[9] A short clip of the Mediamatic Echokamer experience can be found online at https://www.dropbox.com/s/skvgyo5idtfsfz5/2013-06-20%2021.48.18.mp4

computer to synthesize sound requires the sonic artist to move beyond the GUI and into the language of the computing machine. These practices seem simultaneously more in line with as well as against the idea that computer is the primary tool to create sonic art.

According to Michael Nyman, a truly experimental composer is one who does not believe his artwork needs to conform to a "defined *time-object*" but rather one who is "excited by the prospect of outlining a *situation* in which sounds may occur, a *process* of generating action (sounding or otherwise) a *field* delineated by certain compositional rules" (as cited in Cox & Warner, 2006, p. 211). Rather than relying on the conventions of the computer, the Echokamer artist was trying to develop new ways of interfacing with the computer. This is reminiscent of the experience Marloes describes, in that she set up an entire space as her instrument and used programming to modify the ways in which sounds could be generated during the performance. What is important to recognize is that despite the fact that these artists in the Echokamer were able to control the computer using code in terms of using algorithms to process and generate acoustic signals, they still did not have complete control of the end result.

I visited Marloes at STEIM, the Amsterdam-based Studio for Electro-Instrumental Music and inquired if she thought we could create for the fashion show something like what she had for her influential project, using space as a compositional parameter. She mentioned that STEIM had done work in the past with a system (that so happened to be momentarily stored in the basement there) and technique called wave field synthesis. In conferring with the sonic artists commissioned on the project, they informed me that they had been acquainted with the technique during their studies, but had never had the chance to use it to create sound live in front of an audience. Ultimately this solution was chosen for the fashion project for a number of reasons; perhaps the simplest being that nothing like it had ever before been used during a fashion show. In theory, the technique aligned well with the notions of what the project team had originally hoped to accomplish in that the experience would be immersive and challenge the status quo of sound being used at fashion shows. This choice to use WFS at the show affected not only how the listener would perceive the performance, but also the ways in which the sonic artists would design and perform that experience.

THE GAME OF LIFE
Wave field synthesis (WFS) is an acoustic spatialization technique that is established on the Huygens principle, which explains how a wave of

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The Game of Life: sound spatialization system

light is imagined to move when propagated in space, creating new waves from the original front. Christiaan Huygens was a Dutch astronomer and mathematician of the 1660's. Although he is generally credited for his work on the pendulum clock, A.J. Berkhout of the Technical University of Delft later revisited Huygens' published work on light waves. Berkhout, de Vries & Vogel (1993) proposed that the acoustic technique of wave field synthesis offered near-perfect replication of real acoustic wave fronts despite the fact that these waves were generated electronically, or synthesized using a computer.

The machine that was used to implement Wave Field Synthesis was developed by the Game of Life Foundation and created in 1999.[10]The name 'Game of Life' actually refers to a concept developed by MIT mathematician John Conway, where an infinite universe is divided into cells and once the initial state conditions have been set, no human input is required for the game to operate. Sound waves are be spatialized through 192 speakers, and each be driven individually to generate a complex sonic field. The system uses twenty-four custom made amplifiers, twelve subwoofers, eight Peripheral Component Interconnect (PCI-e) devices and twenty-four signal converters to manage the audio data and reinforce the speakers. There are two computers that act as the sound server and connect through a network switch to the user's control laptop. Despite over ninety-one meters of cable through which signal courses, the design of the system has built-in considerations for mobility, where cable connections between arrays are condensed into cases for simplified setup and transportability.
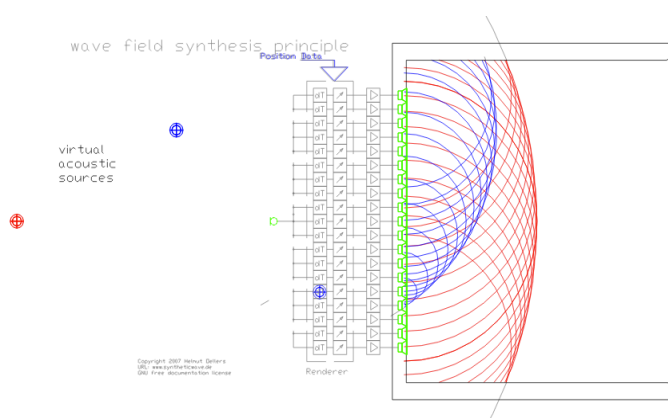
Screenshot: animation of WFS

Traditional surround sound delivery systems generally tend to have a forward-facing vantage point because of a stage or a screen. Therefore they are known for having a sweet spot, or the place in the wave field where, *ceteris paribus*, listening is the most realistic. The WFS technique, conversely, is designed to deliver a true-to-life physical recreation of sound waves from virtual sources, rather than merely psychoacoustically recreating a 360-

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[10] More details about the Game of Life Foundation can be found online at http://gameoflife.nl

degree sound environment. Film sound theorist Michel Chion considers these immersive audio effects are analogous to putting a viewer inside of an "acoustic aquarium" where the audience's experience of the sound and visuals becomes integrated (Restivo, 1999, p. 137). The audience member is indeed being literally surrounded, or immersed, by waves of sound. Yet, what is interesting about WFS is that artists can create sonic fields that would not naturally appear in nature "creating a new psycho-acoustic challenge for the listener" (Baalman, 2007, p. 162). The next sections describe the software built for the Game of Life system and the programming language in which it is built, SuperCollider. In order to utilize the immersive spatialization technique made possible with the WFS system, the sonic artists needed to conform their creativity to interfaces beyond the ones they had adapted to working with to create sound. In doing so, they encountered challenges of their own.

WFSCOLLIDER

WFSCollider is software built for sonic artists who want to use the wave field synthesis spatialization technique on the Game of Life system. It was developed with a programming language named SuperCollider (SC), a sort of stepping-stone to the more abstract forms of this language. Despite the advanced technique for which it is built, it is not absolutely necessary for an artist to know any programming languages in order to make use of the Game of Life system with WFSCollider. The software offers a graphical user interface with menus and buttons to use sound files and modify them in terms of scoring, time, and automation.[11] This GUI, unlike Apple Loops, does allow back-end access as well as modification opportunities to the machine code that drives the data processing as well as that for the sound synthesis.
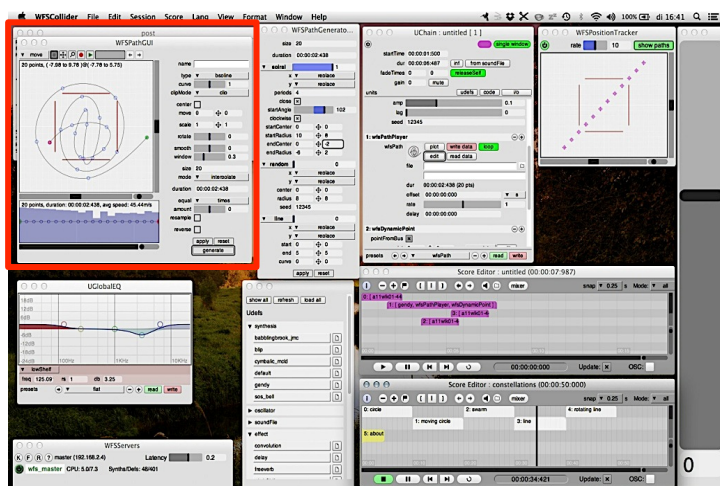
Screenshot: WFS Collider GUI (spatials in red box)

The spatialization process, or designing the way in which to deliver the sonic vibrations in space, becomes easier with the GUI. To provide a simple example: instead of needing to calculate mathematical formulas to route and configure the distribution of the audio

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[11] Further documentation on WFSCollider can be found online at https://github.com/GameOfLife/WFSCollider

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signal, a user can click and drag on the mousepad, indicating which path he wants the sound to take within the speaker array. The GUI also offers a drop-down menu where various pre-set patterns for spatialization can be selected, such as circular or diagonal paths. Yet, this interface is not user-friendly enough to allow even someone with a musical background to get started making sound right away. Unless this user wants to synthesize sounds using code, he has to import his own sound files.

To start making these sounds, the sonic artists received a document from the fashion students containing a written vignette sharing the story behind their fashion collection. The artists first marked up this document with handwriting with the names of the styles and types of sounds that they would make. It was not possible for me to observe every moment of the making process from this point, as much of the work was carried out in the home of the artist in the late hours of the evening and into the night. However, I was presented with a chance to look over the shoulder of one of the artists while he was working to create a segment that he would later present to the creative director for feedback.

This artist was using audio software called Renoise to create an algorithmic loop of a gamelan that he had sampled.[12] I began to understand how the interview participant Max could describe creating scores that orchestras found impossible to play. I watched the while the artist scrolled through lines of programming code while the sounds were generated, stopping and making changes with his computer keyboard and playing it back again. He explained to me that he had written the script in a way that could cue the program to automatically trigger it when another sound event happened. I asked him why he was working this way, instead of using SuperCollider or another programming language. He told me that although he was familiar with the SC language, he had already taken the time to compose the clip using the scripting environment in Renoise. Furthermore, the lines of code he had already put together could be re-used for this project only by making a few adjustments. The artist stated that he felt like he had more control over the sounds he was making with this type of interface because of the experience he had accumulated using it over time. When I asked him about other DAW software, he told me that when he was first a student he started "messing around" with a "bootleg" copy of Logic Pro but wanted to explore "a more direct way" to interface with the computer (T. Ham, personal communication, June 28, 2013).

We see here that the work of this sonic artist has been informed by technology in that he has sought the ability to appropriate various

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[12] Sampling is the way in which acoustic vibrations are encoded to binary language for a computer. For further reading see Katz (2010, p. 148).

alternative means of working. As an artist with the desire to move beyond the functionalities offered by any GUI, he began to experiment and eventually to command more original ways of generating sound by using programming code. As artists exercise the process of reconciling ideas with the interface through experimentation, they can begin to see and hear beyond the options available to them and design their own. In a sense that is the way WFSCollider was conceptualized and built in the first place. The following section provides a description of SuperCollider and then moves on to analyze how the sonic artists adapted their working practices in response to the conditions of the fashion project.
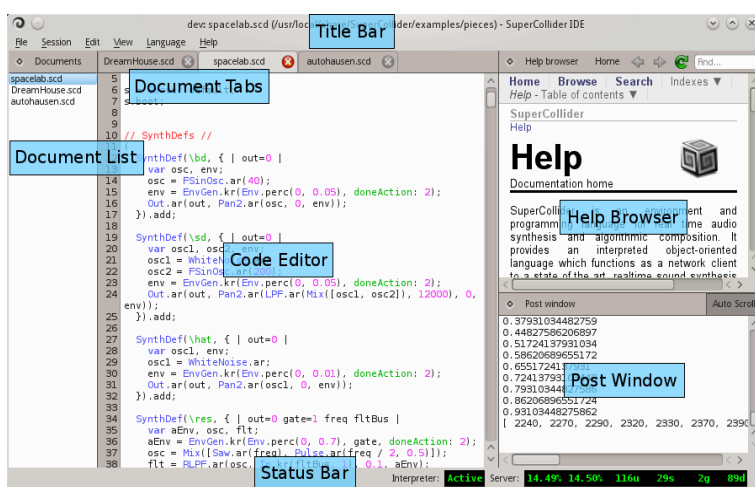
SUPERCOLLIDER

SuperCollider is a textual code based in the syntax of the C programming language, which can be abstracted to the programmer's liking in terms of its implementation. According to its developer James McCartney, "the greater the power of abstraction of a language, the more the programmer can focus only on the

Screenshot: SuperCollider Code Editor

problem and less on satisfying the constraints and limitations of the language's abstractions and the computer's hardware" (2002, p. 61). 'Classes' represent access to different types of functions involving data, inputs, outputs, and computation that dictate the way in which audio signal is generated and modified.[13] The ways the classes are accessed is conceived as messages, which are passed to objects, or receivers. At a high level of abstraction, a user can think of the objects as instruments (HfBK, 2003). Through messages, the user is able to activate these objects, which requires using the keyboard to enter a logical text string of commands that will be entered and executed on the sound server.

Back in 2002, McCartney wrote that he'd like to develop an easy way for non-programmers to use SuperCollider by using the "drag and drop paradigm to make connections between pre-built modules" (p. 68). This was intended more for the ability of the non-programmer sonic artist to start using SuperCollider quickly. Not surprisingly, there has been a module

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[13] Further documentation on SuperCollider can be found online at http://sccode.org/

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integrated with the SuperCollider programming environment where artists can use a class to design visuals that can "completely hide the code from the user" (Wilson & d'Escrivan, 2011, p. 91). This implies that the use of a GUI at some point during the creation process is far from extinct, but programming languages can extend the nuances of this GUI and offer unique opportunities for interfacing. Evidenced further by observations of non-traditional interfaces like the Mediamatic experience, and accounts of sensor-based performances like that of Marloes, the making practices of sonic artists in the Netherlands is informing as well as being informed by programming languages including SuperCollider.

SuperCollider can be combined with hardware devices like the Game of Life system using the Open Sound Control (OSC) protocol as way to communicate among the various components of the system. What makes OSC open, according to its creator Matt Wright "is that it comes with no standard set of messages that every synthesizer must implement, no preconceptions of what parameters should be available or how they should be organized. Each implementer of OSC can and must decide" (2005, p. 194).[14] Since WFSCollider is built in this language, users are able to adapt the functioning of the Game of Life system using the SuperCollider programming language, as well as synthesize sound directly from code. Beyond the confines of pre-defined interactions common to the typical proprietary GUI, the sonic artist using SuperCollider and OSC has the freedom to choose, but this freedom comes with a mandate to learn how. As interview participant Mark has indicated, aspects like availability of technology are bringing making practices closer to artists, but in some cases farther away, considering the difficulty with which they are implemented.

An inability to express his ideas in the SuperCollider language presented a frustrating challenge for another artist that was part of this participatory observation. He expressed that "the potential of the system could truly be unlocked" (R. Koek, personal communication, July 5, 2013). This is another way that sonic artists in the Netherlands are being affected by technology, in that use of programming languages are increasing in regards to their role in operation of specialized audio interfaces. One element of WFSCollider and SuperCollider that is important to consider in this respect is that it is available for free and is open source (F/OSS). Anthropologist Gabriella Coleman describes in her ethnography that F/OSS always has a chance to live free, unlike proprietary software, "even if abandoned by the original author" (2013, p. 41). Through the free public licenses granted by this nomenclature, developers are able to make changes to the source code of the program, and as well others can appropriate this code for use

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[14] Programmers at STEIM have also developed software to interface with OSC – more information can be found online at http://steim.org/product/junxion/

in their own projects. This open source philosophy, as opposed to the protected and closed nature of commercial software, plays a large role in encouraging the need self-education[15], as well as experimentation among sonic artists regarding programming languages. Programming languages such as SuperCollider represent the opportunity that artists have not just to synthesize sounds, but also to design the software and programs that will enable them to be made, "easily adaptable to situations never envisioned by the designer" (Wright, 2005, p. 198).

Unforeseen conflict between technology and the sonic artists arose during a testing phase. Spatialization of the sounds was the task that proved most difficult for the artists, or the acts of "patching what we made over to the system" (T. Ham, personal communication, June 28, 2013). During the process of patching the sounds they had made into the interface of the WFSCollider software, the artists were limited in large part to a trial and error process with the GUI in combination with the SC code. First, the artists had to make changes to their work products because of how they sounded when they started testing them on the Game of Life system. Problems included the reflections; when waves collided with each other and bounced off the walls of the room, it sometimes created unexpected noises at certain places within the array. Adding the dimensions of position and motion to the gamelan sounds, for example, did not always result as the artists initially intended.
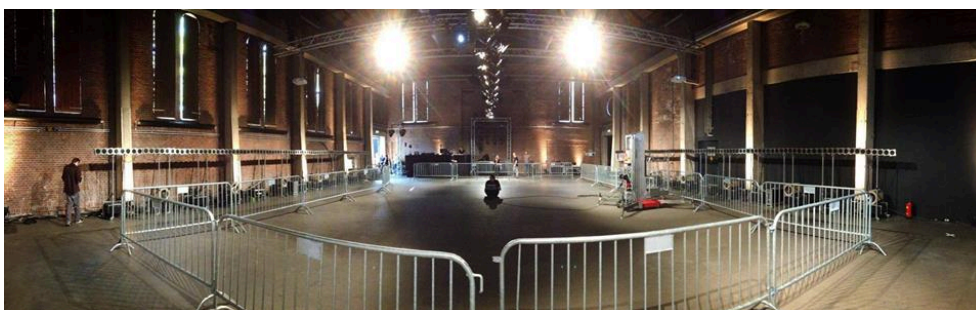
WFS on location – photographed at setup for fashion show

Next, this sent the artists back into speculation over the operation of the interfaces they had initially used, as well as moving into SC to experiment with the sound objects. At times, this even brought them to asking the developer for assistance in deciphering the system's error messages and finding manual solutions. Resonating closely with the generative accidents Max described, the testing space was sometimes a place where usable discoveries were made by accident. In a way this is also evocative of the account of Rupert in the sense that the topic of education for sonic art changing because of the side processes inherent to using a computer to synthesize sound. Use of comments, particular syntax and style of

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[15] For further reading on open source software and self-education see Schaefer, M.T. & P. Kranzlmuller (2007).

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engaging with the code is as much a part of the art of making as of the sonic outcome. Knowing how to maintain a proper order of execution for the code so as not to overwhelm the resources of the rendering computers is important, especially considering the one-time nature of this particular fashion performance. Despite the influences of interface and code on the work of sonic artists in the Netherlands, the concept of "thinking with our ears" is still valid (Bull & Back, 2003, p. 11).

Moreover, testing was happening in a space that was not fully representative of the spatial aspects of the show's venue. Considering that there are acoustic scientists who are today researching ways to adapt algorithms to perfect the wave field synthesis technique for certain conditions, this entire operation can be considered fundamentally experimental. In *Wireless Imagination* Douglas Kahn implies that the repercussions of making these types of experimental noises are driving changes in the working practices of sonic artists:

> The main avant-garde strategy in music from Russolo through Cage quite evidently relied upon notions of noise and worldly sound as "extra-musical"; what was outside musical materiality was then progressively brought back into the fold in order to rejuvenate musical practice (1994, p. **3**).

In general, regardless of the making method, it is certain that sonic artists are using computing technology to find these "extra-musical" qualities of sonic art. Sound aesthetic was once determined as much by technology as it was by choice, considering the limited memory functions of machines as well as composers' specialized knowledge required to program the software (Collins, 2008). This remains true today as the development of new interfacing options beyond easy-to-use GUIs continues. Moreover, in the sense that programming code can be used to instigate totally new kinds of (interactive) sonic experiences for listeners, sonic artists are redefining musical properties. Naturally sonic artists are forced to adapt their practices in the wake of these developments in the process of making their own judgments, definitions and categorizations of their work. In many cases it appears that no one person or machine can be in complete control of the outcomes of these sometimes radical making practices due to the influence of variables such as time, space and listeners. Of course, algorithms and code can also fail to interpret the commands of the artist and what was intended to be a process of verification instead becomes one of experimentation. Due to the operation of these variables, and the pace at which they are evolving, it is still difficult to valorize the intricacies by which they inform and are informed by sonic artists in the Netherlands. What is certain is that generative

accidents made possible by exploration of technology are keeping the field of sonic art innovating into the future.[16]

Conclusion: New Spaces of Sonic Art

Changes in technology represent a shift in production practices of sonic artists in the Netherlands to incorporate the use of programming languages in the synthesis of sound. The interpretative phenomenological analysis provided a context in which to consider these changes by revealing that not all sonic artists realize the diversity within the spectrum of practices to interpret, reproduce and innovate (un)natural aural realities. Undertaking specialist tasks can lead to collaboration with others to develop or hone ways of working. Despite the agglomeration of approaches, there is a need for increased awareness of the coded operations behind the GUI. The incorporation of a literature review revealed that avenues for future research should bring deserved attention to the experimental sonic arts as particular subculture of sonic art in general. The ways in which technology determines the visual representation of sound informs the way sonic art is made as well as an artists' understanding of his work. Acts of reprogramming software or patching multiple elements in avant-garde ways is deserved of investigation for the purposes of new media literacy. The results of the participatory observation conclude that advances in technology make knowledge of programming languages a crucial component to the experimental practices of sonic artists. Although the use of a GUI in most cases is still essential, the use of programming language can extend the capabilities of interfacing. I predict that the cases where artists use algorithms to generate sound or engage in similar practices of automating the production of sound will only increase in number, and begin to reflect what Burraston & Edmonds call "symbiosis of interaction and performance" (2005, p. 167). This is due in large part to the multiplicity of interfaces that afford the artist the ability to design sound. Developing a deeper understanding of the proprioceptive sense with which artists engage with these interfaces as instruments is one of the next steps to understanding the ways in which technology is informing the making practices of sonic artists in the Netherlands.

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[16] A video clip of the full fashion show can be found online at http://vimeo.com/76421972 Note: the sound is a stereo mix made from the work for the WFS.

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Appendix A: Interview Questionnaire

Part I

Tell me about how you got involved in the field of audio.

Was there anything remarkable about your education on which you can comment?

What is your view, one of the basic differences between those who engage with audio professionally and those who do it as a hobby?

Do you think that people who do audio need to be able to do programming as well?

Does hacking culture or hack-tivism have any influence on your work?

Who do you read? Where do they publish?

What are the buzzwords that are swimming around in your head right now?

Part II

What about device-software interoperability?

Tell me about interactivity in music. What are some of the pitfalls?

Can you comment on the need to know how to compose for a variety of mediums? (i.e. art installation or project to be published online)

Has there been a shift or a change among the activities of companies that produce commercial software products for your industry?

What are the "tricks of the trade" that have carried over in your work?

How do you define a quality standard among your work and that of others?

Tell me about an influential project you accomplished in collaboration with others. Tell me what made it so interesting.

How is knowledge transfer accomplished?

Appendix B: Interview Annotation Scheme

	Siegfried	Max	Rupert
Live performance	8	13	4
Auditory realism/theory	5	15	2
Cultural change	21	8	7
Professional vs. hobbyist	8	5	3
Technology/instrument	9	7	1
Collaboration with others	6	5	2

	Alex	Felix	Marloes
Live performance	-	11	3
Auditory realism/theory	6	7	-
Cultural change	2	12	4
Professional vs. hobbyist	4	5	-
Technology/instrument	7	2	4
Collaboration with others	8	9	3

	Marjolein	Mark	Reinhardt
Live performance	5	6	3
Auditory realism/theory	-	5	4
Cultural change	3	6	3
Professional vs. hobbyist	4	1	5
Technology/instrument	1	6	7
Collaboration with others	6	4	6

Recurring

Knowledge-sharing

Unique; innovational

Useful in case

Cultural, inherent

Education

Recurring: an overall theme expressed repeatedly
Unique; innovational: participant-specific activity
Cultural, inherent: researcher bias or other inherent influence
Knowledge-sharing: how participants worked with others
Useful in case: informative perspectives for the case study
Education: related to training or teaching activities

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Appendix C: Interview Transcripts

"Siegfried"

K: Glad that was off the record. When you, before you got involved with Sparrow Falls. Did you have audio interests before that? I mean you studied Musicology.

S: Yes I studied for two years, so my interest was there already. Only during musicology I found out there's so much more to music with regard to, until then you know only about pop music, rock music, and I was a big metal fan but I don't see that as pop music. And there I learned the word "art music" which I really hate. But they say, we see as classical music, we see as, I don't know if you agree, we see but to see classical music as art. That's a certain kind of music made to be art, and other music is popular. A complete distinction between the two and I didn't' like that distinction. On the other hand I learned these new practices of new music, like late-19th century, late 20th century music and how do you involve technology and that. It actually got really interesting, a little experiment of students with several concerts with surround sound synthesis as well. Next to that I was playing in a little Gothic metal band, where I obviously had to use the choir and strings sounds. But I also was lucky enough that we could experiment a bit and involve more analog synthesizer sounds. I had two digital/analog synthesizers where I could recreate some classical sounds and I also had classical sounds as in classical synthesizer sounds.

K: [giggles]

S: I also had a real analog synthesizer, and old Roland from the 80s but that was really quite a hassle with touring. It always needed to be tuned and you had to set up everything again.

K: Was it really heavy too?

S: It wasn't really that heavy but it detuned a lot when, of course in warm rooms etc. If you are touring, it's in the car all day, then you got it in a venue where its hot. Or you have to set up really quickly and it comes out of a cold backstage room or something then it needs tuning during the concert. You could tune it of course during the sound check but you'd have to tune it again and again because of all the old oscillators and everything. So at a certain moment I decided to sell it and go for a digital version where I could do the same thing and recreated the digital sounds as much as possible for the sounds and use that. I had a music workstation with the classical sounds. Choir, strings, piano, organ, two synthesizers that created the more synthesis sounds, like lead solos, or soundscape sounds etc.

K: Ambience type sounds.

S: Yea exactly.

{waitress, hallo, Chouffe? K: Alstublieft. S: Dankjewel. K: Dankjewell. S: Also on the record. K: proost, also on the record. }

K: Are you using software to run these synthesizers?

S: yea, I did that back then. I had a microKorg on the floor. You could program everything on the synthesizer itself, it was much easier to do it on the computer. There was a button that indicated the tempo, the speed of a certain sound. I had a few sounds that had this Arpeggiator movement duh-duh-duh-duh, but just with a button it more like guessing than it was right. And also working with ClickTrack for a drummer on the computer, I just could easily pick it to 180bpm so it would fit with his ClickTrack.

So a few of these things were more experimenting and making sure it sounded good. Others were more mathematical and I had to put them in the computer. But that was in my old band, in my new band I'm using a NoordElektro. Yea, I'm using a software program to assist me with setting up the sound, but these are more organic sounds that have a complete sampled Hammond organ in it. Fender Roads and a good piano, and that's what I'm using at the moment. There's only two other sounds and those are coming from the Mellotron which is also sampled. So that's everything in one thing now. That's more, it has less synthesized sounds, none at all actually.

K: Do you find often that not only at you at your workstation when you're playing live, and you have all this equipment around you, do you also have a computer screen there?

S: No, not anymore. I used to do that. But then I was using one keyboard as a MIDI keyboard and just doing everything on the screen with regard to a Hammond sound and everything. I used, what's it called again, from Logic... I forgot the name, Backstage or something.

K: Oh, it's like a module..

S: One extra app, application with Logic. I think that's called Backstage, or Mainstage. Mainstage.

K: Oh yea, I think I've heard of it.

S: That's what I used. You can load the virtual instruments and all those setting into it and you can switch between them. That's what I did back then. In the end I wanted a better sounding thing. And the NoordElektro has a complete sampled Hammond organ which is the most important thing. I could easier control it myself, so that's why..

K: Okay

S: What I needed back then.

K: Do you think that a lot of time, yea, when, if and when you talk to other people who maybe live the same role you do in a band, or even your own band members, do you find the practices you have in terms of maybe moving away from using the screen, do they shared the same sort of, trend?

S: Yea, I have a lot of friends working in music, and really professional. I'm just doing it as a hobby. They are even, for example, one of my best friends is a keyboard player for currently for Laura Janssen.

K: Okay.

S: Before that he was with [Wendy] Snijders? in stereo. He started with what I have now, a NoordElektro. And then because he was using the big Hammond sound, he was just ended up going back for the real Hammond. And a real [ ] speaker and a real Roads, and just bringing also the NoordElektro as a backup. That if something breaks down I still have the same sound. Many of these musicians are going this way. It's going back to the original keyboards, also a friend of mine a keyboard player for the Wolves. On there album, they also have Mellotron sound. For their shows they even hire a Mellotron, just for one, to use it in one song for 20 seconds for this one part. The rest of time it's just, standing there..

K: Do you think the audience appreciates that?

S: Yea, yea especially these kind of fans. People appreciate that they have the vintage stuff. And bringing everything themselves. Both keyboard players had the Orgel Vreten show, OrgelVreten is on

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the one hand a lamp you can buy at Ikea, it's also like "eating organs" in Dutch. So they had a band called that, they were just doing like a Hammond battle. Two Hammond against dueling against each other, Jimmy Smith and dueling solo, drummer, some guests sometimes singing, playing guitar, most of the time it was about the organs. People really enjoyed that. There were two people on these vintage Hammonds. They both looked bad. They had [ ] at the back. They even had a Sousaphone player, it's like

K: A tuba, or..

S: Yea, but bigger than a tuba. The horn is bigger. He also joined them for some songs at several concerts, and last week I didn't see the concert, but I saw the Hammond and all the keys were just broken off, I mean this guy was jumping off Hammonds, and this big guy, the Hagrid of tuba players of the Netherlands.

K laughs

S: it was amazing to see. People really enjoyed this, they had this organic vintage feeling, with those people I see that they are going away from the screen. Going away, going back to the vintage stuff. They need good sound engineers, for example a Lesley speaker has the bass, the woofers are down below, the horns are above, you have to strategically place four or five microphones to have a good sound. I was thinking I have this NoordElektro, I just need two cables, each to the PA and that's it. [ ] gets two cables and that's okay. With the Lesley you have to make sure everything has a good spot, the high and the low sound. There's so much more that it's a stereo sounds. You have two ears, the rotary. For me it's just two cables. They enjoy the live feel and the vintage sound of it.

K: Being able to reproduce the sound accurately. ..

S: Yea, true. I mean we've come..

K: If you're bothering to hook it up that way with

S: Yea, hiring a good sound engineer, having roadies that will carry it for you, I had to do it a few times and it's fucking heavy

K: Haha!

S: No. Like a big organ plus a big speaker and then times two, since they both have one. I know most of the time, times three since they bring a spare one, just in case.

K: Yea, in case Hagrid decides that he wants to get a little too aggressive. You said something earlier I have some friends who do this as a professional thing, I just do this as a hobby, because you have other things that you do, like, teach. Are there other ways that you would contrast hobbyist vs professional?

S: I'm not so sure. With regards to equipment we always talk about everything. For example, also interesting with regard to screen and vintage sounds. Last week, I was sitting around with This, this keyboard player. And one of the guitarists of the [Rhythm] Sensation, Ruud. We just found out about this new effect, rack for guitar that models, you can just for example play your guitar from your old vintage amp, it records it, and models it, it same sound in the digital rack. So you only bring a set of like, one amp, you only have everything in this one rack. The cool thing is you don't only have, are able to record this amp, you can also record your older amp. And some of the newer amps that you bought, or even

download the sounds from Jimi Hendrix, the sounds from Brian May, from the Internet and put it in this rackspace. And he is really happy about it, he is playing on the one hand Rhythm Sensation ike [blunt metal], he has his own progressive rock band. He is sometimes involved with an iron maiden tribute band. He is also teaching the [ ] rock city in Eindhoven. The rock academy but one degree lower. And then he has to show different pieces form different songs together. He can put everything in that, he was so happy with that thing, he can do it completely digital. One of the other people sitting around and hearing his story, he wasn't so enthusiastic about it, he said that's not real, and the other guy said but it sounds good.

K: Ha

S: Exactly the same, the one cable, again the cable thing. One cable going to the PA, you don't have to place microphones, the other cable is going to my in-ear, I have always perfect sound, they have always perfect sound. He was really happy with that. That was quite interesting, he just thought about the practical thing as well. I only have to bring one thing when I'm playing with one band it has sounds I need there, the other band I have sounds I could bring there. I don't have to bring four amps to recreate the sound. The most important thing for R.S. they're touring a lot in the world. They go to South America, in the earlier days, they would hire, they would need a Marshall amplification, a Marshall cabinet with a, with a

K: Head on it

S: Fender head or something. Then I have the sound I need everything to make the right sound. He just bings this thing which is a lot easier to bring along. Even as hand luggage almost, if you could imagine it.

He's clinging to it in the plane like this.

You put it on stage and you have the exact sound that you need. It was so much more efficient for him, and he was happy about that. I hear about other musicians doing that as well. More in the progressive metal scene, but I see they are a new trend. On the other hand you see for example the Wolves, the guitarist also has like five amps on stage. One for the one sound, the other for the other sound. He has clean parts and he needs this amp etc etc. So it's you still have both things going on. [I have friends from another band who just bought their first [VOX] AC30 so the really old Vox that were used by like Brian May from Queen. They still are being produced.

K: Oh , I didn't know that.

S: Yes, so they both bought just one, and it really looks cool. Our bass player decided to just buy, like old, how do you call it, stof?

K: Fabric .

S: So fabric to put on his amp so looks older as well. And they asked me if I could build a case so it would look like a Hammond to put it around my synthesizer so we all have vintage stuff on stage.

K: It reminds me of that Gorillaz concert you showed us with all the holograms on stage.

S: Yea, I know there are more bands doing that. You see a big grand piano on stage and it's actually just a digital piano put in the case of a grand piano. Something like that. It's hard to see the difference, still people are choosing for one thing, most of the time on a practical level, or they get money for it if

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they are endorsing several instruments that's also a possibility. People are moving toward the vintage thing. I don't see a difference between hobby and professional, even between hobby people I see people spending a lot of money on stuff. So it's about the same.

K: One of the topics that's come up in a couple of interviews I've had. With the software that runs these, or can run, or take input from I should say, these more vintage older devices, it's getting more blackboxed, it's less, you can take it apart less.

15:49 S: Yea, but people like that more, I think. When you go to, for example, in earlier days you saw people up, everything apart, there was a certain moment that people were going for Firewire interfaces because it was easier than USB because if Firewire was unplugged from your computer, you didn't hear the [bu-doo-deep] sound, for example. It could happen of course. USB interfaces were completely USB powered, the Firewires weren't. If something would go wrong you could quickly put it in again. I had this when I was touring with Epica, when we were touring with Epica, my old band. They had a complete, they had a ProTools setup on a laptop with a complete hard disk in the corner below it which would put out every sound that they needed. There were even guitars on there, part of the guitars that you heard in the crowd were fake. Yea. But they needed that because they want to recreate the sound that they had on the album. The choir, the symphonic orchestra, backing vocals, and even on the guitar, because one of the guitar players wasn't that good.

K: Ha, okay.

S: They always explain it like this at support, we're like hey there are guitars on here, Support is like yea that's for the drummer, so he always hears the good part instead of someone doing something wrong. They say I do and I also saw this was mixed into the front-of-house. But yea, they are going more and more, like, like to the easiest setup. One example is this Mainstage app with Logic. You can also run Logic playing a lot of tracks like which you recorded and do it like that. On the other hand you can also use Mainstage for example that has three or four tracks, one going out, for example on the clicktrack, one going out for the front-of-house mix and one going out for your own monitoring and you have the sounds in there while playing. That's an example of that. You see that a lot. Yea, I have a live DVD of between the Bird and Me where I saw the drummer sitting next to an iMac. You see all the track and he's there just sitting next to it. There are some samples in the music but what I, so I don't know what he hears or what is going on there. It also might be a recorded show itself. When I saw it a few months ago, it was nothing. He just had two in-ears, just it. So probably they completely changed it into like yea, a blackbox. One of the next step iPods or iPhones are having an app possibility to do the same I think.

K: Do you really think?

S: Yea, for audio. It would be really easy. I you already can if you add some extra interfaces, that you are recording like four or five or six tracks on an iphone, so why not having a different interface for the connector and, if you only bring an iphone and put it on, and make sure all the cables are connected, why not.

K: So on the one hand, it's getting blackboxed because its making it easier to use.

S: Easier to use, but people like to see that you are playing this organic show. In the earlier plays,

Coldplay had a keyboarder player on the side. You didn't see him from the crowd. But if you were on stage you saw the keyboard player playing everything along. Ten years ago, they had a second guitar player somewhere at the back, which only has one or two long moments that he could come onstage and play the twin solo with the other guitarist, not even a real solo, no with the other guitarist. Etc etc. Ozzy Osbourne had many tour, that 'cause he wasn't that good at singing, they had a keyboard player but he wasn't on stage, but he was playing along with the songs because they didn't do everything on clicktrack because there were no samples there. There are many artists who did this already. People want to see the show from their own heroes already sounding perfect. Some bands are going for the complete organic way to make sure they have the old instruments, old amplifications, doing everything themselves or bringing in people for example with Foo Fighters they have several songs for the keyboard player, you see a keyboard players on these songs. Then on the other hand you have Green Day, and you always see them with the four of them, but at a certain moment when there was some [ ] part in a song, you song just behind the amp you saw two people clapping and that was on the left side behind the amp, a keyboard player on the right, there was an extra guitar player to make sure that everything was played. I am a musician so I'm looking at it from a different viewpoint. I'm also always checking what is happening. I can imagine many people just don't see it or don't hear it like that, they just enjoy the show as what they expected because they heard the songs on the radio, or on the TVs and everything, what else, and I yea, I also I think sometimes a pity for me. Last august I saw Beach Boys live and they are with about I think 15 or 16 people on stage. You get the feeling that they are doing it live. But it sounded so good, I think for the first four songs I was all the time checking whether there was samples, auto-tune involved. I couldn't believe it. I couldn't believe it was that good but it was and it turned out it stayed that good. There wasn't anything tweaked.

21:45 K: It's very, it's funny how you become skeptical

S: I get skeptical, I hear all these voice like 8, all these polyphonic sounds, voices, I was too skeptical to believe it was that good. I saw old guy singing the songs I know

K: Aruuuba,

S: It was amazing. It turned out to be live. It turned out to be amazing but it cost me about four or five songs.

K: Haha, yea plus for your girlfriend, turning to her and being like hey, hey, see that over there.

S: The microphone wasn't too far away to hear the voice still, I was patching it..

K: Yea, seriously.

S: Which I had already with other bands as well.

K: Yea, go figure. You're some kind of expert at diagnosing this

S: Laughs

K: Ha

S: So that's quite a pity but on the other hand yea, the answer's also even better to me. I was more enthusiastic.

K: You're thinking wow, that's really authentic.

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S: That's the thing that's going on now, and sometimes I don't care, with bands like Meshuggah, or [ ] they're quite happy metal bands. You only see one effect case on stage, that's everything they have because everything is digital, they have the guitars and they're playing everything live but everything is digitized. That's the other time.

K: Yea, it's not guitar to cable to PA

S: No, it's just so, you don't see the amplification, you just see this box that has a wireless action to the guitar, and there's one big cable going up above.

K: Oh yea.

S and there's no monitors up on stage because they all have in-ear monitoring. So it's quite clinical. But their music is also clinical, so its ok. I feel like I get the vibe.

K: I didn't think about that, how those aspects coincide with what you offer as a band.

S: It's technical music, so clinical on a twice-stage level because they have this polyrhythmic groove going on for five, six, eight, ten minutes where the singer is trying to get a rhythm and the crowd is just trying to nod their heads to a rhythm I hear and I don't know [dun, dun dun,dundun; sings series of oddly syncopated tones]

K: Having long hair in this situation helps because you can sort of adjust mid-

S: and within this rhythm this singer is going for a different groove again, and everything. So that's really awesome, and I like this band a lot. But then you see the stage setup is just a drummer, this Line6 rack with all the equipment in, the guitarist the bass player and the singer, and that's everything. Everything wireless as well. Yea, I don't know. It's cool on the one hand, but on the other hand strange, yea.

24:47 K: I don't think I could find any better person to ask, but could you comment on device/software interoperability? Like how, are there some instances where they don't talk to one another, have you had that experience?

S: Most of the time, most of the time they are working together because you test everything and you set it up. I always have some problems with either MIDI not giving through everything, Firewire or USB powered things not connecting properly during the show, of course. Also with the multi -the surround sound that we tried. We had a great system and we tested it like 20 times. And it was like, how much did we have. I think we had four, the sound of four places, not just stereo but four. If the crowd was sitting in the venue, they could hear the sound go around. You just made sure that everything was mixed well and like only five minutes before the concert the electricity broke down of course and we had to reboot everything and then it takes so much time and you have to make sure everything is plugged in at the right moment. It was a hell. So yea. Especially with these live things. That's why many people go back to the most simple things, the practical things. This amplification of a two-rack thing, like Ruud has. He almost has the same sound with the one thing. If this breaks down, he has a problem. But you always have this with lots of effect pedals, you can put everything in this thing. Or a guitarist for example. You have 10 effect pedals that all have their own electricity in, you have to put cables between them. There is something to switch you amplifier with the distortion sound of the amplifier, the clean sound, somehow the distortion, that solo sound that you can have it a bit harder so everything would be more bright and together with that sound you have switch level effect pedals, now you have

one board making sure all the sound is there.

K: Oh yea, what is it, the GT800 or something

S: Yea, you also have these BOSS effect pedal, the GT 5, GT 6, but these were completely digital. You always heard that you had a digital sound somehow coming from this, there is an amplifier on stage, but its somehow digital. They tried, they increased the possibilities of the digital sound, sounding organic/analog, that's the cool thing. At the moment you don't hear the difference anymore, or they don't care, apparently.

K: Or their ears aren't trained enough, I guess.

S: There are new equipment, I think it's called XFX, he was talking about XFx on the one hand and Camper on the other hand. They were from the same manufacturer. They were these digital things that completely had an analog feel and everything. Which was quite amazing. What I have also as well with the NoordElektro keyboards, it's a normal keyboard, on the other hand fucking expensive, but it has the sound of a Hammond, and the authentic sound of a Lesley. You can't hear the difference. That's the thing, that's amazing actually, to use on stage. Me being a more practical performer, I have to carry as less as possible when I go to a show and its working out quite now.

K: I'm happy to hear that, that's really good.

S: That's why I see these things.

K: In terms of asking someone to comment on the sound, I know one of the trends I suppose of late, maybe it's a European thing, maybe it's not, but this electronic, less rhythmic, less musical, sounds coming out of these DIY synthesizers I don't know if you know Arduino or stuff like that. How would you compare that, how do you think someone who's not an expert can draw a quality line.

S: That's hard, that's really hard. Most of these things you see always more with the art music composers again. There's a nice distinction to make [ha, ha]. These are people doing things themselves, he. You could say already began with [ ] and Stockhausen making their own sound effects, or then again Phillips Music Lab here in the Netherlands in Eindhoven probably heard this, had a lot of things to do here as well, they played a less major role, but yea, after Phillips they did a lot as well. It's interesting to see that these things were always self built and with the synthesizers they're the first real keyboard players that were the massive keyboard players. For example Emerson Lake and Palmer, he played the first Moogs. He developed these things together with Robert Moog. Pink Floyd as well. After them everyone just tried to copy those sounds, just buy the equipment that they had.

K: Off-the-shelf.

30:35 S: Yea. Now a days the DIY things are, some electronics like dance producers are doing these things but there's not that many. I think they are still using the more classical synthesizers to create the sound. Still create the sound with , but I wonder to what extent real synthesizers come in with musicians like David Guetta or Avicii, sometimes I like for example for Psy this Gagnam Style song. I really love the sounds of the synthesizers but I tried to find out which equipment they used but I could only find software instruments, so you never know what they did. 31.21 They DIY equipment I don't see it that much in my friend group or what we seek. There are some people creating their own effect pedals, analog, but that's not the same. But that's more for guitarists.

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K: So would you agree that sort of anybody making a DIY synthesizer is sort of relegated to this experimental.. zone?

S: Yea I think so, too. And, there were some instruments that I saw, I don't know, a [ ] instruments. They had this draad, of synthesizers that have lots and lots of knobs and switches and everything a normal DIY guy would like that, I would like it too, but I wouldn't know how to do everything of it. That was a hype a few years ago, people really liked to tweak everything themselves. On the other hand, the DIY thing never really happened. I know some people that studied musicology and whats more these 20th century music, they tried to develop something themselves. I think in the Hague there is a research going on or working on these things. I don't know their name. I could check that for you.

K: Yea, thanks. I actually know a colleague Jon Reus, he's also STEIM, so maybe, he told me was in Den Haag.

S: He's would be probably involved in this group. I heard from them of Peter [ ] in Brussels. They are working on their own products and everything. It's really interesting, to at least see how a wave was distorted or what an oscillator does and everything. That's more like from, to teach people or educate people to think surround synthesis and development and everything.

K: Do you see any trends, you're still teaching musicology but maybe a little bit more with a media perspective.

S: Yea.

K: In the students you see coming in, are there presuppositions they have, are there things that they come in with that are different than before?

S: Well with regard to sounds, they don't know that much. It's hard to explain to them what a synthesizer is different than a keyboard. You always have to. It's hard to explain these things. The only that still, that has become bigger. This authentic thing we saw, using technology to improve your performance, autotune and sampling and everything. That is something I would like to educate everyone about so people are aware that everything is fake.

K: Yea, yea the new Daft Punk song came out, everyone plays it, I'm like, no, neh.

S: Yea

K: Laughs

S: The new Daft Punk song is really awesome I really enjoy it. Of course there are parts that you should know about because its just sample. On the other hand, the guitarist who is sampled is now officially featured in the song. That's interesting to see.

K: That's a step in the right direction.

S:Yea.

K: There must have been so many studies about that.

S: You see, they listened to a song they thought ah, this is the sample we need, who's the guitarist, let's feature him in the video clip at least. I'm not sure if they did him again in the studio or they just took it. But that's good I thought. [ha, ha] That they are already going this way. [Coughs] I don't see really any trends through. But on the other hand I'm only teaching for three or four years now. I think if I would teach for 10 or 15 years I could see more.

35:11 K: In terms of, being a musician, is it true, is it okay to assume a lot of the buzzwords, or, I use the term lightly, the marketing terms you would use to describe your work, the new innovation type of thing. Does most of that have to do with equipment or are there other things that you are on the lookout for as it has to do with new things.

S: Uh, you

K: I mean vintage, you said.

S: Vintage is one thing. You're always looking for new stuff. Especially as you're going professional. A lot of good stuff will probably be free for you, especially if you find something that's really cool, no one knows about it. You were the one who was able to endorse that. And you always want to be innovative compared to others' decisions. That's the most important thing. The equipment doesn't have to be innovative as long as you are innovative. One thing is for example, and going back to the gothic metal scene, where I just had three keyboards on one thing, so I was really the boring one. We were playing with After Forever, one of, their keyboard player was starting to use the 80's axe synth, the key-tar actually.

K: Ha, ha.

S: He could stand in front of the crowd next to the other guitarist and the bass player so he could headbang along and everything. People really enjoyed it. On the other hand its really wrong to do these things. So bad, it's like 80's stuff, why would do you that. It involves some new thing, I was thinking about it too back then. As soon as he did it, I can't do this anymore, but then I would be the one who does it as well. Then you saw the same thing with

[ober: Willen jullie nog wat drinken? K: Wil je nog een biertje? S: Ja. K: Ja is goed. Mogen wij de zelfde? ober: natuurlijk.]

S: So you saw the same thing with Dutch manufacturer of keyboard stands, I don't know if you ever saw the live group Dream Theater].

K: No I haven't

S: He has like a turning keyboard stand so you just can walk around, play like

K: It's sort of a rotating..

S: Yea, it's rotating. He was using it, the keyboard player from Epica is using. But everyone was like yea, the guy from Dream Theater is doing the same, so it's not that cool. Now he has some new thing which is really cool I thought. A belt buckle that you put on, and on that, there's a keyboard floating, it's round, so you are are playing it like this.. if you would play it.

K: So does that give you more freedom to interact with the audience?

S: Yea, and again it's wireless midi transferring, using sounds from the other things. You can walk around play next to the guitarist, walk around. Can only use it for other songs. Because you still have this thing that the keyboard player has to be in the back. This is more like gimmicks, I think. It's original. No one knew about this thing and he is using it, he has the endorsement probably. And people will buy it, they like the band and they like this thing and they will do it. Sometimes I think that's how that stuff works. And innovation in there, there wasn't that much innovation 10-15 years you see that some bands are trying to make the vintage, the digital stuff sound as vintage as possible on the one hand, recreate

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digital stuff as well, but even the digital stuff is going to recreate the old digital stuff, like the 8-bit sound, stuff from Nintendo software, the old vintage synthesizers, by now there's a seven-piece 8-piece synthesizers by Roland, Moog etc. These are being recreated now as well, but the more organic sounds, like the old keyboard, the old organs, etc. so that's what you saw the last 10 years. Actually there wasn't that much innovation, just try to create old sounds better. And make everything more practical. Do everything in smaller things.

K: Yea, like the computer chip, getting smaller. 39.31 It's so strange, but could you comment, on. I don't know how many different venues you've played. Probably countless.

S: I know I did 200 shows with my old band and about 50 with the new band now, I have some other bands, I know I played around 300 times live, but yea, some venues were the same, so.

K: Is it often, or less often that you're adjusting to what you observe from the audience?

S: Uh, no. Almost never during the show. You expect something from beforehand. You are aware you are playing on a metal festival on a rock band, you are playing your loudest songs. Or, when I went the first time to Albania, we went to Albania twice first with my gothic metal band, then with Sparrow Falls. With the gothic metal band we found out that people were reacting really good to our two cover songs on our one hour set, and I used that in [ ] when we went with Sparrow Falls, we said cover songs were really the shit. We made sure every song out of two or three were cover songs. To make sure people were a bit more happy during the show.

K: Oh, nou. Dankjewel. [bier bestelling].

S: There was something different. If we see people are bored we might decide to skip a few songs at the end. Or that we don't like it ourselves that much. Playing, if there are only ten people it's like [behind hand] next song, next song.

K: Yea, ha ha.

41.29 S: Or even, we do the same. If there's a really good crowds that, if we keep the show more condense. Like when we have to play 40 minutes, and you stop and 32, people are enjoying it more, because you don't have any songs that might be a bit too long and people are asking for more which you use to your advantage. Ah, we'll have one more song. Then we have to decide if we want to play a song that we didn't play or one we even did. A couple weeks ago we had a show at a theater, acoustic show, that's quite difficult. We started, we had two sets of 15 minutes. The first set was we played the first 3 songs, that was OK.

K: Yea, people were clapping.

S: Yea, they're nodding 42.04 we're also like, why didn't they do anything besides sitting there laughing,

K: Yea, there in their cushy chairs, just hanging out

S: Sitting, beer drinking

K: Also like this

S: About an hour later we had a second set. On the other hand, people were a bit more drunk, because they were able to get drinks through everything we also knew we some had of the best songs, the more of the alive songs in the second set. We decided to take one song from the first set again and, how do you call it, like the toerit,

K: Uh, like add-on

S: [German].. yea, like an add-on, there's a fucking word for that...

K: Encore?

S: Yea, maybe encore. That's it, yea. So yea, as an encore we take one set from the first set again.

K: Oh yea, and then they're like yea...

S: Yes, as they would already recognize the song and it would even be better for the encore. These are the things that you sometimes use in a set. On the other hand, write down the songs that you're going to do, put the set list on stage, and you will do these things. It doesn't happen that much that you will change the songs. You will try to foresee which kind of people are there, how many, and depending on how many you might skip 1 or 2 songs sometimes if you have a long set. It's not nice to play one hour in front of 20 people who are not reacting.

K: Who are not reacting.

S: Who are not reacting, exactly.

K: Is it often, is it often that you do improvisation?

S: 43:59 Almost nothing. I must say, that in this band they are better musicians than in my former band so I must say, we could try it, but its more like, for example, the singer starts too early with the chorus, or (laughs) when he's drunk.

K: Oh, and we're gonna...

S: Or makes a mistake and we all dig in on this and make sure the song sounds still good. If that's somehow improvisation.

K: If by accident.

S: Yes, if by accident. Ha, ha. Well with one of the songs that we are rehearsing now, there are a few solo parts, the guitar, I will play a solo, I guess that twill be more improvisation, but you can always change a solo. You won't change that often, usually. But as a musician I go for jam sessions, play together with other musicians.

K: But not as part of the audience.

S: But audience as well. In Maastricht we have a monthly jam sesh with musicians from different bands, and a guitar would come along as well, and a drummer sometimes. We would have some fun there, playing in different settings and having some fun with other people, so we do it, but we don't do it with our band. I don't think the music is right for that either.

K: Not bad.

S: There is one song I just remembered where we have a part where we make it a bit longer sometimes or we turn in a bit, in just a moment it's a bit causal between that. Four chords to go, and we have to go back to the chorus.

K: Okay.

S: So yea, we don't do that that much. But our music style, is well [unclear].

K: And in terms of how, and perhaps this will sound a little, oh what's a good word for it, a little too obvious since I sat in your class already, but in terms of how you've had to change, I'm assuming although you do it as a hobby, there is a financial incentive for you to continue participating in Sparrow

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Falls.

S: Oh like that. Well, we always have. And I remember with my former band, we were in the band 10 years. What we try to do is there are no costs to the band except for equipment so equipment is our own thing, we have to buy it ourselves. And everything else is being paid for. Then we could still call it a hobby. If we could earn money that would be great, but then it wouldn't be a hobby. As soon as we have some money, we're spending it on merchandise, and if we have more money again we'll try to find a new place to record some new material. We are going to do that now as well, we are looking for some space at the moment, and that's working out well. We don't have to complain about that, we've got some shows to play that are covering some costs. There are shows where you're going to Rotterdam from Maastricht for 100 euro. But next we have a show in Maastricht for 400.

K: Things tend to even out.

S: We're not complaining about it.

K: What about that comment on the rise of recording costs? Do you see a rising cost as it refers to studio time?

S: Actually not, because everyone is able to record things themselves at the moment.

K: I'm so surprised by that. I'm not sure why these guys can't charge an arm and a leg for this, because it's really a space.

S: It's expensive. But these people are recording as well at home. And sometimes I'm thinking if I could take the time, half a year putting all my effort into knowing how to record things, I can do it myself. But I don't have time like that.

K: Yea, that's another thing is noise proofing your walls

S: Yea that's another thing, everything can be digital

K: Oh god, yea.

S: I saw it in the studio where were are going. It's like two black plates that you put behind your microphone and it gives an amazing sound. You can hear voices everywhere. You just put it behind the singing microphone, the vocal microphone.

K: What does it do?

S: It makes sure that there's not acoustic

K: Oh, no feedback

S: Too less or too much space, or anything. It just makes the complete dry sound of your voice.

K: It would be like I'm in front of you.

S: and then you can add extra effects to make it sound like it's in a church, like its in your ear, stereo, everything. But yea, on the other hand you also expect things. We also look for studios in the past few months because we want to record some songs. There are studios for example, yea you can pay us 350 euros a day but they have all this vintage equipment, mixing panels, all vintage amplifier, the studio is big, completely soundproof, acoustically phenomenal. But yea, 350. And recording 6 songs, mixing, mastering, 10 days at least. So it's like 3500. It's a possibility. But on the other hand, the brother of our bass player is working in a studio in Amsterdam. Which also has amazing vintage equipment, the vintage 60's polygram mixing panel, old microphones, even a German microphone that was used by

Hitler, they say. I want to scream into that one.

K: Oh, jeez

S: I mean, things like this, they have amazing equipment. On the internet they are always looking for vintage drum sets, vintage amplifiers for guitar, bass, they have a complete room with 10 or 15 vintage synthesizers.

K: You walk in there it's like a candy store.

S: Yea, and they want to charge like 500 euros a day including an engineer. And that's really expensive. But then you just say I want to pay 2500 euros for everything.

K: And then, like, do you want the business or not.

S: And then yea, we have some off days in June, so if you can start in half June, and well, and these off days, then its amazing. One of the most known studios in the Netherlands, it's call Wisseloord like Iron Maiden, Bruce Spingsteen, Judas Priest.

K: I'll look that up. ███████████ I don't know if you know that guy. Gonna interview him on Monday.

S: Oh at the HKU, well I know of him

K: But Wisseloord

S: Yea it's like 1500 a day without an engineer, but a friend of mine is studying at the HKU, and is an intern there. In the weekend, there are not artists there. Because all the big artists in the Netherlands, Marco Borsato, Trijntje Oosterhuis, record then, they view recording as a job so its on Mondays between 9 and 5 until Fridays between 9 and 5. So weeeknds are off, they don't have anyone. And then you can hire it for 150.

K: What? No way.

S: Yea, but then you only have. These things are always possible, and then, its just how you try to arrange it. Friends of mine they have a band in Maastricht as well, they have a producer who worked at Super[] and Muse, but they just hired him to come to Maastricht and record everything there. They just paid him a daily fee of 200 euros, but that's very cheap. It's not like [ ] where you have to pay 8 or 900, then to come to Maastricht. A housemate of mine was in a band called "Jam" which had a few hits a year or four back, ago, they went to [Riga], to an awesome studio with [dramatic street preachers] as the producer, where they only had to pay 200 a day and the studio was 50 today. They even had it cheaper. They had the same cover, but in the studio, they had an awesome producer. It's how you arrange things.

K: People who know people, via via.

S: It became cheaper because everyone can record at home. Studios are seeing this and make their prices more competitive.

53:25 K: And what about, I would ask, the how do you get people to appreciate what you do.

S: Ah, that's the hard part. That's more marketing.

K: Is it really marketing, or is it sound?

S: Well it's really marketing and sound. On the one hand it doesn't matter what sound, there are music sounds you can bring you can release them and it's the biggest rubbish ever.

K: Yea, we know this.

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S: Like black metal. The Norwegian black metal bands. They will record everything in the garage and it sounds like rubbish, but everyone will think its true, and this is show it should sound like.

K: Okay.

S: With this rock and roll vibe, record everywhere and release it. It sounds raw, that's good. I don't like these terms. I think you have to make really good music on the one hand, as soon as you have good music you have to find people to appreciate it. Then you can market your product. Some people say you have the best product, are the products with the best promotion.

K: They sell themselves.

S: I always think there has to be quality somewhere. Then it will sell. I mean iPhone has amazing marketing but if it wouldn't work as well as it did now

K: Yea, if a 2 year old couldn't check the weather on it

S: Yea

K: Fail.

S: These are the examples you can use the same for music. If you have bad music you can last for half a year like the one hit wonders are a year but it wont last long. I was playing in a gothic metal band, there was another competitive support act, we were doing a lot of support acts for bigger acts, so if you have Epica, After Forever, Nightbridge, Lacuna Coil all these bands in the genre of gothic metal. We will always most of the time we were the support in the Netherlands. That was really cool. You were playing for new audiences that would see your band and it was somehow in the same genre.

K: That were receptive to what you were doing.

S: Yes, receptive. But you also have people that were just there.

K: Oh, okay.

S: There was this other band that were doing this. They had this fucking awful singer, who was calling, I think she had some stupid admin job where she could call all day, if we were playing at a certain place, then she would call and say there's another band, could they play in front of you, or after you. Just before the other band, and it was always the same. But she was really awful, but as a marketer she was really good

K: but she sucked when she got there, man

S: Just unbelievable. So that lasted for eight to nine months when everyone knew her on the one hand. This irritating person who was always calling to get the show, but then she would suck so it would be awesome again. Yea. You can try it, but it wont last that long.

K: Yea, the years, I think I definitely agree with you. Well, I this has been over an hour can stop the recorder anytime so you can enjoy your beer, but I do want to ask you one last question.

S: Yea.

K: The purpose of the research is sort of to uncover if and how audio has changed because of new media. Whether that be visual, whether it be an interaction of the screen or the focus, or fixation if you will on screen, or just simply introduction of new technology that try to reproduce vintage sounds differently… are there other things that we haven't talked about that have changed and drastically affected the way that you operate as a musician, audio person

S: Personally I don't think so but on the other hand. If you can use new media, there are so many more possibilities if you go for the compelte multimedia experiences like the Beyonce show that's touring now, and Muse that I saw, and other shows as well. Actually everything is just going back to one computer. The computer is sending out the click track to the drummer, the complete monitoring system to every musician on stage, the light cues to the light cable, the video cues to the screen cable, and that is something interesting to see. Everything is aligned now, and then going back to one point, I mean even if you go to a Rammstein show even the fireworks are just timed on the ClickTrack of the drummer. So there are no things going wrong. On the one hand I think that's really awesome and amazing, I saw a few of these productions that I really enjoyed. That's something that changed here. Where you have the biggest thing, that for example in the 70s the screens were for Bohemian Rhapsody, the screams, the part in the middle, they cant reproduce that, they brought 200 lights that were used for that part in the show. They were just lights that went on and off, but they audience enjoyed that as they heard the sample of the operatic part. But in the meantime, if we look 40 years further, people are expecting a bit more of these shows. That's one thing. And on the other hand, you see Metallica, I saw them a few times after their comeback.

K: Yea, I liked the Black album and that was it.

S: Yea, I have the same after that. I Reloaded it, but that was all more poppy.

K: Master of Puppets and I stopped there.

S: After that, there are some cool albums as well. But they are just going back to the four people on stage with a wall of amplifiers and then the Foo Fighters are doing the same.

K: Is there a face behind the axe?

S: Haha, yea. But those are the things you see. Especially things you see in pop music, Ke$ha, Lady Gaga, Beyonce, Justin Timberlake, if they are playing live you want to see a complete show with lights, lasers everything,

K: Yea, dancers.

S: Yea, and now you see Justin Timberlake being the intimate musician again, taking a band, he's playing guitar himself, nothing else going on onstage.

K: Yea, but even Li'l Wayne played guitar once, so..

S: Yea, that's the same yea. Who knows if it's real. There are some things, of course it changes a lot. You always see the complete opposite as well, you can't put a finger on it actually, yea. I think that's how it looks like.

K: Yea, thank you very much.

[END]

K.R. Waldbillig

"Max"

K: Hello ███

M: Hello how are you.

K: Hi I'm good thanks…looks like the Internet's going to be cooperative for this call.

M: I have my fingers crossed.

K: I don't know if you got a notification from my software but I'd like to record the audio of this call if that's okay. Not sure if you had a look at it before..

M: I had a quick look but I thought just answer the questions

K: Okay, it's supposed to be generally semi structures, they don't have to go in a particular order, there's no right answer to any of the questions, the goal of the research is I'm doing is to identify if and how the work practices of audio professionals like yourself have changed in the past five to ten years, and if they have changed then try to point a finger as to why. Comparing the responses audio professionals that operate in different industries or engage in different lines of work, also people who do more outdoor interactive things as opposed to game music might be interesting.

M: Yea, of course.

K: So if you don't mind I'll start with the first question.

M: Just to let you know the absolute maximum I have is an hour.

K: Yea that's more than I enough I think. Thank you again. So when and how did you get involved in this field?

M: Well it depends on which field you're talking about – I'm in so many fields.

K: Well composition, I guess is a good place to start.

M: Well, 30 years ago, well more than 30, in the mid-seventies way before you were born, I formed a band – experimental bands, messing around with various things, had very little money, messing around with friends, making our own synthesizers and stuff, the combination of that was a band called The Future, which was rudimentary but quite experimental. Soundscapes with abstract lyrics on top. We went to various record companies and they said go away and write some songs. Which is precisely what we did.

K: Okay!

M: Then we formed the Human League in 1978 and that was quite successful from a compositional point of view, that split, then I formed Heaven 17 in 1980 and became a record producer for a famous, really cutting this short, lots of famous people like Tina Turner … Chaka Khan many many other people, sold a lot of records. Thank god it was in the 80's if it would be now it'd be skimped.

K: Yea, sure.

M: You know but so that was like of pop end of stuff, and that kind of transmeted towards the end of the 90's into an interest in surround sound because I just saw that the creative end of the music industry seemed to be in Britain, declining. And both myself and Vince Clarke we wanted to get back to what excited us about doing music in the first place which was essentially the experimentation part and to keep creative and using that as the engine that drives success, rather than trying to chase the money.

04:20 So that, as luck would have it was I invited to be a consultant on a new museum that was opening in Sheffield, my hometown. They wanted a 3dimensional soundscape installed in an auditorium.
K: Okay.

M: I said that's really exciting, what the hell is it. So I started looking it to it with my friends from this acoustic design company who had been given the brief to come up with a solution, we started looking into it, there were a few academic places, still are very few places that are designed for actual producers to create 3d Soundscapes from a practical point of view. We helped to design the stuff we use which is 3d Audioscape, which essentially helps the producer of the piece visualize where 3D sound objects are in mid-air using a sort of 3d air traffic control QuickTime VR type of thing.

05:40 M: We believed that the visual feedback of where the sound should be has two functions – one is to check that everything is working correctly, secondly it engages two parts of the brain simultaneously and enables you to create moving sonic architecture essentially. Okay, does that answer your question?

K: Sure it was just sort of your history, did you have any sort of formal musical or any type of technical education in this respect.

M: No. I have a very musical ear and a lot of confidence, probably overconfidence and I mean, my view on all these things, right, let's go back to the start. From the very start the way that I learned music was learning Timbre and learning electronic creation of sounds that were largely replicating real sounds I suppose, but on the other hand coming up with sounds that were largely unimaginable and often accidental. I started from a very interesting place, I didn't start by going to music school from learning a traditional instrument, I still had difficulty playing very well live. I'm not a naturally gifted technical musician, but I have the benefit of that is, I don't know what the rules are to break.

K: That's an interesting statement.

M: I think that's the reason what I've done is always done has been highly creative and occasionally inspired, I think the traditional music route, the traditional music learning route often constricts you into a path which is very hard to get from.

K: I would agree, it puts you into a..

M: It's not laziness, it's not that people don't want to, it's like people come to me an say God I wish I could unlearn what I've learned. It's all very well saying to a very talented, gifted, I've worked with a lot of orchestras. If you say to an orchestra, or an individual in an orchestra, this Nate Barbrake here, could you improvise something in the key of C major in this section. They'd go, sorry, what? It's unbelievable frankly. It's different skills for different applications. A lot of traditional musicians get into the framework where they are reproducing other people's work using a particular language. I prefer, I of all prefer people to be a bit freer than that and a bit more improvisational.

K: Would you say that..

M: It's hard to work as a producer with people who have no kind of creative imagination.

K: Can you tell me about a project where that was immediately apparent?

M: Yea. Pretty much this thing I just said happened in a, well, if it works the same way in Britain it probably works the same in America, well it is the same in America – you hire an orchestra for three

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hours or something, then you pay a union rate and they just sit up and play the dots.

K: Yea.

M: Which is fine, that's what they're employed to do. Then sometimes something occurs to you in the middle of a very strict time schedule, and there's an entire hierarchy you have to go through, so I have to talk to the composer, the composer's also the conductor, the conductor has to talk to the leader of the section, leader of the section begs the players 'can they do something a little differently, apart from interpretation'. Normally there's a consensus on – we can if you know what you want to do and we have to write it down. So say for instance I just said to a 20-piece string section. Okay you've got four bars to go as crazy as you want, doing anything you want. They will probably crap themselves frankly. It's like really what I can't – does not compute. So it's a bit unfair because orchestral players are trained to do that, but it relates to individual musicians. There are lots, well not lots, there are several guitarists, say for instance – guitar is quite an interesting one – a lot of people learn the Greats. They will learn licks form the great guitarists of the past – and they will build them into their vocabulary and that's why people employ them.

11:12 They're not the ones that I employ – I people who listen to music an interpret it. People like brass players for instance – the most inspiring brass players I know – I've been very lucky to work with the Phoenix horns from Earth Wind & Fire who were phenomenal. They were inspired by the music, by the backing tracks we created, they immediately came up with – they didn't even have to write it down, they immediately came up with arrangement, you play B flat, D, you're there, you do a fall down from here – literally like that. They're the kind of musicians that I like to work with. There are other brass sections I've had that have literally told me that what I've written for them they can't physically play – it's impossible. I'm no talking something totally avant-garde here, and I'm going "hand ups". I'll tell you what, just have a go for me, would you? And they gave it a run, and none of them apologized after, and it's like, what have you got to lose by trying it? So that covers the entire range really. As a musicians it's also important for me to be able to place them, to develop and understand a conceptual structure an arrangement – in my head without having to write it down. And on that front, then there's people I've worked with who have been totally genius and inspiring like [Green Garthside] from [Splitty Plitty] for instance who literally has a 48-stage score running in his head.

K: At all hours of the day.

M: He does. I made a record with him, we started recording it, recording it was straightforward, then it came to the arrangement of the actual music. He'd be going doop-chap, imagine that going like that, the synth he's playing – "beep – snap – clap – beep – snap". And I'm going "Wot?" and he's going "bear with me." And you know the skill of [hoppeting] in orchestral terms you apportion different roles within a particular linear composition to different parts of the orchestra – it's not quite counterpoint, its more complex than that. Maybe you have toccata strings over there going "bip, bap, boop" it all interlinks into one thing. He's got this running in his head all the time. By the time he's recorded another 24 tracks, it's like, this is the shit – you already have it planned out in his head. He didn't even have it written down. That's a very exciting thing.

K: Would you say that there's another, besides the ability to improvise on the spot, having things running

around in your head just doing it, just trying it, are there other differences between people who try to do this as a hobby on the side and people who do it professionally? Compose, that is.

M: Hobby on the side, yea. Well the problem nowadays is there are lots of, lots of people can make music. A lot of people make music in college and also people do it for fun at home. There are more people making music, which is a good thing. The tools for doing it on any average laptop or even freeware that you can get off the internet.

15:03 The problem is not people doing it an deriving pleasure from it, the problem is, as I assess it, how do you assess how good it is? That's the issue. A lot of people don't care, they're just doing it because it feels good, no problem there. That coincides if it's a venn diagram, with it being good. A lot of people like it, it proliferates, a lot of people sign up. That's actually rare. Then you get a lot of people who do stuff for their own pleasure and its actually terrible. And that's fine, that stays within their bedroom or whatever. The problem for me the middle ground, which is like 90% of it.

K: Okay.

M: As far as I'm concerned, which is where people potentially have, they have the means of production, they need to develop their craft to develop how well they can structure things are appeal to people. To do that, they have to expose their work in some way to the general public. Unless they get very lucky and some record company picks it up. Highly unlikely. They have to expose it in some way – a lot of people do that these days via Soundcloud or things like that.

K: Sure.

M: The problem is that you're preaching to the choir. You get things like, oh, I love that section in your, two minutes in your remix of this, this and this. And then because of human nature that person feels flattered so they feel obliged to do the same thing to their mixes and so on and so on. It's good for confidence but it doesn't build, this peer review doesn't necessarily build anything other than a very introspective hermetically sealed world. There's nothing more frustrating to me as somebody who lectures a lot at music colleges.

The   first thing I normally do is go around and ask everyone what their music is.

K: Okay.

M: The best types are ones that say I like all types of music. I am getting amazed by the number of teenagers who go Dubstep, Dubstep, Grime. It's not the same in America maybe, but in London maybe all of Britain. It's such a limited view – it's not just because its dubstep. I mean the things that I take for granted because of my background are eclecticism. Absorbing as many influences as possible, and never ending series of influences since the whole musical world is evolving all the time. I mean I'm 57 next week on Sunday. I'm still learning as much now, I learned a lot of people like you who I talk to, who've got a perception on things, engage with fresh talent all the time if I can. It's a never-ending process, you've never going to reach a point, I've never, I don't think anyone who's truly engaged with the creative process where there's an end to the process. It's continually evolving. Going back to the students, a lot of students that I mean, there's a limited number of them who see this as a wide open field for them to explore. There's a number of them who are just happy preaching to the quire. That has evolved through the easy proliferation of creation and sharing.   It's interesting because you

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think the more sharing the better. Not necessarily – sometimes you need to develop your craft in an environment that puts you in danger, gets you out of your comfort zone. Go to your local pub and play in a band for awhile. You'll find out what people like. Not sitting in your bedroom on Soundcloud with smoke blowing up your ass.

K: I would agree. Do you think students who want to bridge that gap between I'm going to sit on my butt and smoke pot in my room and upload stuff to Soundcloud need to learn any kind of programming, or even just computer, computational knowledge to get there, or is that not really.

M: Oh no, they all know.. It's not, learning all that stuff is a given really for doing kind of bedroom stuff. I need you think to have a basic working knowledge of how to use Logic or Cubase or whatever it is. I'm assuming that that's what people use when they're in their bedrooms recording stuff. They've got to use a recording program, right. That's not the problem. The power that, say, for instance I use Logic and always have done, the power of that program which costs, 400 bucks or something, that's it, American, the power it has is phoneomenal. You can compose and make a realistic sounding symphony with one of those things. You know –there's no limit to using the stuff that's built it, that's given to you. The problem is option paralysis a lot of the time. Too many options. You need to get out of the well-worn paths. You need to get off the trail a little bit to find the interesting mushrooms. I often find that whilst extremely powerful these programs, they tend to lead you in a certain direction. I constantly find myself fighting against the alien nature of them.   They're not inspirational to me – they're counterinspirational, they're organizational. So that's a different thing. It's like it engages a mathematical part of the brain rather than a creative part of the brain.

22:13 K: I had another professor tell me that yea, he was telling a student, you know that you can compose in other than 120 BPM, but that's the default that the program provides.

M: It's incredible. Even if they go beyond that, they'll go their mates, and what's popular in the clubs right now. Oh, somebody's got a bit further along the – this week, or this month it's 140BPM and it's got some name, is 160 and it's gabba, or its 90 and its slow jam. It all comes down to this basic thing – too much is done for you. There are less divergent paths at an early point in the creative process. Too linear and the divergent paths don't stray very far from the central path. I'm not just saying when I was getting started and all that stuff, we really didn't even have MIDI when I was getting started.

K: This is interesting.

M: I only have two things – we didn't have a mixing desk, all we had was a mic a stereo reel-to-reel tape with a sound-on-sound capability. So you could mix a new thing in while you bounced across, right. That's how I made BeanBoil, that the first thing I did in 1978, it cost about 4 quid to make, and you know, but necessity is the mother of invention. A limited palette or limited capabilities. There was no such things as presets on the synths we used – when we were performing live, we used to have a minute at least in between each song and believe me, Phil was very good at Patter at all – in bare silence a lot of the time, we literally plugged in new wires to repatch the modular synth, and we set all the knobs and everything. Oftentimes something would get forgotten or something would get plugged in the wrong hole accidentally, and you'd come up with something amazing that would sound, well on the synth it sounded terrible, the accidents are what makes it interesting. Those are part of the creative

process. The problem with contemporary compositional software is it does it's utmost to mitigate against randomness. Randomness is a good thing. Or a degree of randomness.

25:22 K: What about building a DIY instrument type of stuff, do you or your students, or in the past have you done any of that type of stuff or work?

M: I lack the patience for that, Ian who was sitting down with me and Craig Marsh in the Human League and Heaven 17, the first synth he ever acquired was a kit from Maplin stores. He built it, he couldn't even really play a tune on it, great for motorbike sounds, a couple of oscillators and filters, but it looked fantastic. Used to take us about half an hour to register it, then get it in tune and it would regularly drift out of tune. However, there is a big new circuit-bending scene, I'm sure it's the same in America. People taking existing technology and repurposing them, for example, I think this is very interesting. A friend of mine called Brian Duffy, the Modified Tory Orchestra, he emerged from this circuit-bending scene to create a band that uses instruments that he's rescued from dumpsters. So like speak and spells, toys basically.

K: Huh.

M: basically each of these toys that speak like Barbie dolls and stuff like this, he put new stuff on on them like capacitors, various tools and knobs and stuff, unlocked the potential of the chip inside of each of these things, and rewired them essentially. Uses them as instruments and plays them on stage with four other people. You can look at them as a futuristic Kraftwerk, right?

27:21 K: Yea, sure.

M: This stuff they come out with is amazing. Have a look on, it might be on Spotify. If it's not on there, let me know and I'll send you some stuff. It's absolutely mind-bending, circuit-bending and mind-bending — so I really like the idea of people getting back to building their own synths. There was a new circuit come out that's been built in Britain called the Raspberry Pi — have you heard of that?

K: Yes I have.

M: So a lot of people, I've been approached by a couple of software designers if I'd be interested in co-designing and endorsing a cheap synthesizer built on the software that's in the RaspPi. I mean it's just a programming language. So they built the synthesizer within it, a quite powerful little machine, it's quite small. It's part of, the idea is to make a kind of version, it's like half, it's a real synth, obviously a virtual synth as well, but to dedicate a piece of a processor, dedicated to that one thing rather than virtual synths that you have in Logic or something like that, just another blip on the screen— it's all visual — it's actually a physical object which is cool. And so I think that a lot of people are getting back into the idea of physical subtractive synthesis, I still have my system 100 downstairs, I've still got my Korg 700, I still use them occasionally it's fantastic. Recently Korg brought out the Monotron, have you seen that?

K: No, I've got to look it up.

M: Oh my God, you've got to. It's amazing. It costs 35 pounds, so 50 dollars or something. About [that] size, literally smaller than a paperback book. It's got one oscialltor, a filter, and an LFO, it's proper analog, it's not digital. It can make, it's got a ribbon controller on the bottom. It's amazing. As a toy — but the actual sound you get out of it has got the delay built in. You're looking at it now — aren't you?

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M: The delay is the one, it's got messed up delay feedback parameters and stuff, it's beautiful. It reminds me of the early days of synthesis when I started.

K: They've got some samples up here too.

M: Try to get a hold of one.

K: Is that something, two other people I interviewed told me that there was new vintage movement where analog was making a huge comeback, especially for people who do live performance.

M: Yea, but that's more fetish as far as I'm concerned.

K: Okay.

M: I'm not a fetishist about, I appreciate them, I think they sound better, but for as many people doing analog synths that were doing the same down.

K: That's an interesting observation, yes.

M: The fact that you've got an analog synth on stage isn't interesting, content is king as far as I'm concerned. There are many people back in the day doing Doo-woo-doo-woo, it was just another organ, really, with slightly different sounds. What I was always interested in was it as a creative tool for creating new sounds. So there were bands who I loved who were using

Bandograph Generator, King Crimson, who else — oh, there were loads. A lot of stuff Stevie Wonder did was cool, his synth players. There were, obviously Wendy/Walter Carlus, fantastic. They came from the point of trying to find new stuff, right. Not just playing the same old parts on a different sound. I think a lot of people in the "new analog" scene love the fatness of the sound, making it sound like some 80s band, that's not really the point as far as I'm concerned.

33:00 K: Since you've done work in so many different fields, can you comment on skills, or challenges to composing for different mediums, media?

M: Yea, I've done everything really. I've never done a feature film, because I've never been asked, but I'd like to. Composing for pop is what I do best, composing and arranging, that's just a skills, that's my core skill I suppose. I understand traditional songwriting very well — I worked with people who taught me a lot. It's a bit of a curse as well, I hear a lot of contemporary songwriting and thing in 10 minutes I could tell them what's wrong with it why it's not appealing to so many people. Composing for TV, I've done that. Composing for adverts and library music — it doesn't really excite me, it's something that you do for money but it's not really something I'd like to dedicate my life to. The irony of all these things, it's like, be careful, you're thrilled to be earning money out of anything, because it's your life. Not like going down a coal mine. You've got to be careful — being successful is not just about doing anything to be successful. Say for instance I did an advert which was a terrible kind of jingle, and I became known as the new Colgate ad guy, the go to guy for Colgate.

K: Oh no.

M: Well this is a serious point, people inundate you with offers for work, which is great, but do you want to do that for the rest of your life. I'm in a fortunate position and I turn down a lot of stuff. Film interests me greatly, theater interests me greatly. I've done a few things for theater — did a place for a one-woman show where we created a 3D soundscape of her wandering through a kind of dreamworld, interacting with various versions of herself, all in sound. It was kind of crazy. That kind of thing excites

me, that's a new challenge. My central belief is I have to keep challenging myself. That's why it excites me. I'm spoiled I'm supposed.

K: Being able to turn down things that don't interest you as opposed to having to do it just to get by is definitely.

36:16 M: Yea, and then composing for, I've done several compositions for ballet which is really exciting and beautiful as well. Because that's a real, these were not pieces that I wrote and then they did some choreography to it. This was, and it was the only way I would consider doing it, is a true collaboration from the outset. Being involved in the rehearsals and the choreography from the start – interpreting is an iterative process, start with a central idea from the choreographer- maybe one section of the piece you watch it and say, maybe this type of music would suit, what'd you think, he'd do a trial piece, they'd like it or suggest amendments, maybe make it a bit longer, shorter, a gap here for x to get to the position over there – you know, stuff like that. You end up with this beautiful iterative creative virtuous circle that creates something special at the highest level you can do. I would say that's a beautiful way to work. I'm a big believer in, deep what I call deep collaboration. You know, not this surface thing, oh, lets go into a studio together and record a song for half an hour kind of thing. So it's like a marriage. At that level you've got to understand each others talents and kind of try to make the jigsaw fit together, you know. That's how you get the best work in my opinion. Part of the collaborative process also is being able to inspire people to contribute. And, or to inspire people to feel free to contribute.

K: Mm.

M: Going back to producing people like Tina Turner and Terrence Darby – they are people at the top of their, the top of the tree, but even they feel insecure sometimes. Even they feel on a particular day, I've got a terrible sore throat, it's like, all that stuff. You have to build an empathy, make them feel that that's not the important thing, we're trying to create something amazing. So, being a kind of, psychiatrist really I suppose, is part of the whole deal as well. Trying to, not just empathize but trying to negotiate the rapids of personal relationships. Is quite an interesting one. To that, end I gave up working with bands, by the way, since there's so many political issues in bands. 39.25 There's always at least two cliques in a band.

K: Yea.

M: So you're trying to do the best for everyone. You spend more time administering egos than you do actually doing stuff, that's why I like to work for solo artists, you know, two, I think three is the ideal number. Two or three.

K: Have you ever, had an interesting composing for video games?

M: Yes, um. I met and talked to a lot of people who've done it as well. I think it'd be dead easy to be honest, I lived in an interactive kind of world of creation. I mean at the moment, I'm, interactivity is something I do quite a lot. Damn car alarms. Can you hear the car alarms?

K: Yea.

M: Driving me mad. We live next to a school, so it's all the time. But anyway. So yea, interactivity interests me greatly. I used to run a thing, a show called Future of sound. We'd got a big 3d sound system and toured it around the country and asked all these people from different fields to imagine

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how they might use immersive sound in the future and give them access to the equipment. So we had people, all sorts of people games designers, mobile games designers, we had people from EA, Electronic Arts, coming in in describing the work they were doing for the Harry Potters books and they've got this whole symphonic orchestra score and it's all triggered according to where you were in space and it all sounded like a seamless score. So I know all about this. Currently I'm working on a generative soundscape for a band called Empire of Sound. Don't know if you've heard of them.

K: Yea, I have.

M: They're creating together with an agency called FEDS from Austrailia. A touring show which is a sound installation in 3d sound, which we're creating, based on samples of their sounds of music.

K: Hmm.

M: Which is triggered according to different data streams from around the world. [Coughs] There's a website called worldometers.com which shows you data streams as theyre happening around the world. I think it's a little bit fudged to be honest. It tooks a bit too regular to me. Anyway, births, death, barrels of oil produced, number of people who, etc etc. We've taken twelve of those feeds and created an interpretative 3dimensional soundscape based on those feeds, together with a twitter feeds as well we'd triggered different sounds. Everytime you do an Empire of the Sun hashtag or whatever it will create another sound in the soundscape live, online, and in this physical structure which is like a touring tent. So you, the idea is called, what's it called. Future Empire. And it's a, yea, it's trying to give a holistic view of the world, of the nature of the world in data, and sonifying it in their own sounds. And we're just working on the prototype now, it's nearly finished. 43.27 Then hopefully we'll get the rest of the funding and we'll tour the world. Isn't that a nice idea? People are having to think about different ways now of publicizing and proliferating their artistic concepts. Not just touring, not just..

K: Making a t-shirt or a cd, or putting it on soundcloud, that's really. That's innovation I think in the music industry.

M: Not any of that, everything, there's the web. Everythings on the web, the web is everywhere. Yes, but, (stutters, sighs)

K: if everyone has it, what makes it special?

M: Precisely. It doesn't have, it's a little porthole into another word. That's all it is. A little viewing platofmr which is not as exciting as the real world. Hence the physical manifestation of the tour. The touring installation.

K; Would say that you could offer some tricks of the trade in terms of using this idea of materiality of sound, of the physical in terms of storytelling?

M: Definitely. Wow. Where do I start. I've been, I've been doing this solid for twelve years now.

K: Well, we have 15 minutes left. Laughs

M: I'll give you an example.

K: Great.

M: There's this piece we did, called the Dark. It was together with a company called Braun arts, some friends of mine who were artists. And it was a 15 minute experience in total darkness in a room about 11 meters square by about 6 meters high draped in black velvet. So you get let into the room, the

speakers are concealed. You can't see the speakers. It's all about sound, there's no light. And you let 12 people into the room at a time and the lights are off, you can't see your hand in front of your face, right. So it's a three-dimensional immersive narrative. In this case, the subject matter wasn't my choice but it was deeply affecting as you can probably imagine. It was about a slave ship in the 1760s that was coming back from Africa to Liverpool I think. And there's a guy, and I can't remember his name now, unfortunately. Anyway. The lieutenant on the ship was, a, well, the captain of the ship was a complete bastard. Right, so he, they realized that the slaves that kept below decks, that there'd been an outbreak of glaucoma.

K: Oh.

M: Right, it came to the point to be entirely infectious, right, they're crammed together. He commanded the lieutenant to throw away the bad stock over the side to stop the rest of the slaves getting infected. And including pregnant women, you know

K: Didn't matter...[freeze, oh you're frozen, no]

m: epiphanal moment where he thought, I can't do this, he created a mutiny, they didn't do it, he got back to Liverpool and became one of britains leading anti-slavery campaigners. A very famous, guy. So famous I can't remember his name. anyway, the point was this was a 15 minute narrative based on this, so its all based on the slave ship. Its that 15 minutes of drama. There were four, the reason it's interesting apart from the story is the techniques we used. So, we had a very convincing 3 dimensional, manifestation of what it sounded like on the deck, so you got sails flapping above, the sea obviously everywhere, gimbling all over the place,

K: birds going rrr,

S: Yea, seagulls, cormorants, Everything. Whatever, All different levels., , blah blah blah. The one thing we kept constant throughout which is separate from the kind of, magic realist bit, was we had the cabin boy story at one corner, we had the captains story at another corner, we had the lieutenants story at one corner, the slave store at the other corner, and you could visit whatever interested you at any time, and obviously it would get louder as you approached it. So we've got this overall kind of Hollywood-quality, 3 dimensional soundscape on deck, but then it goes below deck as well, it's horrible you hear the moaning and screams of the slaves and blah blah blah. There's one interesting story which I always tell. It was written by a blind artist called Maria, I can't remember her surname. In her past she's from Africa. She had got a guidedog, so you know, she wrote the script, and we put it in 3d and she didn't hear it again until we created this world.

K: Okay.

M: So you can imagine for a blind person, it's like the Star Trek holiday. So she's in the middle of the room, and there's one point where the captain walks up a staircase onto deck at the side of the room. Going up from low in the room, dut dut diagonally up the room, every step that the captain took invisibly. The guidedog followed every step with its head like that. And I'm going shit, this shit definitely works, right. And, that was like, I'm going. Look if it works for a dog we're all right I think, its definitely working. So this led me along the path. We've learnt lots of thing over the last decade about what works in 3D sound, what's different about it from normal surround sound. The kind of sense of reality it

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triggers in people. The various techniques we use that are kind of secret, black magic techniques, that we discovered.

K: Sure.

M: I'll give you a couple for example. If a bird. Let's not say a bird. If we say a high pitched sound, a high timbre sound. If you play that from behind the audience and make it swoop down through them, then it gives them a kind of thrill. It's very, it's like a vestigial, [scoots chair back] aural response type thing. A very tiny amount of adrenaline gets release. It's very interesting, because its like from caveman days, it must have been a survival sort of thing.

51:16 K: You had to,

M: You had to actually respond without thinking about it.

K: Right, yea, totally unconscious, well mean, totally, but to an extent.

M: Right to an extent. So but the interesting thing is, it's not just a bird sound you use, it could be anything that has a similar kind of timbre range. We often use it in compositions, hidden, just to give it a kind of, its like a sweetening right. Things like that, there's things like the human brain, this is really quite deep, but. We, the human mind constructs reality largely based on what it expects to see. Or else it couldn't process all that information. It's just basically processing little bits of information. The rest is the construct of our mind. This is quite deep. So, if you. The thing that's really unexpected, it's got to be meaningful to attract the attention of the brain away from what it expects to be reality. The meaningful denial of expectation is what creates the most impressive and realistic kind of soundscaping capability. Because it already sounds real. So your mind has already accepted that this is real sounding environment. That's when you can mess around with the kind of surrealist aspects that are going on, we've done loads of stuff where we've done things that are completely out of scale happening. Like a motorbike could drive through the center of the room, or a, there are some things you can't do though. Paradoxically because of what I've just said. You can not force people to perceive that a bird is flying around at ground level. We can put it down there. We can only have it coming out physically from low down in the space, you'll always hear it from there.

K: Because that's what you,

M: Yea, you already constructed it

K: Well, yea.

M: That's really bizarre, you'd have to have a high field indeed. Even in a gallery, you'll hear it from up there. Likewise if you have a rumbling sound and we only put it through the top speakers, you'll always hear it from down there. That's just an ancestral memory of I don't know, a horde of buffalo coming and you better get out of the way or something. We construct what we expect to hear. And to jog, and then once you accept that, when you jog people out of that expectation, suddenly, that is, that really makes an enormous difference. That's what gives people a thrill.

K: And makes it memorable.

M: Yea and makes it memorable. It's kind of hard to explain. It's only something I've learned through experience. And that is entirely different to say for instance creating surround sound compositions for, I mean I've done stuff for the Imax theater for instance.

54;55 K: OK

M: If you're creating stuff for what is called a planar array, which is just one plane of sound. It doesn't sound as impressive because it doesn't replicate how the real world works. We're all processing sound in 3d at all times, we're just not even thinking about it. But that gives you, but suddenly if it turned into 2d or planar, you'd go oh, that's not right. Okay. So it's a given. So when, so, if you're composing for stuff like lmax or a cinema, a 3d show in a traditional cinema. They, what's happened is over the years, I mean we've presented what we do to Dreamscape.. to, Dreamworks and to Disney in Anaheim and all that. And they weren't interested, this was about 6 years ago, they just weren't up to the speed. It sounds weird because they always tried to be way ahead.

K: Yea.

M: They were not conceptually up to it. They didn't' understand the relevance of it. I bet if I did the same thing now and re-present it it'd be a different result to be honest. So yea, they, so what's happened over the years is, they don't know why this is, what they've done is, the volume they can engage, the only way they can engage the audience is in this visceral is by making it louder and louder and louder.

K: Sh, yea, in mono for that matter, some of the time.

M: But guess, what. The louder surround sound is, the less convincing it is. It's quite interesting if you think about it. I mean, I love movies. I watch movies all the time. I haven't see the latest Star Wars but I go to all those kind of films, but

K: Putting you in the new office

M: So moving around, so in my view, all these things are becoming less and less convincing the louder they get in cinemas. I'm interested in creating this new world of convincing experience. And that's why I think the 3D system we use is by far the most interesting and creative tool that I've ever worked with actually.

K: Immersive.

M: Immersive. From all angels. Height as well.

K: Which is important as you just said, because of the perceptual paradox. If you will. Huh. Well █████, I think we're just about up of the hour.

M: Yea.

K: So if you don't mind I'd like to end things here. This was fantastic. I'm sure my thesis supervisor will be very satisfied as well.

M: I think its quite an interesting perspective. I can't think of anybody else in the world who has my range of experience to be honest.

K: Nope, me neither.

M: From, that, I mean there are plenty of people with specific experience like theater work, or

K: Games, or

M: Yea games, I'm kind of like a jack of all trades really. Master of none.

K: Haha! That's funny.

[END]

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"Rupert"

K: Thanks for taking the time to meet with me today. If you got a look at the question, I structured or semi-structured. The idea is to compare the response of audio professionals from a wide range of industries. A guy who does Music information retrieval all those things. Try to understand why are there those difference between those responses.

R: That's your master thesis.

K: I'm currently working on a project at the medialab in Amsterdam. A sound concept for the Amsterdam fashion week, we're going to do wave field synthesis at the show. We rented the game of life system, 192 some speakers, outrageous — we're having a workshop on Friday to compose with that. Hope fully that will be fruitful.

R: Also working with that system. Students are visiting one of these weeks.

On Friday at STEIM. A lot of our lectures, Wouter Snoei, he's arranging for these kind of things the game of life.

K: I understand the same thing. I hope we get to meet him. Maybe ten or fifteen years ago, you decided I'm going to teach.

R: 2:10 I started teaching here in 1990 already, which then I only started with one half a day in two weeks because I had a full practice at that time as a media composer but gradually I went for a kind of a course phase between practice and teaching and I got a lot of responsibilities over here. Think the last thing I did as a media composer was about four or five years ago, 2007-2008 a documentary about Litse Hower the Dutch actor. That's the last production I composed music for. A year or five I'm full time engaged here. A very slowly crossover between practice, very big practice as a media composer and started to teach here in media composition and sound design.

When you were younger though, just choosing yourself maybe, to go for a technical education for an audio education, did you have other talents? Did you play an instrument as a child?

My background is I was a musician, called [ ] the TU Delft, which I didn't finish because I also had piano classes for 16 years, the end of my studies I got involved in music in a professional way. I was playing in bands with amateurs. There was an ad in the newspaper, in Delft was a theater group, who was looking for a musician. I went out for this job, also just more for fun you know. To my surprise I was accepted and how did I combine this job, because I only had to do what you are doing now, My Master thesis research which would take one year. I thought maybe I can combine these two things. The theater music job was way too heavy and much more fun. So I quit my studies in 1980, I started working with the theater group and I got involved in music and technology. Part of my background was technology, I studied electronics.

I saw on the Linkedin profile.

R: In1980 this is also the time that technology became cheaper. Music technology, tiny computers, the first synthesizers from Roland and Korg are more affordable for average musicians. They wouldn't cost 10,000 euros, gilders at the time, we still paid about 4000. Still became affordable, for, it was a nice combination of the two. Studies in electronics and combining it with music. This was this field, and when we look at the department here with music and technology. What you like to call beta, a lot of

beta people are here. People with background in physics, electronics, mathematics combined with music. I'm an average example for the population here of students. And the lecturers.

06:21: I don't know if you could go so far as to call it a revolution, but could you comment on what's happening in the 80s in terms of technology more affordable. Can you connect things that are existing today?

Sure. What is the most important revolution was MIDI and until today that's the only standard that has been accepted widely by anybody in this field of audio. We have different audio files, WAFF AIF, never before been a standard like MIDI. Accepted by all factories, manufacturers, synthesizers for audio equipment, MIDI was always there. That's quite a revolution which made technology affordable and which you could also easily exchange and in my job which was creating music and sound for media in general, what was revolutionary at that time. You could change things up until the very end. Compose for real instruments, recording orchestras or ensembles, but once the recordings had been done it was quite fixed. When you would combine for example, you would use electronic sounds, or samplers using MIDI, you could easily change these up until the very last moment. In a film for example. I remember film directors were very enthusiastic about the idea that they could change music and sound until the very last moment because until then the technology was much more limited. The real analog technology. That was one of the big changes in the industry I think. You had the possibility. It had of course as well to do with digital technology, but that came later, the first thing was these standard. It allowed synthesizers to communicate with each others, computers, the Atari, the Omega, Macintosh was also there but it was way too expensive. Musicians would use the Atari and MIDI in and out standard on the computer. It was a very favorite computer amongst musicians. You could start composing with the computer and you could change music until the very last moment. It was quite a change looking back in those days.

I see, could you comment on composing for different media? Because I practice, if I dare say your expertise is with film sound.

R: Yes, in the beginning in those early days I did a lot of different media which is different now. I did film, animation documentary but also commercials, corporate movies. Nowadays these things have become more specializations. The level of the work and the complexity of the work has gone up tremendously. In my day when I would work to produce for a commercial I would probably be talking to a creative team of advertisement agencies. Copywriters and art directors. Communicate directly with them. Having some chats about the music and that was about it. I would have to start composing, it was quite a simple process. Nowadays, there's, usually as a composer you don't meet the advertising agency anymore, because there's always nine out of ten times theres a production company in between because the advertiser will ask several of these [] production companies for a pitch and all those production companies all have composers which are also asked to pitch. One media production company will have perhaps four or five composers, a piece of music. On the briefing they have made, the briefing is made out of temporary music. They haven a lot of, they do a lot of music research the whole time. Searching the internet for new pieces of music, new songwriters,. As a composer your might get a brief, we lack the rhythm of this song, we like the intro of this , the voice or the singer,

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come up as a composer, a combination of these three things. It's much more design than before by this music production company in collaboration with the advertising agency because they want to make sure they get what they want. So it's much more nailed down for briefings through a what they call temp music so temporary music, example tracks, tracks that you share as an example, copy to more or less to an extent. It's much more industrialized while in the earlier days, in my day it used to be a more artistic process. The artistic team of the creative people 13:12

For example if you want to work as a composer in the commercial industry then you will have most of the time you will have to stand in this industry, you won't have time to do films. While I did all kinds of other things because its much more open now than at that time. All those things, these briefings etc. were not there at that time. Compared to where it is nowadays, you get all these sample tracks and sounds and that you have to relate to and kind of make a soundalike or, so it has become much more industrialized, much more complicated. All these disciplines have now become disciplines on their own so its much more you can do all kind of things. You either do commercial music, or you do film, or film and documentary, rural, commercials are quite close, identity for television or stuff, composer of audio sound logos for television stations etc. and that's in the same area as TV commercials. They have become separate disciplines you might say compared to my day, I would do a lot of real art, but you don't see a lot of that anymore.

K: I was surprised to look at the website for incoming students and I was hardly surprised how many specializations there were on the list. I was just amazed.

15:12 R: For of course and for example now they are also composing for games. It's totally different discipline than composing for linear media.

K: Is that a big distinction?

R: Yea,

K: Linearity.

R: Composing for games, its still very technology-orientated. Because you're talking about a system where as a player you can decide how the play will develop. If you're composing for games, what's happening more and more nowadays the music in the games, how it comes out at the end during the end, it's also influenced quite to a large extent, by the playing, by the playing of the behavior. You have to think of a kind of system, a music system that generates music depending on the behavior of the player. What you can do for examples. You compose all kind of musical selves, selfless, two three four, last for a couple of seconds for example. If you compose it in a particular way they might be put off, the chance that we composed it [ ] still make sense as a piece of music. Because you might start with a musical cell and this three other cells, depending on the behavior of the player, becomes more intense, the music has to become more intense, might choose this cell to followup, that will also be followed by three, a three-like system, but the way to connect those cells and the way to think about the composition is linear, you simply compose from A to B because that's the scene you want to cover for your music.

Adaptive music system it's a totally other way of thinking probably. Because for example you have to compose this music in cells or in layers, you can switch off and on layers in games, intense or thinner

or whatever you like, depending on the behavior of the player. A totally different mindset, being a composer for games or for linear media like film. Commercials is a totally different mindset, if you talk about film or documentary you tlak about narration. It's about telling a story. The source of the music in commercials, most of the time its about setting down in the first seconds an identity, we associate a certain way of life, culture, depending on if it appealed to young people for example. Address the right music, you have to know the type of music they like. Setting an idneityt, music and soud. Composing film, it's much more about narration, how to tell a story using music. All these things have very different contexts and there are also different principles behind them, for composition and for sound design. What about the software layer over all of these feels. Are there drastic differences between those tools, the things that these composers use to put their thoughts into practice, I can use Logic, Ableton Live, there are .

For example what's used in the industry when you come to a sound studio to mix for television or commercials, 9 out of 10 times it's ProTools. So you might use your music as a tool for composing your music, you might also use ProTools for, in general it also has MIDI inside, but in general its more audio orientated. Logic of Qbase or Ableton. It's quite personal, they all have this favorite depending on personal ideas and preferences. So you can't particularly say that Logic is better, or Qbase for that type. ProTools bringing things together, this might be layers form all the sound design, its from dialogue et. When you see the big Film mixing studios. They'll all use ProTools. It's a standard in the audio world. Still there are also exceptions. Uitzonderingen?

K: Yes.

21:26 R: But then they have another problems, all capable of exchanging files with ProTools and the other way around, you will find Protools theres. To name a tool for a composer himself it's personal preference. The last years Ableton has become popular, years before it was Logic but not Logic is changing. It has been adopted by Apple and they don't do any updates at the moment. They're focusing on the consumer market instead of the professional market. There are doubts about Logic from the professional side. So you can't say anything.

I'm seeing about that divide. Professional versus hobbyist. I've heard from others, its becoming more blurry, while others say no no no its divided into two distinct camps. What's your take on that.

22:59 R: It becomes more blurred. Of course, amateurs will probably use protols, there are protols lite versions. The students here don't pay much attention to tools. They try to teach the principles behind it. Then for example we do start teaching in Logic and protools its very small and we go more into depth, also ableton live, but then it comes to more MaxMSP or C++ or programming languages. We teach more the princples behind logic and bleton live, when students go to an internship and they have their favorite program is qbase or logic and they get into a studio where they use another program. They should be able to manage this sort of program within as soon as possible. Its much better to learn the principles behind it to recognize the principles in another program. Finding your way around logic and don't know how to do it when you have qbase before or ableton live. We try to avoid spending much time on logic or this kind of [ ] tools. You see when students, young people are coming up for admission here they will also use stuff, are using now ableton live on a low level, that's the

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advantage of this program. You can use it on a very lower level. Because the interface is developed in such a way that its very user friendly to them at the first glance you already see the record button and the play button and the mark, and you can after one hour you can do what you can like.

K: Make a sound.

R: That could be enough for an amateur. If you want to dig in, these problems, there's lot of possibilities big in. You can also use a certain type, but that might not be enough for an amateur. You can also record things and add it, that should be enough I think its blurry and also because popular programs like garage band they started to look much more like logic for example so they're moving toward each other. In my opinion there's no clear barrier between professional

C++ and MaxMSP.

standard for so called audio professionals to know some programming?

Depending on the kind of work, there is involved a lot of understanding. You can have audio professionals that work all day in doing making file mixing or mastering of music for example, or music for media, in general they will use software that's available. They won't start programming themselves. The minute you go for sonic artists or people like these who like more sonic art, they will start to design their own tools like a MaxMSP is a kind of toolbox which you can connect you can be very basic but there are all kind of tools that you can connect.

An open source library type of thing?

R: Yea, things like that. When we go to these people sonic artist or art installation or specific application, what they do for example you make audio application for blind people. Then you start programming, because you want something, an environment which can react in a certain way. You have to design it with tact yourself, use these kind of program. Would depend on what kind of audio professional you are. Whether you use the software that's already there or start using programming software to design your own environment. That's how it works.

Thank you. I wanted to ask you whether, its in your educational life or in your own hobbyist mind, are there buzzwords marketing words that are currently trending right now?

R: Not really, if you look at the technology not particularly. What is changing is that, what you might call co-design.

29:41. That's already been hip hop world, [Spike norwall] for one time already you make a hip hop track or without the rapper and just the delay track, and you put it on the internet and people take your track and they start messing around with it. For example now you see how Radiohead has been doing it, but also other bands, they made a piece of music, they offered the tracks that made this piece of music, the stereo track, the final track. They separate the recordings and they offer it separately on the Internet to other fans etc to make new music with that basic music track for example. You're sharing your musical ideas with other people to enable them to make new music and you create a kind of community. That's all been done of course, you see a lot of different approaches to this. But in the end, the main question in the back of your head is, how to make money with music. Because that's of course the end. You're sharing and giving everything away. It's nice, but if you don't get paid for it how the hell are you going to earn some money at making music. It is a possibility, if we were talking about

[ ] that's of course, the music industry contemporal it has been thinking about for the last five or ten years, because to this age, everything has changed. The companies aren't there anymore, its all the Do-It-Yourself. And so you see a lot of different business models on the Internet, by companies by individual people by fans, etc. Trying things out. Some of them are successful, some of them disappear. I think a main thing in the industry how to make. If you're talking about [ ] that's one of the main things I think.

What kind of models are there how to use to make money.

32.47 K: Right, well the musician having to pay the advertiser to use their music in the commercial.

R: Well it's what they call a 360 degree approach, and we've been doing research for a long time already with students together into this.

It's called 'publishing package' if you don't puiblish it but you only use it on a CD or live, or if you publish it in a variety of ways. For an example in a commercial, in a game, or as a ringtone, or alt cd, live performance, a variety of ways to publish the music. And one of the things, you know, offerings of [ ] might be that you create a community which also might be interested in music in itself. Radiohead doesn't publish anymore, they publish purely through their website, they can buy the music there.

K: No more iTunes.

33:54 R: There's a lot of opportunities. That's the main thing you see. Technology is not, its all there. Of course you see still changes but they are not radical anymore those changes. There's nothing that radical anymore. A big revolution from an analog a digital, I became interested and it cost me a lot of money. I owned a studio together with somebody else and to buy new equipment for ten thousands of euros, and then a half year later it would be worth nothing already. The newer one could do the same thing in a faster way for less money.

K: Connecting more things.

R: That is nowadays, of course you need a good set of speakers and a good acoustical environment, good microphones are still valuable. But you do it all on the laptop nowadays. We have a lot of outboard equipment its still nice that you can plug in.

K: Now its just plugging in firewire.

R: That's been there for quite a long time. Its not changing that fast anymore.

K: Well that remix culture, that co-creation idea.

R: That's something

K: New.

R: Yes. You're sharing with your audience so you get co-creation. Of course it also has to do with in the end the question in your mind, how the hell am I going to make me some money with my music. It's still a question for a lot of people. But it's interesting times from that point of view because you see a lot of models and approaches and they are sometimes successful and sometimes now. That's an interesting one. We are also discussing with alumni, we see them also inside, we see them generating a lot of ideas in that area and approaches. There is still a difficulty. Those combinations of music in the commercials in the music industry. It has a very close communication nowadays of course. Very interesting that artists would also have there music in the commercials and the other way around.

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K: I wrote a paper on that for a Digital Music Cultures class at UU and sort of this whole thing with the soundalike concept and what the hell man. Do you have a song that sounds like U2 beautiful. But should we?

R: There can also be. We have this music production company working in the advertising industry. Music research who are searching for new bands, new songs. They are categorized those bands or song. Categorizing emotions, associations. Sounds more like that, or this.

37:55 Sometimes they are approached or they are used for a particular campaign for a company or a product because they have the right feeling, the right association, they generate the right emotion. They generate the right way to link to this company. With students, they already being approached. I'm doing now, well, its my 13th class of 2nd year students. In the end, they work on commercials. In the end they are judged by one of those Scissor based in Amsterdam. They come over here they show their work on the commercial. They are exactly looking for talent. Anybody in those students that has a particular voice of his own or her own. Which might be of interest for commercial sin the future. For the students they want to develop for example, there might be some of them amongst them who want to develop themselves as an individual artist, singer-songwriter whatever. Might be an interesting option for thm to publish their music for a commercial. They will thing about what kind of product is it, is it interesting o connect me and myself and my project to this work.

K: Right, its like the black keys I'll put my thing on a pizza commercial.

R: It's what you want or not. You really have to consider that. It's an interesting option of course. I always give the example of sony commercial with the Bravia, all the balls in San Francisco and down the hills in the san Francisco in the hills, and all the balls standing for a particular color of the TV 39:54 Jose Gonalez who was until that time totally unknown singer-songwriter who got famous because the commercial was broadcast all over the world.

K: Like the Apple "1,2,3,4".

R: They also have to know something in the author rights. For instance if your music is going to be in a commercial and its going to be broadcast worldwide you have to negotiate well okay then all of a sudden you're a millionaire just because of the author rights.

K: Yea, right? Then you see people borrowing the identities of musicians, not for their music, for what their music means.

R: It's a really two way track, if you look at it the proper way. You also see this in the combination of films a lot of time. Soundtracks appearing in the film credits. In the middle of films, use of artists and bands. Deliver the same combination as compared to ad campaigns. Also games of course. That's interesting combinations. Always thinking about how I can make money and make music. Which is quite difficult nowadays of course. Concerts, performances.

41:52 R: You have a concert now. The concert is edited, there were no author rights. People could only make money be performing live. People singing a song, they go from club to club each night. Sometimes they have bands and they make some money but they do it only for PR.

K: Right personal promotions.

R: Now that there's a law, they can get some money. It's taking a different approach compared to the

rest of the world. You sit on the board of the BUMA.

R: I already quit it. Because it's, I got a new job here and I couldn't combine it anymore with my [ ] membership. This Wednesday there's a new election for me to be replaced. One of the, if you want to do it in a bit of a proper way it costs you one day a week, which I don't have. It's a very complex...

K: ecosystem.

R: Yea. Because its an association which supports musicians that play in the pub at night, to internationals, and they are all part of the same association. Those two extremes have also a lot of different very distinct differences in their *belangen* ..

K: amount of support they require.

R: Then you have the change in the EU policy and rights. What kind of music – normally you have different types of music and how should they be validated. So it's a very complex system. If you want to really, to a certain extent if you want to get involved and be aware of what's going on as a board member, you really have to spend one day a week which I don't have. Because I have a new function, in my old function it wasn't full time, so I had to quite. The things I was involved with there, its very complex material. On the one hand, which has defended a lot of musicians for them it's a way to make a living because of author rights, on the other hand its complicated things tremendously as well. Musicians would be far better off because the minute you have author rights and money gets involved you get [ ] and all those people are working in those kind of industry. In the end these author who writes the law is based on the old principle that you would have a composer and he would sit down at a piano and write notes on a paper and of course the question was how do I publish my music because I have composed this piece of music. I have written this down on a piece of paper but how do I get this outside. I need a publisher because he will write down my music and in a neat way, and he will copy this for me. And this is for people who would like to play the music. That was a valuable approach of course when the whole thing started, that a composed needed a publisher to publish his music.

46:51 But nowadays its totally different of course. You don't need a publisher anymore. You can publish any way you like. They are in power. Many artists and

K: Not really..

R: There's millions and billions of euros and dollars are involed. So that won't change. Not in a lifetime I think. So it's based on the very old situation which was valuable at the start. But the system is still based on this same approach that you would need a publisher as a composer, but that's not true anymore. That's also what you encounter. There are two groups, the author, like the composer and the text writer, the lyrics, and the publisher they have different opinions. I don't know the right word in English. *Belangen.*

K: I don't know. Places where they put importance on.

R: Yea. Different things are important to them. You have good publishers who do their best for their musicians, their composers to get their music out there, to get people to play their music. There are publishers who are just in it for the money. If you'd been [ ] or [ ] it's the same for them. Now it happens to be music. It's just a way for them to make money. That's also different than the composer, they're generally interested in making music. They've all recorded and they'd like to get some money for it so

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they can earn a living. Most composers are not in the business to get rich and famous, they want people to listen to their music. There's different there.

K: Do you see this difference also in the students that you get in, in you classes? Or also on a larger scale, even if its possible compare between students that you have five or since you've been teaching since the 1990s. Is that right?

R: Mm.

K: The aspirations of those students. Or perhaps the methods that you teach them. Have they changed drastically, only slightly.

R: They have changed through the years because at the very first beginning of education what we did, the main thing was, there was technology and people tried to make music with this technology. Because the technology was so complicated the main thing in education was how to struggle with this technology in such a way that something comes out of it which sounds more or less like music. Nowadays we are much more, what's called process-orientated. It's about the making, the design process of music. Because technology is still there and very influential, it's even more tricky because for example. Young students, they come in a lot of them make music that is based on tempos which is 120bpm.

K: Oh yeah.

R: How odd, that's the first window when they open logic or Qbase that is default and has a tempo track in it from 120 beats per minute. They start making their music in this default.

K: They are making it in this black box.

R: They are not even aware that you can change it or that you can even work without a tempo, or several situations in tempo for example. Then you see technology is influential in a subliminal and dangerous way. It's still there, the interface is so slick, and so *verleidelijk* .

K: Leading:

51:56 R: Yes. So we have to make our students aware of this and that's the only excuse. First when they come in they are making music. They think they are making music in a very intuitive way. They have a lot of ideas, and they are making music and songs all very nice. So we have to make them aware of the side processes. What are they actually doing, what is your work, your way of making music. We do it by. They have to look at other students and they see how they make music. And of course there are other ones when we would be in class that you would do it than a different way than I do. For example f you were more keyboard orientated you make yours connect to a computer, but if you only use computers, lets get another way to put the ins and out by using a mouse. So what we do with our guidance and our supervision in projects and classes inclined to tied to focus much more on the process of making because if you want to change things also during your career, the key to change most of the process, of course you can say I know, this moment and everybody has this in their musical career. You discover you haven't made a cent out of music for years, which is probably your type of music. Of course you could say I'd like to make some new things. I can make this until my pension. How to create a new perspective for yourself. The only way to do it is change your process of making. If I'm been making music behind my keyboard for all my life and I want to make new things and

I start sitting behind my keyboard again. I probably hit the same keys I've been hitting all those years. So then, it would be more of the same. You have to put yourself in trouble by not permitting yourself to sit behind a keyboard and make music in a different way. Which is the problem. I don't know how to use a keyboard so I start using sounds. Listening to sounds and see what I can use. Start editing them or whatever. Anyway. Any other way. Giving yourself a problem which you have to solve. Which will probably add to some other type of music. This is interesting because the minute I Start doing this. I felt myself. I got new perspectives because I found new ways of making music. The interesting thing was when I showed this new music, these two people I knew, friends of mine. They said, this is typical R Machielse music. This is good, because I still had my own signature in music. You still make your decisions in the process which lead to a type of music which would have typically been me. But for myself I had totally new perspective, I had found ways to make music not from behind my keyboard hitting the black and white keys. So it's, that's the thing that has changed through the years. Become much more process orientated. Also because. Much more than in the earlier days, we had to collaborate with a lot of different disciplines.

If you want to collaborate, you have to be able to explain the way you are working. When you work with a game design it takes a totally different process.

K: The developer has no idea what a 'measure' is perhaps.

56:44 R: So we have all kinds of ways we develop our game design and the way composers work and when today we need input from game design or a game developer and how music works which is quite difficult because we work together with the game design school here and the multimedia education. For example in the game design department they did a lot of brainstorming techniques because that process is much more technological, they have an idea they have to think about it or brainstorm, they might make a fast prototyping, using in simple game with dull technology. If they are convinced that the concept is good then they can actually start making it. When I make music with the keyboard I immediately have feedback. Milliseconds to decide what the next chord should be for example, or I'll do this, or whatever. This feedback loop in musician composers, specifically when you are making music like this, [ ] feedback, so much shorter than doing it for a game design because there's a lot of technology involved. Brainstorm, develop a concept, figure things out, do fast prototyping. Then the feedback loop is a month or six weeks before they get any idea if the idea they started with might work out and might be a valuable thing to develop into a game. I'm a feedback loop of probably milliseconds. So that's totally different and most should be aware that those functions are totally different. Apart from the comment that I make that is that one is more a product than a game. We still have media directors at the final day before the deadline, they take out the animation film, they take one second out, they ask the composer to take out one second of the music. You can't expect to take out one second of the music and put it together and it'll still be a piece of music. You also have to tell, like I said, the music for example is built out of measures. You might take out a measure, but you can't take out a piece of time and expect it to be music.

59:45 R: We have to be able as a composer to explain the process and the whole thing to other disciplines to be able to collaborate with them.

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K: Would you say that the education here, it seems very practical in terms of process orientation, but would you say you get a lot into the theory behind the meaning of sound, or auditive perception of that very theoretical stuff?

R: We do the science of acoustics, we do particularly because of our technological background, we look at music as being a system. It has certain ways of looking at it in a technological way.

K: I'm just wondering who are the main authors of that, I'm wondering myself. I have to apply some sort of there, well apply, find.

R: Well you look at music information retrieval it also has to do with this kind of approach. One of the things we taught the first year students is analysis and synthesis. So we taught them how to analyze a piece of music, that you can start recognizing the different components of the music is built upon. They might take one or two elements, but it's built upon some structural parts of this starting piece of music which they take, they synthesize their own piece of music. That's the way of looking at analysis. This can be very, this can be rhythmic selves for example this can be,

K: An ascending triad, for example.

R: It can be different elements, we also use it in research projects for example. We use a software that recognizes patterns. We used it to recognize behavior of autistic children, when autistic children get anxious when they start behaving in loops. They get ticks. The software had a camera that would recognize these loops. The environment would offer different music to make the autistic child more quite and help them get out of it. Give the feeling through the software a musical score. We as individuals can't see that quick. The software can analyze these patterns that are in the structures of music. If you recognize the patterns its also here in the bass key, it's there, that's one element of analysis. You may take this piece, it might be a melody, or a rhythmic pattern. And that makes another piece of music based on these elements. I also do this for example. Created a composition of media. As a composer you have to deal with a music soundalike.

1:03:45 R: Most of the times you can't make copies because then you will in trouble with the author rights. So you have to analyze what is it in this type of music that makes it work for this commercial or this film scene. Because there might be some elements, a couple of elements which might do the thing.

K: Do the thing. Is that a kind of psychoacoustics thing you mean.

R: It might be a rhythmic, rhythm is very important in music. So it might be simply the rhythmic content, the rhythm itself which make it works like the way it works. That's, if you only have this rhythmic self, that's the thing you have to copy. You may do harmonically different things, but you may have to make sure about this rhythmic things. That's just in your music also. That's hard to, difficult sometimes to do because you have to listen to it as a user, as an audience. And it's also difficult in this type of work you always have to be aware of what you're making. You have to listen to your music as being and audience.

K: Plus, you don't want to kill your darlings.

R: It's all related to it. You see the beginning of the studies, second, third year, they are way too much involved in their own music. Looking purely at their music. They can't take that much distance and listen to it as being an audience. Which of course is difficult to do. I always take the example of a fine artist,

a painter. Which can be very great for him, to take some steps backwards. And then your total overview have your distance. In music that's more difficult, to decide to go for a walk for a day.

K: The concept of distance is more time.

R: It takes time to get this distance. You might play it, listen to it as a kind of an audience. Play it for the first time, recognize good parts, bad parts. But it takes time. Students have to become aware that they have to deal with this in this way. At the beginning its very hard. They're involved. They are interested in music in themselves. It's an essential thing for composition in media that you are aware of this position of music in media. That you also should listen and judge music in this way. Also be able to analyze if there's [temp] track used. What's it in this that makes this music work? I should take that out of it and make my own music of it. Simply copy, is not a simple solution. Just don't do it.

K: No, I don't think you'd end up in the appropriate place. Does hacking, or hactivism, for example, hacking for activism. Does that have any influence on your education or what you hear from your students?

1:06 R: Well during their study they hack everything.

K: They hack everything he says.

R: Yea, it's. What they do, is they hack technology. They all work with illegal technology. They exchange amongst each other. So they do a lot of education amongst themselves because somebody might struggle with a plugin, someone says, you should use another one. And after four years of hacking, they will know what kind of software they want to use in a professional way. And then they buy the professional package. It's a laboratory for four years, they hack almost everything. When I see something about new software in the magazines, or in the newspaper, and I go to school the next morning, they already have the first illegal product in every version. They're very surely aware that they should as soon as possible buy the legal versions. Of course they are aware of there position and being a musician themselves its better then buying the legal version. A mentality that we also approve upon. As long as they study go ahead. You might say they do research for four years, hacking, and exchanging everything.

[office door interruption…five minutes]

R: Final questions?

K: Yes, knowledge transfer. If you would train someone to do your job, how would you do that?

R: Well my job as an education.

K: Yes exactly.

R: Well if you look at my job as an education how it changed, then you might say that the way it used to be much more focused on purely music. Now its focused on how music works in media.

K: What is the process, how do we get there.

R: Yes, how it works. In combination with the visuals. The music in itself. In it's beginning you would struggle in itself with technology. It would be on VHS, how to connect music with visuals, it was very different. This is totally not the question anymore. And neither is making music because there's a load of sample libraries, and there's garage band. There's a lot of people out there who can make music, a lot of amateurs who can make music who sounds good. The interesting thing is what's become most

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important in my job area is, "How does it work in media?" So, psychoacoustics but also perception-wise, the combination of visuals together with media. Visual media, other media, together with music, sound, how does it work perception-wise on an audience. A lot of tests in the masters, making, taking one scene which in itself is quite neutral and start experimenting with one piece of music. Then change the musical parameters and test audiences and seeing what their reaction was. See what it generates. That's much more valuable knowledge, an awareness for a music composer nowadays. That also has to do totally in the beginning, people, the assigner would pay you the composer, they wanted to be sure that the music works in the way that its needed. Where in the old days of course, the film director and the composer plays the piano, it goes "Well okay, then the scene will become violent" and I'd say "Well that sounds good to me" I don't know how to do this, it has to be recorded by an orchestra and then the final mixed down music, direct to hear what the music was. Have to think then — no control whatsoever. Compared to a camera, you get the feedback directly, Oh, I like this view. As a composer it was very difficult. People want to make sure, also in the ad industry, if they pay money, they want to be sure to a large extent that it does it's work. That it works the way it should work and that's the way it should be. So as a composer gaining knowledge about that has become much more important for being, becoming a successful media composer. My task has been much more in that direction, also doing myself in this area research about how does it actually work. Why is suspense music always like this, such high strings, or lone drones, things like that. Which has to do with example psycho acoustics. So that part of the job has become much more interesting. So my scope has changed to that area, instead of making music, because that's not so difficult anymore because of a lot of technology is helping. It's also something that everybody starts sounding more like everybody else.

K: Well that's very interesting. I'll stop the

[END]

"Alex"

A: Maybe its because it's I have an older version of Skype... I looked at your file, so bring it on.

Kim: Well I just want to give you some background as to why and all of that. We started on this audio project and my brother happens to be a sound designer as well so I've always had this a little bit with me. He normally mostly does gigs and stuff like that, does a couple DJ things, a musician as well, did school for sound design, stuff for games. I remember in my undergrad college doing a project where I was starting up a sound studio type of business where there was studio space, there were services so this has always been a topic that is interested me. This so happens this is what we're doing in the media LAB.

Before the end of august, which is when this research project is supposed to be done, that would give me about a month to write a thesis, I thought shit, I don't have time to research something on screens. Let's go with what I know and try to do something that interests me. Interview audio professionals in a lot of different fields, for example I have a guy that does music information retrieval another guy who's purely a teacher, another guy like you who has done a lot of interdisciplinary work. If that's a good way to put it. Get their perspective on these questions, flowing conversations, no right answers, you're supposed to do a lot of the talking when I finish this spiel. Comparing the responses is not only interesting if and how work practices have changed and why perhaps, but also on a metalevel postulate well why are their responses different.

A: Well the short answer is because sound design is a very broad term of course. People who make sounds for devices, well this doesn't make any sound, but the bleeping, it's hopefully designed. But also other people design car sounds, like the slamming of a BMW door sounds different than that of a Mercedes which is different than a Toyota. It's really a broad interdisciplinary term. So for me its more or less the same. I just love doing sound and that means I can do anything I want, as long as I get paid. Something like that so, yea. Short answer.

K: How did you, did you have formal training in this?

A: Yea, well it's not exactly art school but the HKU in Utrecht, it's actually in Hilversum. It's the KMT, art media technology department.

K: I was just there yesterday interviewing ▮▮▮▮▮▮▮

A: Ah, he's my graduate teacher.

K: Cool! Small world.

A: He's the guy, ▮▮▮ is the greatest. It's good, funny that you talked to him. I'm one of his students, but I did that, and that's formal training>

K: But before that did you, were you involved in audio or music.

A: Well yea as a kid I had piano lessons but I detested that. It was more or less forced upon me. You need to have a hobby. And I had my lessons on a real piano, but it was really boring. The woman was not really nice who taught me how to play piano. But at home we didn't have piano, so I played on an organ. You can not compare. I didn't understand why I didn't like it, but maybe that's why.

K: The sounds you heard in the lesson are not the sounds you make at home.

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A: Exactly. I think that was the first time that designing sound might have been an issue. Where my small frustration and my ambition comes from is maybe born there. Because I wanted more attention for sound. That's why I enjoy doing interviews like this and talk about my work and the importance of sound and what it could be. That was when I was about eight to ten, then I started listening to music on a record player. Destroying records by scratching them because that's what I saw on television. I was making mixtapes, listening to music with my friends, and well more or less getting inspired by them. Started making music on the computer, and later a synth, and then more or less everything evolved. I think that's how it went down.

K: Was there something that you accomplished during your education, whether it's a project or something else that's stuck with you?

A: That's a difficult question because I did like, forty projects during art school. The first thing that comes to mind is my MA thesis, and that's, the subject was spoken fantasy languages. I created sounds with objects, objects, for animated characters. I took small animations from contests, people were asked to, what I did I found out that people had contests for animating on a specific scene from a movie, or whatever, it could be Reservoir Dogs the shooting or the ear cutting. They have to create an animation around the same scene but it should be totally different, and it's all about the character. Things like facial expression. I took that, stripped the audio, and recreated the audio on the animation because the characters were very well done, or specified in the animation. The characters were good, and the animations were great because it was the winner of a contest. Then I created a library of sounds for these type of sounds and created a thesis, it's art school, so thesis, is something different than your thesis maybe, hopefully.

K: Well a deliverable vs. 20K words.

A: Well I don't remember how long it was, but it was in English.

K: Interesting.

A: Yea. I researched Star Wars and other examples of non-spoken, or non-human speech examples. Robots, also Pixar, the little lamp, that specific sound, great big example of sound design of characters.

K: And those mini-movies that they sometimes play at the beginning.

A: Oh they're wonderful. They are the best actually. Its because its really compact and they don't carry away with too much emotional Disney stuff. So yea, I guess that's my first thought of a project.

K: Okay, interesting. So you've really had experience composing not only for animation, which could lend itself to, even though I guess that one was a bit linear media, that animation, but could you tell me where you've composed for interactive media, if that's the case.

A: Let me think. I'm not really a composer of course. A composer in my terms is somebody who writes music, and somebody else "*voert het uit*". Somebody else plays it, 10:25. being a bit broad I did sounds for games, but that's really not that interactive, still, for me. These will always, like games for kids or like old school games, platform games and the sounds are really static so its not interactive in that the player influences the sounds on a micro-level, it's just like when he opens the door, you hear this sound, that type of interactivity. So yea, I guess, oh yea, I once did something, during art school actually.

K: Okay.

A: I made, it was a project for autistic people to get into a room with soft cushions and all that. And they had a device, and they could make sounds for that device. I composed sounds for that, and melodies, so that's the best example I guess.

K: Would you say the interactivity is one of the buzzwords, well, plaguing is the wrong word, but affecting the industry right now, if it's not that, then what are the things that keep you up at night?

A: I mean, anything could keep me up if its regarding sound. I read a lot of blogs, so a buzzword to me is a negative thing.

K: Oh, is it really?

A: Is it hyperinflated, everybody talks about it kind of thing.

K: Oh, I mean

A: I mean if its negative, then its like a Dolby Atmos kind of thing cool Dolby surround thing which I will probably never experience because its so expensive and its false advertisement I think, but besides that, what I really think is important right now are the changes in the way the Internet allows people to talk about sound and sound design in general. I think, and tutor each other, or help each other out and on the other hand, like in graphic animation, computer graphics, its been developing like crazy, you could be looking at an avatar in the movie and you wouldn't see the difference between me and the avatar, but in sound, the progress is much slower. It's still not possible to perfectly generate water sounds. In real time. That's really really high level difficult stuff, but it's been catching up a bit. That, I think that computer generated sounds, complex sounds, like natural sounds, that's the new frontier so to speak. But it's sound design, and it's not sound in specific to me, it's about telling a story with sound or music. And so you still, like there's some question you have if you do audio do you need to be able to do programming as well. I think it's a plus, but it doesn't mean that you don't have to know the fundamentals of sound design and that's storytelling. How do you let somebody experience a scene or a character, that's something way different from programming a sound in a computer game, I think. But then again, if you program really well in a computer game, you can make it more realistic. So yea.

14.59

K: Well, implying that realism is the goal, in that case.

A: Yea, or compelling, or sorry, it's a lack of vocabulary on my part. It makes me say realistic. What I'm trying to say is compelling, but what's the word for when you get into something

K: Immersed. Immersion!

A: Yea, that's the word. Thank you.

K: Sure.

A: So good programming of sound can make something much more immersive, you have to have an idea of why those sounds need to be programmed.

K: And that's where for you the fundamentals come in, if I understand you correctly.

A: Yea, I think so, it's like, sound design is like directing a stage play with sounds. And the sound is the actor, and if you don't, if you can't think of it that way, then it will never tell a story in the correct way I think.

K: Are there other differences besides the ones, that sort of knowledge of the fundamentals, but

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people who attempt to produce sound and music as a hobby versus people who decide I'm going to make this my career, or I'm going to pursue a formal education in this.

A: Yea, do you mean if there's a difference between the outcome, or between the persons?

K: The persons.

A: Well if you're driven by money instead of a hobby, that's the difference. I have to make money to live here and keep my studio updated. If you're a hobbyist, you can rely on the money from the job and make smaller investments. You can still have a lot of fun. I try to have as much fun and try to keep my checks balanced. And of course, when people pay you money, good money for stuff, they want the best and a hobbyist doesn't have the time to get the best because he's doing another job in the daytime. If somebody is a hobbyist and tells me I'm a sound designers, so I'll think OK, how do you exactly do that? That's not really important, you can still create great stuff.

K: What influence, if any, does the development of these new Pro-Consumer softwares have on the work that you do on a day-to-day basis?

A: Well, wow. It's just getting better and better I guess. I mean there's so much new stuff coming out on so many smaller parts of the big sound field, it's just really, you can, the negative part is you get lost in all the activity. In finding new stuff, it's really about, it challenges to create your own borders and make a set of instruments for yourself and not get distracted by new technology. Inspired yes, but not distracted (laughs)

K: 18:41 Would you say you're more into the hardware developments or the more software stuff.

A: That totally depends on my goal. I need good speakers in my studio, so when a new revolutionary speaker comes out that augments the way I listen to sound in my studio, I will definitely get into the hardware part of it. But for now, the speakers are doing well and have been for four or five years and there's no need to get into the hardware. But then again, I've been investing in microphones for example and I'm checking out new software because I'm working on a new project and it might come in handy. Even a car mechanic can't not figure out software, he has to know software or at least to be able to use Windows or Mac or whatever car repairmen use to repair cars, to make them work again. I don't think anyone is either totally hardware or totally software, unless he's a programmer or a beeld-houen, sculptor.

K: I guess that's a good point.

A: What do you mean, why do you ask? Yea..

K: To see if you have a particular affinity with either one, yea, there's a great software that just came out, and I'm totally obsessed with it because, or if you're like no I just sort of follow along with my own personal needs.

A: I think, I take what I need whatever I need something and it's not that I don't have to be updated constantly. I'm always considering it, but I'm not always doing it.

K: Would you say that there's been a radical, and I use that word very distinctly, radical sort of innovation or something that's been brought to market by a company that you in the last ten years have thought, Hmm. Maybe I should get that.

A: That's something I now work on with a daily basis, but that's actually visual editing of sound, it's

called Isotope, it's a restoration technique package. You can load a sound file and for example if there's something wrong with it technically or I for example I record a car and there's a bird tweeting and some part I can just point it out and take this part out and I can listen to it, I need to make it a little bit bigger, I can change things that used to be really really difficult. That was a bit of a game changer for me, because some things are just way easier and faster to do. That's mostly technical. They have another product that's called Iris, based on the same technique you can play with spectral content, so if you listen to my voice, there's low, middle and high register, from my lips is the higher register. I can scan, I can go through, if I do [sings pitch] I can sample that, then I can select a part of the spectrum from low to high, and I can play that, and can go like this [swipes hand], or like this, and make little dots and it can play that, and I can layer stuff I get. That's sonically almost, how do you call when it's never ending.

K: Continuous.

A: Well not continuous, but there's no boundaries to what you can do, I don't know the word. But then again, I kind of need boundaries in my work, there's a concept or something help me focus on the story and if I use too many sounds, nobody will be able to figure out what the story's about because they're constantly distracted for example. It's great, but only when you use it in a smart way and confine it to a specific part of the story, for example. So I think this is a, to me is a game changer, this company.

K: Well it visually, it helps you visualize aspects of the sound that you weren't able to before. You were able to visualize them, but editing them was really slow and difficult, and now you can play musically with it. That's, I mean it's like Photoshop, it's not Photoshop, it's like After Effects, I don't know if you know it. It's like After Effects for sound, and before, we only had final cut pro. It was linear, and now it's multidimensional. It's awesome, I mean, there's another company that does Melodyne and you can play a chord on the piano (rolls over the piano) that chord, it will hear it, it will tell you what is the note, and you can drag it up, but you could also have a track or recording and he's one note off, you can drag it and push it up a bit, for example.

K: I sort of get a grin on my face, I think, hmm, authenticity.

A: You can fake anything these days.

K: Well, except for those damn water sounds.

A: It's realism, you need it. 25.25 the best stories aren't told because they're true, its because they're a great storyteller".

K: That's an interesting point. Good metaphor. Now, I don't know about this Isis, Isis?

A: Iris?

K: Yes, sorry, I'm thinking of Isadora, which is something totally different. Um, have any of your buddies hacked it?

A: It's a hack in itself. So hacking it is not really an option, I think, I mean, hacking software is, I think, very difficult when it's a completed package. But I mean, it is something that is if you use for example MaxMSP, hacking is programming in that sense. Then yea, well hacking MaxMSP is also not an option, because that's what it's meant for.

K: Yea.

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A: So what do you mean by hacking?

K: Downloading it for free, sort of yea, opening up the black box and saying, no no no this button's in the wrong place on the screen, I want this to be over here but I can ..

A: No, that's not what we do. What I do is I check out stuff, which I think helps me create an instrument or something. If it doesn't work the way I want it, I don't buy it. IF there's something I don't understand or I'm not sure of, then I won't buy it, but if the basics are good, then I'll buy it. Sometimes you figure out a way to do something quicker than intended, better than intended, so you find a way or weirder than intended. For example with this Isotope program what they made, what you could do with it is take out a sound, even easier, background noise. When you listen to my microphone now, there will be noise because the ventilator of my laptop is next to it and it will be recording it. What I figured out was when you reduce the noise, there's an option to only listen to the output. To listen if there's not of the original voice in the noise pattern. I was listening to it, hey wow, this sounds great. Maybe I could, then I started developing sound with I could treat with the noise reduction plugin, to create more sounds from the same family and create a palette or vocabulary, that I would never be able to create without that small button option. It's not about dragging a button to somewhere else, it's about using a button for another purpose. That's what hacking it me is. That has always been my inspiration in sound I guess. I mean, my thesis about fantasy languages, I actually developed that theory or that idea doing the dishes. I was with my hand in a little cup, and it was like [squeak, squeak, squeak] but you could really here it.

K: Yeap.

A: I was playing with it and I was like wow this is a really great little instrument and then whoa, something sparked in my brain, using a cup as an instrument was one example for me. Yea, I think's what hacking is. Repurposing a given instrument for something totally different.

K: It's a very interesting perspective. "No one has said that yet"

A: Oh, good.

[Laughs] That's why I think it's so good to pull people form different fields because I say 'oh, what's hacking' and somebody takes a totally different..

A: People probably start talking about hacking into servers or something.

K: Yea, well, the DIY instrument type of thing, kind of what you just said.

A: Well, that's what you' call repurposement. Is that how you..

K: [softly] yea, yes.

A: I actually tried it once. But I'm not good with a solder stuff. I don't like it. I can repair stuff but that's about it.

K: Now would you say, well I'm sure, well I'm not sure, but would you say this differs from project to project?

A: Yea.

K: Would you say your work focuses a lot, or your work to date focuses a lot on recreating sounds that already exist or producing totally new sounds?

A: It's a balance. But I think it's recreating mostly, but it's always new. You cannot recreate an original sound. I mean we're still, that's the new frontier. You can create the sound of now, you can almost in

real-time create the sound of a falling and crashing bottle. For me to recreate that, the only possibility was to smash this bottle. If I take another bottle, it will sound totally different. Well not totally, but it will be different. Recreating is possible to an extent. It's not really the goal, it's repurposing the sounds, or having, making, I mean, the sound of, yea, for example this little thing, I always play with when I talk on the phone to my girlfriend, because I can do this [manipulates object] and it turns. Then I was doing it [claps ball together rhythmically] it creates a rhythm because I'm turning it. It's a new sound, but there's also the sound of something turning. There's no way you can say, 'are you creating new sounds or are you recreating other sounds?' 32.10

K: So the context.

A: It's totally context dependent. Also on the sounds.

K: Had to get it on the tape. Ha, tape.

A: Wha? Yea, yea.

K: [shrugs shoulders laughing]

A: I think that's all I can say on that.

K: How would you say, um, well, quality standard, that's something that's come up quite often in these talks and people saying yea, well, some amateurs sit in their room, and makes this music, and everyone thinks its great, but then that's totally different from someone who records a 73 piece orchestra.

A: Yea well, why? Why would it be better or worse? I don't know. I've been on the web for quite a while and I've been teaching students for awhile. And backgrounds of all these people are different. Totally different. I was myself a chemical student before I went to art school, I'm a laboratory guy, so I know how to do physics and chemistry but I have a little knack for sound, so to speak. I don't think you should how do you say that, I don't think you can say you're an amateur so your work does matter. That's arrogant. What I do think is the products might be totally different, then again, what is it meant for? What's the purpose of what these people create, is it pleasure for themselves. Is it just a way to show the world that I'm having pleasure making sounds or am I having fun. Or is it people who say OK I've created this great sound and I want to be the new composer for the Batman movie and he's working on a rundown piano, yea he will have a problem getting there. It doesn't mean it won't work. The best art is made by people who, is sometimes made by people who don't understand their instrument.

A: I use a guitar, which I can't play, obviously because I'm not a guitar player, but I can't play really well, put it like that. I don't understand how it works completely and I want to keep it like that to create new strange melodies. Because on a piano, I always know how something is going to sound more or less. On a guitar it's like oh, oh, maybe that's a nice note.

K: That's what ███ said. He said I had to literally pull myself away from the piano, and still people said that the other stuff I did on the guitar sounded like me and I was mad. You have this sort of muscle memory, your own style.

A: Yea, exactly. So [sigh] besides style. If you are passionate about it, it doesn't matter if you go to art school work at home or have a 70 piece orchestra. I don't give a shit. I hate some of the best music in

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the world. I can listen to Luther van Dross and say this is horrible. It's not bad music, but I can listen to this and say it's horrible. It's not my taste, or style. So yea. Sorry, that's a very broad answer.

K: Yea, this whole thing is supposed to be bird's-eye view type of thing

A: Yea, yea.

K: So that was appropriate. Okay, yea. So if you think about the ability, to, to now incorporate visuals maybe more than in the past in terms of delivering a personalized experience for someone. Imagine you're doing a, a, project where it's going to only be published on a computer screen. Have you done work like that before?

A: I'm doing two things. I'm working on a theater tour, "theater", it's a soundwalk with a story. So not a soundwalk, well, yea. It's with actors of course. There's also an interface, people can do stuff. It's not game, it's a questionnaire. How old are you? You can type it in. That's during the walk so it's tied to this little screen and headphones. And the other thing is a computer game for kids, for kids, to learn them to appreciate sounds. To make them attentive to word sounds.

K: Yea, that's very interesting to hear. Hey, I had forgotten you were a teacher, did you encounter a difference in the types of students you encountered last week?

A: I don't teach on a regular basis, I do guest lectures and stuff, workshops. I'm not a teacher like Rens Machielse is or well, he's the director now, I don't know if he still teaches. If there's a difference. Well yea, I think people know a lot more before they get into class. 38.13 When I got into art school I knew a bit about the piano, and I knew a bit about sampling and MIDI, but the kids today know much more about the techniques behind the, the sound world. You can find anything, it's horrible and its beautiful at the same time.

K: That's tied to what you said before. That the Internet is making things accessible.

A: Yea, and in the end it will probably have said this also. *Democratizering* of the music world. So anyone can start a studio. You don't have to do art school. That's why I don't like the idea of it's not a sound track it's not played by a 70 piece orchestra.

K: Shite.

A: Yea. [ha, ha] So something has definitely changed. So equipment is getting cheaper and cheaper. If you look at GarageBand, which is something you get with your computer which is not really inexpensive but still, you need it for school, and your parents will pay for it. Then you have a music and a video editing platform at your hands. It's great, and easy, and you can learn the basics on it. People create albums in GarageBand and they're just as successful as the French Duo, and they created it, they say in GarageBand. If that's possible, yea. What does it matter? It doesn't matter if you do art school or not.

K: And what about then the whole authorship and copyright challenges that come along with this whole remix culture. I can just take anything from the internet and spin it.

A: I think it's great. As long as you use it to create new exciting stuff, instead of making money with something that somebody else created, so stealing, I think it's great. And, you know, I created a platform, it's called The Sound of Holland and you can listen to sounds in Holland. I think this is natural, it should be natural. The sounds are paid for by the Dutch audience, *door de oproepen zijn ze gemaakt*,

the broadcaster has created these sounds from money from us, from me, my grandma. Give it back, it's quite easy. We have *auteursrecht* and it's a really big problem for creating new stuff and recreating history. In not, not in the negative way of adapting a history, showing history. It doesn't, it really makes it really difficult. All these copyright things, and claims.

K: I've heard people say it takes away from the pleasure, from what you get out of it because you're caught up in all this red tape.

A: Yea, well maybe. 41.54 Also, luckily not everyone. People are anxious, are to create new stuff with old stuff. I think that should not even be a consideration. I mean, everybody used to do that. The Beatles created Blackbird after a Beethoven or a Bach song or, composition.

K: [falsely gasping]

A: [smugly] well I had the formal training so I'm supposed to use the right vocabulary

K: Ooooh,

A: Song to me. [laughs] So, relax about copyright.

K: Just let people enjoy it.

A: Yea.

K: And right, so some of these questions aren't on the list, so that's sort of the fun of doing semi-structured interviews, is that depending upon how interesting the person is, I can come up with new questions on the spot. Hopefully this isn't going to take you by surprise, the support system for the people of your profession in the Netherlands. Whether it's a networking organization, or a place where you can go for help, I mean maybe that's not the right words. But do they exist, and how do they work. If you participate that is.

A: Well I don't really participate, because I have my friends and I have the Internet. *Verenigingen.*

K: Ja.

A: VCA. Vereniging Constructieve Audio.

K: Oké..

A: *Ja, vereniging.* How do you call that?

K: Like a group?

A. Yes, it's a group and you have to pay every year for your *lidmaatschap.* So you have to become a member, so I guess it's like a society.

K: Thaaat's a better word for it. Yea.

A: Yea. And um it's for sound men who work on the set, but also for sound designers like me, but I don't really feel like I need to be in that society because I am interdisciplinary and I can manage on my own, something like that. I always, ███, if you ask ███ about me, he'll say ███ figures it out his own way. And up until today, I'm okay with that, I'm doing fine. I don't want to be in societies with people talking about the same thing all day, beacause, eh, it bores, it's bore, it's boring to me. So you know.

K: Yea, that's an interesting perspective in terms of what they offer, and what you're looking for. I mean, you have your friends and the internet.

A: That's not what I'm looking for, I'm looking for new stuff every day. It's always changing. Yes, there are basic stuff, things I need to know. But I can download or write, copy, buy, I mean *koop.* Buy a book.

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These people at the VCA, they all know the stuff from the same books I can buy, or experience. And yea, experience is not easily shared between *concurrenten.*

K: Yea, no, competition. Yea let's switch the topic. What gave you the idea, well if it was an idea, and not like a something you thought of while doing the dishes and maybe it was, but to start De Audietieve Dienst. It was there but it didn't have a name, it was ███████ Sound Design.

K: Heh, heh. Okay.

A: It was really simple, I did, *eigen wijs*.

K: ZZP?

A: No, like your character. When you figure out your own way always.

K: Ah I see what you're saying.

A: I forgot the English word for it.

K: I will look it up don't worry.

A: Yea, I was, well

K: Stubborn!

A: Yea, well, I was always a bit stubborn.

K: Okay [matter of fact]

A: It doesn't always help, but it makes you do things that nobody else does. That's why I started De Audietieve Dienst, I was doing museum exhibits and making radio plays, or Hörspielen for museums, and I was well, why is nobody doing this properly? 46.43 So I started doing it actually, that evolved into more theater, that involved into audio tours, then sound designs for animations and movies and now its like I'm all over the place. That's why I love, my company name, because it's like I do anything with sound. But it sounds official. I want to pretend, like, I want it to have the customer, or people feel like I'm serious about what I do, which I am. I don't want to place myself like does sound for Commercials, or sound for Film, it's just like does sound really well. That's what I want to tell people. And that's what I hope they say afterwards.

K: Well your logo looks really reliable.

A: Well, yea, it's, I have a friend who's a graphic designer. I told him my company name. Yea, yea, oh yea, I think I have an idea. And it took him like 20 minutes.

K: Ha, ha, ha.

A: Yea, so he emailed me in like half an hour. And I was like, [pause] well OK, I think this is good. And it changed a bit over the years because it used to be in smaller, it used to be lowercase letters. But he changed it to uppercase.

K: Yea.

A: Yea, bigger letters. Capslock, Capitals. That's it. But I'm really happy with it. It's perfect for what I do.

K: Could you tell me about an experience with a client from Hell?

A: Well there is no client from hell I think.

K: Heh?

A: Well, I mean, it's also your own mistake that you started working with them. There are clients who are very demanding. And in my case I keep away from clients who are very demanding and don't know

what they're talking about. I have an antenna, it's invisible and it's here. And I know exactly the type of person that I don't want to work with. And up until, yea, until now I never had something like that. And if I had it, it was really minor, I knew I don't trust this guy or girl, let me keep this at a low and we'll see how it works out. Or it didn't work out or it didn't actually move on, because I was reluctant. 49.37 I had one director who was really demanding, but he was really good.

K: Oh.

A: He was a client from somewhere in between Heaven and Hell. Some people really feel the di-, the two words.

K: Oh, the dichotomy?

A: Dichotomy? I don't feel the dichotomy actually exists. It's in the mind of the perceiver, or what it was.

K: It's in the eye of the beholder… or something,

A: Yea, that was it.

K: Or the ear.

A: Yea [ha, ha].

K: In terms of like, did you get any entrepreneurial assistance when you were getting started up, I mean, you went to *Kamer van Koophandel* and said, there.

A: They said, "What?"

K: [laughs hysterically]

A: There were two or three banks, and said "What? You need a loan"

K: Ha..

A: And the third bank didn't even look at it, and said oh yea, here's the money. {Laughing} They don't care, they just wanted to invest. Support was I think from friends and school because I started during school more or less.

K: Oh, okay.

A: I talked to ██ a lot about it. Yea, colleagues. Also with colleagues, like, how can you do this. You don't talk about everything, now I just talk about how much I charge. I have my own small thing that they don't touch. And they don't want to touch. So it's not a problem. So it's more or less self-taught with advice from others and reading some books about managing stuff, and projects. I have some books, well they're in the closet. But yea, it's something you learn as you go. 51.51 Just-in-time learning.

K: Yea, that makes sense. Okay, we're at 51 minutes, I hopefully have to get an hour. Let's try to wrap it up here. If you had to comment on, and I think this is going to be the one where they ring the bell and say ha, ha, finally she's asked me, but

A: Yea,

K: I'm just going to say something really open ended and hopefully you can fill in the blank. Narrative and sound, there's so many perceptual things that can get in the way.

A: Yea.

K: What are your tricks of the trade, or what's a common mistake, or sort of:

A: It's really hard to answer this one. I saw it, I think. There's a question mark underneath your question mark. What the hell does this mean? Carried over in your work? I mean, I learned some tricks by myself

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and I learned some tricks form other people but those are not really interesting because you can write them in a book and it's like ok.

K: It's like technical tricks.

A: Well, I mean silence is a trick. It's not a trick in a negative sense, it's a great way of making something really suspenseful. In a scary movie, everything starts softer and softer and softer. You know that something's going to happen and you can't do anything about it, so you get scared. 53.33 and the same goes for dissonance. Telling a story with sound is based on fundamental ideas about how sound manipulates the way we listen to stuff. We still figure out new ways of doing that because you have to otherwise things start getting boring. There's no definite tricks of the trade, well yea. I don't want to re-use tricks of the trade all the time. That's not the way I want to work. Some things I try to reinvent all the time. Using silence is something you have to reinvent if you use it again in the same way always, it will never work again. That's not the way it's supposed to be. That's when you get bad movies or bad storytelling. When you do things again and again. I try to stay away from tricks of the trade unless I have to know something or I think through this properly because I can't figure it out. And then there's the internet, and fora and they say 'oh, why do you ask, shouldn't you be bothered about this and that, and I'm like, oh, hey maybe. You know, anything can happen as long as your sensible and sensitive to the story and the sounds that are around it. Sometimes you need to pick something out of a totally different context and it will work. You could call that a trick of the trade but yea what does that bring. It's not like a technique, it's an idea. Yea, I'm not going to fill my minutes with that.

K: No, that's okay.

A: Your trick didn't work.

K: Well, that's what makes this research fun, is the questions are a bit ambiguous by design, so that people say well I could take it this way, and what the hell do you mean, and "What? What??" kind of idea. I don't want you to feel stumped by the question.

A: No, I don't. I like it. 56.02 I can talk about my work, and I like that.

K: Good, is there something that I didn't ask you that you want to say? It doesn't have to be on the list, it can be just something that you want to say.

A: Well you had something on the list that said, has there been a shift or change in companies that produce commercial software products for your industry. Well I actually have a question to that answer. And it's definitely, Adobe just announced subscription-based user. You can not buy it any more. And that's a disaster for creatives, for smaller creatives. So they will stop using Adobe within five years, I'm sure of it.

K: Yea, yet-to-be-invented alternatives, I'm sure.

A: Yea, well maybe to round things off with an answer to a question you never asked is, I don't think sound design can be written down, defined in a specific really narrow definition because it just develops, or evolute..

K: Evolves..

A: Evolves. It's only 30, or 40 years old. The first sound designer is Walter Mirch because he was thinking about the discussion he was having with Francis Ford Coppola, I mean for Apocalypse Now,

and he had to, they were talking about on a meta-level about the things they were doing. And he laid some fundamentals. Some other people before him also did some important stuff. He was the first vocal sound designer who talked about his work in a very understandable, way, how do you say it when you can make it easy for other people to understand what you say, again?

K: Accessible?

A: In an accessible way still for, the specific art form of course. It's been going back and forth and evolving and changing and it's never been the same after that first naming of the game. 58.52 So yea, I hope you will get very diverse answers, because it's a very diverse workfield and I hope it stays that way. Otherwise I'm out.

K: Laughs. Gheesh. Yea.

A: Yea.

K: Laughs.

A: I'm a bit stubborn and I want to discover new stuff, and learn stuff. And if it becomes something that doesn't change anymore, then I will do other stuff. I mean that's the joy of sound, it's always changing.

K: One of the most dynamic fields I know.

A: So yea.

K: Cool, I'm going to stop the actual call recording. So the thing I have to transcribe for my thesis supervisor. So that's fun.

A: Good luck translating the Dutch words.

K: Mua, that's always been easy. *Komt goed*..

[END]

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"Felix"

K: So it's not strange to have people who are interested in audio or who have made a career out of being involved with music, audio, computing science, to have some sort of childhood background in music of some sort. Would you say that's your experience as well.

F: I think my very earliest memories are about music. So like my friends buying the record player back in the early 60's I think I even very well remember the first record we bought, or one of the first ones. So I was around 3 years old. I have a clear recollection of that piece. And so and I got music lessons from when I was 7 I guess. And so, I still have. I'm still take singing lessons, and so I have a teacher I see every two weeks. That, being educated or educating myself has always been a part of my life since then. And so I studied musicology in Amsterdam and started when I was 21 I did a degree in biology first. That bored me a little bit, so maybe for a change I'll do music for 3 years. I never went back to biology. So I got a PhD in that, in the late 80s I was hired by Utrecht University for one year to design a course in computing and musicology and that was because there was some money left at the department or group of computing and humanities and they developed various courses. So for example for computing and visual arts computing, text computing and musicology. So I was hired for that basically on the strength of me being a musicologist with a background in the sciences and knowing a little bit about programming. So I created that course and that was quite fun actually. I met a lot of people preparing the course, I did some traveling, got my first emails in 1989 I guess (laughs) so I was an early adopter in that. So what I then did was sort of investigate what the state of the art was, which was basically about, processing and music notation. That was what most of it was about. And that, was at a rather primitive level from what we would say now. And so that would be like counting notes and counting durations and doing statistics on that and comparing and maybe two different versions of the same piece and finding what the differences are and maybe go a bit further down that trying to compare different sources of the piece and then to find out which one was the more reliable, for example. That sort of computational musicology that, I essentially I think that went back even to the late 60's but was very much what was done at that time. I think around that time the first serious music analysis packages began to be published. The most famous one was called HumDrum. Have you heard of that?

K: No, I can't say I have. Is it an off-the-shelf type of product?

S: Well, what to say, off the shelf in the sense you can download it and run it on your computer and it works. But it's not like, it's basically a toolbox run from a unit, and you have to create pipelines, very long pipelines in order to make certain things happen. It's very much dependent on certain libraries and certain versions and so on. So you can't say it's off the shelf. Ha, ha.

K: Okay.

F: It's easy to do stuff in HumDrum, as these libraries are increasingly hard to get a hold of, only on certain computers, its kind of fading out, but people are still working with that. The first serious, well wide purpose music analysis package that was around I would say, um, um, so when I was at that time very much interested in let's say doing interesting stuff with scores, score analysis and so on and also to create collections of musical sources in coded form. So I did some work on lute tablature. I'm not

sure if you're familiar with that.. no, well, if you play the lute, the tablature,

K: Oh, the lute,

F: Yes

K: Oh the lute tablature, well I know tablature, and the lute is a flute, but not a flute

F: No, the lute is a guitar like instrument with strings.

K: It's like a minstrel instrument.

F: Yea yea, that's it yea yea.

K: Oh, okay, now I've placed it.

F: Yea, yea, that's the lute. There was a hell of a lot of lute music and a lot of it was relevant to my PhD research. But its in a notation that makes no sense if you don't play the instrument, and I don't. So, I did some, some programming in order to convert that into for me, readable music notation and even to convert it to MIDI, so you could hear the pieces and that was some stuff I did in the early nineties. That was while I was doing my PhD research. During my PhD I returned to Utrecht. So the sequence was I was doing my Master in musicology and I was then coming to Utrecht to a year to create this course, then I went back to Amsterdam for my PhD in musicology, then I was hired in Utrecht basically to create the course I had created before. I started working on a new project which was basically editing a music theory package from the 16th century. So there are a huge amount of music theory from the middle ages, and essentially, quite a lot of that is in Latin, and in America a group of people who actually encoded a lot of those sources, but I was mainly interested in the [ ] counterparts and nobody seemed to work on those, so I did and I created a HTML encoding of those, of around 30 of those books. Unfortunately just before HTML became extinct, and HTML was the precursor of what's now known as XML, and XML is the standard for encoding hierarchical information the HTML was a precursor of that and basically because of the success of XML, all the HTML technology disappeared and my project was strongly dependent on that, so I learned a lesson there. In the sustainability of technology idea. so we might keep the whole stuff running until really really recently. I think around a year ago, but we had to run it on a Windows XP server and with a really unreliable security. And some day we had basically to close down that, and I still have to find a solution for my thing, all those 30 books fitting into a more modern format. So that's a matter of probably investing several 10 thousands of Euros and then hiring someone who can put them in there. Anyway, that of course was a quite nice project. And it was still musicology textual based. So our group was at the Humanities Faculty, so very closed to New Media actually. I think New Media already existed then, we had a professor of Television science, I'm not sure if you call it that.

K: Maybe it was television studies. It wouldn't happen to be Joost Raessens.

F: William Uricchio I think was his name.

K: Oh no, I haven't met him.

F: Anyway there was stuff going on with new media and we were in touch with them at the time. For some reason it was decided that we no longer had a place at the humanities faculty and we were moved to elsewhere and so we became as humanities will do all of a sudden became a program in Information Science. So basically we hired a lot of new people and people had to readjust to the

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situation. I became the one who was in charge part of the time of lets say the XML technology teaching. That's now phased out, we don't do that anymore. But I was never too happy with that. It was kind of nice, but it was hard to come up with these interesting research questions in the field. But in 2002 I had an interesting conversation with a colleague in a different group Remco Veldkamp, and so it was about basically music information retrieval. I always had a long term ambition of making music searchable, I saw this we could treat this as this experiment, we could treat this in as an exercise in new technology. And so in 2002 I had been in [ ] for six weeks, I did stuff there. I was visiting to college and I talked to people who actually run a music searching service there, Theme Finder. Did you ever come across that?

K: No, where is it?

F: Yea, themefinder.org. It's kind of old fashioned, but its nice. It uses the humdrum tool kit as the underlying engine. Basically what it does, it does what it says. There's a catalog of musical themes and you can search them. So you enter dum dum dum dum, 3 3 3 1, and then hopefully find Beethoven's 5th symphony. And it's a bit old fashioned but it works, still works.

K: So its adding a semantic layer to music, or is it less complicated.

F: It's less complicated than that. Basically its kind of musical pattern matching.

K: Oh, oh I see what you mean then.

F: Yea, what you do, you make sure you have in an encoding of the music that has the information you want to search for. In this case intervals, so you search by means of intervals, the 3 3 3 1, or that would be pitches probably.

K: Yea ¾ and stuff like that

F: Anyway, that's one presentation that's searchable. The problem with that is you can do that in one musical dimension only at the same time. You can search using pitches, intervals, 0 0 0 -2 for a [ ] you can do stuff like durations, but not combinations of those. I discussed that with my colleagues here and I said so is there something smarter we can do and then he said what we can do is a geometrical model of music, maybe. So I said what's that. I'll tell you what I need is a piece of paper. Do you have.. I've sort of run out of paper here

K: I know the feeling.

F: So the idea was like you can see music notation as something in 2 dimensions. So this is time and this is pitch, melody, almost precise there will be dots, here something happens, like that. Now, what you could do is take that as the basic representation of music and compare two of those patterns and then maybe the other pattern is like that, something like this, some deliberately. Sometimes making the distance close, then sometimes further apart. One problem with this, like 3 3 3 1, or ABCD or whatever you do. You have a problem, if the matching is not exact but approximate. So there are all sorts of solutions for matching in one dimension but none of them makes a lot of musical sense. However, if you keep the, both the time and the pitch structure, you can do something with comparing the contours of those melodies, in fact. It's very easy to say, you match this with this and this with that and come up with a nice mathematical model which makes possible to do this approximate matching. But also, and that's really nice, very often it makes lots of musical sense, it appears. We did

experiments, at first we didn't even know this was the case, we didn't know if this would work at all. We ran some preliminary experiments, those indicated that this was promising.

K: Yea!

F: We developed this model a lot further, what you can do for example is say OK, maybe there are extra notes here, and they both go to this note, that you mean OK, this piece would have a small wave and this one a large wave, a higher wave. Well, this image is no longer understandable, but the idea being that in the end you a representation of two melodies in wave-dot patterns. Each note is represented as a dot, not a dot in the infinitesimal small point, but as one that has a certain weight. Like this dot has a weight of 5 and this one of three, for example. So you, we used a model that compared the dot patterns and would calculate how much weight you would have to shift to transform one to the other. That is more or less the complex version of this story, you get to have two related contours and you need a certain amount of effort to transform one into the other. The more effort you use the prototype is two melodies are musically, that often works like that. We did experiments if we could do that on a database of 400,000 short melodies. We could do so fast, and we could so with outcomes that made musical sense. That was a very interesting result. I think that closed in around 2005. We still, have until very recently another machine that broke down, we had a service running called [JaMugle?] which was a funny name. Which search those forms and patterns things and was sometimes used by musicologists. We are now creating a new one, there were certain problems with that machine and the algorithm it turned out. The idea of doing something in a kind of multidimensional musical space worked quite well. But we were still working with music notation and not with musical audio, where that of course audio, audio is for the large public is much more interesting of course. Audio unfortunately has, is a lot more difficult to work with, which is, one very nice property of music notation is that its structured and that those structures make a lot of sense in terms of music perception and cognition. So working with notes, sort of that doesn't guarantee though, but makes it likely that it makes sense musically to people. But then, of course, you have to either accept that users will have to use music notation and they will have to come up with some clever way of hiding the music notation under the hood so to speak, so what you would want to do, with, let's say you get those scenarios that actually existed in, around the turn of the century I guess, to Query by Humming – did you come across that?

K: Could you write it down for me? Oh, query by humming. So that's literally with the pitch of my own voice.

F: Yea, yea, yea. You would sing a melody to the computer, it would do some computational magic, out comes the complete piece or the name of the piece, or the number of [ ] or whatever. There's a number of programs with that scenario, one is that people are very good at listening to music, but not so good to reproducing music. So the humming would often be very problematic. Also it seems that, well other solutions like for example what Sha'Zam does, it's a bit better way, it takes the algorithm to let your phone listen to what's being played now and it gives you back the information you want. But yea, so. What I was saying about clever things of hiding the music notation underneath. One thing through the query by humming, people would sing their song into the computer, the computer would do

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the conversion from audio to music notation, matching would be somewhere in the music notation, then the results would be sent back to the user maybe linked to the audio or whatever. So a lot of research went into this scenario but in the end people do not very often use this. And if you're talking about more, let's say a research oriented scenario, where the users are, professionals, its easier for them to use the music notation. I wouldn't use the query by humming model either. In the end it sort of, well disappeared a little bit, but a lot of research was done to make this possible and we learned a lot about this about how we can compare two different melodies or other musical units. So what we did after this initial research, which was done with the [ ] , I'll write that down again.

K: So this was the group that

F: That's the computational model and then they, so first moving is shifting the weight from one to the other point, um, so we did a lot with this and we implemented the [ ] for this. In the end it appeared that whatever we created was used mostly by musicologists so we could make this more simple than just that. We had a second project then, actually we had a number of projects very soon. We were funded very well for this sort of research, which was very nice.

K: Was it by internal, or external

F: So it's usually NWO

K: *"Wetenschap Organisatie" ofzo*

F: Yea, "*De Nederlandse organisatie voor Wetenschappelijke Onderzoekˆ*"

K: Yea, a sort of research council

F: Yea they have an official name which is Netherlands Organization for Scientific Research.

K: Oh, yea.

F: So we mostly got funded by them and we have one research project in comparing chord sequences. So this is on a pitch level, so this is mainly melodies. We have a different project on harmonics matching. So different sequences of chords. And that, so that also gave some very interesting computational measures for that. So we had two, one was kind of, well similar to this, so you compare two sequences of chords and you go to see whether they match, whether you have to shift it a little to the left or to the right for a better match, the other was to create a grammar of music and that to compare. So, yea, I still think, first to expand the ground of music, there has been a lot of research in the past into musical grammars. Especially for melodies I think. You have melody grammars, so if the melody moves like that, then its likely that the next note will be that. In reverse you can parse a melody into a tree. For how many tutors this has been attempted, but the problem is always that either the grammar gets too complex, or you have to somehow accept that not all pieces can be parsed by the grammar but that's rather problematic because you can't parse it, then you have no tree and you can do nothing. So we have to work with a very clever solution here which makes it possible to do this grammatical analysis of a piece of music and include the assumption that there can be a grammatical bit to the sequence. We can not do grammatical parsing for a piece of music, we need to fix this because this doesn't fit my model, but you still get the tree structure out of that, so in the end the piece ends up something like this [drawing]. You have chords for example here, and what this means is that at this level we have a kind of basic structure of the piece and the lower you get in the tree, the more

this is sort of an ornament, an ornamentation of these. If you compare these two pieces to not all these chords are equally important, some of them are more important, some are less important. That's very interesting when you compare for example, we did different arrangements of the same piece, or cover songs for example which have the same melody but different chord progressions and we can very nicely compare those. Now, we do this, again in, based on a notation-like representation of music. So that would be for example chord labels, so you see seven or, A, flat, or something, symbols like that, you could compare those. There is a whole grammar even for those symbols that you can use for those leaves. But not on audio. But we have been able to make those combinations, you get audio in, you do audio chord labeling, and then you create this grammar and you use the grammar for example to compare two pieces or even that audio chord labeling is not always error free. On the contrary, it seems like 80% correct, which we are happy with.

K: Yea, sure.

F: For a computer scientist, that's fine, it's a great result. If you're a musicologist and you have a score with 80% correct notes, then you're not so happy. No. But you can sort of reverse those things, so you do a preliminary consider of the audio, okay, can we create a tree out of this, if the tree is very messy than you can maybe see that something is wrong with the audio.

K: Ah, diagnose.

F: Yea, you can come up with a better interpretation of the diagram.

K: How much time did you spend, did you spend time on developing the algorithm that would render the image in such a way? Assuming this'd be a static image.

F: Well, I didn't that's mainly my PhD students. Bas de Haas. Very much of all the research I'm doing is carried out by PhD students under my supervision.

K: Okay.

F: Bas de Haas is not in today, he's on a different project. He's working on another stuff. This was mostly done by Arnoud Tipke, who's working in Brussels for the EU. We had a big project called Witchcraft, or maybe not. Everything is dispersed over the web. I don't have a very consistent web presence I'm sorry. We started a project together with the [M]institute and that was to create a search engine for their folk song collection.

K: Okay.

28.15 F: They have a collection of around 8000 folk songs recording. They wanted it basically for folk song research to help them categorize because very many of those songs, are different version of the same song. So at first we thought well this is an impossible job. So what we did was come up with a way of encoding them in music notation. Actually that wasn't that hard because those recordings were made in the late end of the 50's and mid '80s and they had staff to manually transcribe those pieces, so there a music notations for most of those songs, the only thing you had to do was check whether they were ok and encode them, put them in the computer. Then it appeared that this method, didn't work very well for them. Another piece these students made, van Kranenburg, a new search method which was based on alignment and alignment is, how should I say that. You progress to a one-dimensional representation, but a very simple example of alignment, If you have two words, let's say

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'cat' and 'chair'. So maybe not a good example. Anyway, let's assume that's for some reasons you want to match these words. This is easy, this matches, and this, but this, to match, you have to insert a gap here. Maybe for some reason you decide that you don't want insert a gap here but just to replace this. You have to get a sort of transformation of this. That's why this isn't a good example. Actually it comes from DNA, so it's most often used in comparing long stretches of DNA. Okay, these two chromosomes, or two things more or less the same, but in the search, here's some extra DNA, here's a deletion there, and here's a substitution, one of those, what is it called.

K: Nucleotides, yea, AT CG, yea.

F: One is substituted by another. Substitution is the interesting part. You can create all sorts of clever models for that. So in this case, so when does it makes sense to substitute one duration for another or one pitch for another or another musical property of another. Peter van Kranenburg created a lot of clever musical model for those transformations. In the end we had three different combinations that would be combined. Three different substitutions, one was for pitch, one was for duration, and one was for positioning phrases. So we discovered that, so if you move, from the beginning to the phrase to the end of another phrase, that would be an extended operation and that would keep them the same in the same part of the melody. But this is a very nontechnical description of what goes on here. So but that proved to be very effective and actually in order to get all this running and there is now actually a working system where you can use this, that is, the system is now completely in place, but its not online yet. They have infrastructural issues with it, but it works, it works fine. And you can do research with it, and research has been done with it. So it's good. So we have the big project on this, three people working on it for nearly four years, that was quite a lot of work to get all this done, to understand what the problems were. I think the most fun here was, when we created this with a particular customer in mind, namely, [ ] institute and the researchers who worked there. Those researchers have their requirements and their ideas, but when is a tune related to another tune, and then a different tune? So we had this very, I think it took about two years to actually find out what they understood via concepts of identity, similarity, tune family and so on. Stuff like that from the beginning, we had a situation when we asked, why do you think this tune and that tune belong to the same family. Well that's obvious, they are the same. Usually speaking they are the same, well, it's simple, you just hear it's the same. And so that's very difficult to create a computational model you're getting from these people.

34:08 K: Yea.

F: This was also a very long exercise in interdisciplinary work. To start to understand the problems, the iterations they had that were very good, what they were based upon, so that was a matter of lets having lots of discussions on pieces, observing what they were doing, offering them cases where we would ask them so how would you decide about this, and in short, to really find out not only, to make expertise which was obvious, but how that expertise worked in practice and how we could model that. And so in the end, those three things we isolated as the most important mechanisms in this music information retrieval method were chosen with a lot of care based on their insights and they're really happy about how the system works in the end. So whereas from a computational viewpoint, what we created isn't that special in the sense that most of the algorithms we're using, more or less known, but

the modeling that's going through that was really interesting. And the process by which we created a computational model for the expertise of these specialists. It was really really interesting and a lot of work. I think that's a good example of how good interdisciplinary research might work. But it's very time consuming. There's no, there are no shortcuts there.

K: Would you say in the education that you delivery now, that it's become more about process-oriented education rather than merely, I don't know programming education, or technical education, or not.. can also

F: That, well one thing you have to understand is that the research I'm doing, this sort of stuff is rather far away from the teaching I'm doing. So I'm not doing rather, well, conventional is not the right word, basic courses in teaching in computing and information science. And for a large part they tend to be about technologies but on the other hand I found out increasingly how important this is, to merge the technological and the human viewpoint somehow. So actually, my, the really interesting experience I had was, roughly one and a half years ago, yea. I was given a course to teach called 'Design of Interactive Systems' and it's not exactly my specialty. I mean I have been working on this kind of technology use for like twelve years so, so that was mainly technology focused even though I very much realized, especially with a musicological background you can't just throw technology at people and say that's it.

K: Ta da..

F: Yea. So yea this course in designing interactive systems was quite an eye opener for me, it was designed with someone else, at this time, basically just to open my mouth and speak the right words at the right time. I discovered there is a whole world behind it, and that's quite fascinating actually. I'm increasingly teaching stuff now that is about how do you, let's say combine the human viewpoint with the technology, technological viewpoint, so this is one course I'm teaching. Then the other thing I'm doing often are software projects, they're in my room where you can't see them now. There a situation when researchers also from Leiden come together for half a year to create a professional software product, in that case, it's a game.

K: Is that related to your musicology background, or their musicology background, or computer science.

38:59 F: This is actually game technology students. I sometimes help them with something about music, finding appropriate music for their games, that's an additional benefit, its not what the course is about.

K: Okay.

F: But so what I'm trying to teach them is that technology is a problem you can solve, but if you don't pay attention to the human side you're bound to fail. Whether that involves the sort of level of contact and interest you have in the customer, end-users. Or whether working among themselves, they all think okay, there is, well many of them initially think that if you create a big product, the big problem is to get all the technology in place. What they discover is that is to make sure that you're all working on the same thing and that you agree about basic decisions you make and that those decisions are made not so much with an eye of if the technology is interesting, but how do you want to use it, to experience it.

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So I'm increasingly teaching about the human side of computing and creating software and so on. Does that answer your question?

K: I think so. Would you say, well having said what you said of musical notation, developing new ways that can be, set into a model that sends out more information, is this type of visualization a big part of it?

F: Those visualizations, no I wouldn't say so. That's, this is more like a computational data structure. So you put your information in this abstract structure because its easy to manipulate or it has certain mathematical properties that you're interested in. So visualizations are not that important at the moment. But visualization is an interesting point. So I've, but that was a very different sort of work. I've done a little work for what would a music edition, let's say, a scholarly music eidition, now we're back to musicology, how would that look like in an internet environment. If you had a paper edition of music with fixed tabs, after 50 years you decide or somebody

the definition of this piece is no longer definitive, you have to start at the beginning. Is there a way of creating an edition more like a database that you can add information to that you can maybe use to compare very many versions of the same piece, or to coordinate those, maybe an edition that doesn't' involve music notation but also audio in the sense that its interesting to have..you could say there is a sort of, and that's the classical musicologic assumption, the piece is represented by the score as the composer imagined it. So what the performance is, is reproduction of that score, and hopefully the reproduction of the mentality the composer had when he wrote it, or she.

43:04 F: Let's say, I think that, the software is now more that the musical piece is a kind of a compound of all the instances of the piece, so different, maybe the different notated versions, the different performances. A space in which different instantiations of the same piece live and that's a full understanding of a piece consists in, yea taking into account those variations and differences between all the performances and notations. So you want to have an edition that follows that line of thought, you will have to have one with one score, but multiple versions in multiple media. Then, it comes again the, but the thing you get something, very complex, something you can very easily get lost in. You want to think about different ways of visualizing music. So I did an article on the digital, a scholarly edition of music, about five years ago, I proposed some preliminary visualizations. I made one that was a Bach in Dminor. I'm not sure how familiar you are will all these classical pieces.

K: Well not totally familiar but I have had some classical music training and am also taking voice lessons and have taken them so if you mention the name it's not blind to my ears.

F: Okay, so Bach's march in Dminor, a piece you're familiar with or not.

K: Vaguely.

F: I created we can compare nice pieces of music, we can coordinate renaissance songs, a little bit, maybe as an example I should have a demonstration what this could have to a more familiar piece. I chose this one, but I didn't realize how complex it was. So, what actually came out of that was just a power point presentation, an animated timeline of the piece, but as it goes, it repeats, actually there are a few sources for this piece, actually not very many. One of them is the score written by Bach himself towards the end of his life, but the thing is that score, it was a song, the song was to perform

the piece. Some of the parts of the score were corrected, annotated rewritten, but because they have almost identical handwriting, it's difficult to sort out the author, it's difficult to sort out, to understand what's going on there. The good news at some stages people copied the score, so there are actually three or four copies of that score roughly ten years apart each. Thus you can more or less reconstruct the development of the score, there are of course related pieces. What I did in the end was crate a high level overview, well how did this piece develop over time, just an animated power point.

K: Assuming there were things added.

F: So you don't see the score, but you see the score consists of those movements, then you see it from this side, or this other source, or someone created something else out of that. I think that's a high level visualization that can help people understand what happened to these. But at a somewhat lower level we don't have a good solution of say, representing musical processes with anything other than musical notation. I haven't given it a lot of thought but something that could actually be done by some sort of score animation so you can sort of see how different elements like themes or motives or instrumentations or volumes or sections or whatever, are being moved around return and so on, so kind of high level visualization of what the piece would look like, which is related to how you see it. That's something that would interest me and would interest me to generate automatically from either audio or a score. Are there already such visualizations? Well there are a lot of visualization but they are mainly for technical purposes so you can do visualization of frequencies over time, so you get things that look nicely in color, but those don't make musical sense and so on. So to develop meaningful visualizations, music is something that would interest me. Now I don't have the time for it, but somewhere on my long list for future projects.

K: I would imagine, I mean, I went to an interview with a guy that does adaptive music for video games. And he said, yea, when someone tells me, wants me to have a certain feeling, I get this image in my head of a waveform and its taking a certain shape or something like that. I just thought well if you could visualize it in that way, that's almost like getting a trained ear and learning to recognize it that way.

F: That's how music listening works for me too. So it's like, I get sort of like, I wouldn't say clear visualization but I observe certain elements and blocks being moved around and related in different ways, there is some thing going on with constructions. But, meh, I sort of perceive. To have that in, to visualize that, that would be a nice project. Yea. Maybe I'm not sure I have how much time we have.

K: It's almost been an hour, yea

F: Maybe just to finish up this story about the music information retrieval, so for a very long time we have been working on this notation like representation or symbolic representation as it called. Recently we have moved to projects that actually about musical audio. Now we're working together with *Beeld en Geluid.*

K: Ja, die ken ik.

F: Die ken je. Okay. And *Beeld en Geluid* have enormous holdings of interesting stuff. And one of those collections is the 78 rpm records. So what we want to do is to, well actually we want to do a number of different things.

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K: Ha.

50:33 F: One thing we want to do is digitize them, they're going to invest heavily into that. I think the planning is to digitize 5000 of them, and that will be popular songs from the '30s and '20s, so very old ones, popular issues. And so we're doing research now, one of my PhD students on recognizing verse and color structures in that and what we want to do in the end is to come up with a way of finding the most characteristic fragments from the piece. So in songwriting you have this thing called the hook. So a good song has a hook, the thing you remember.

K: Well the catchy, the earworm..

F: Well it's not exactly an earworm but its closely related. So can we automatically find the hook in the song. We're not going to be 100% successful with that. I think we will get a long way in the end. So that's now, we're working on audio with very different technologies than we have developed so far. But we keep close relationships with them. I think we will work again with chord labeling and harmonic analysis to find out about those songs, right now, we mainly look to the first chord structures and we are creating a game which hopefully will be ready for the top 2000 by the end of the year. It's a game where people basically can. Well how can I say this. It's called the Hook game, what you want people to do is be very good at recognizing what they're listening to. You play a fragment from the top 2000 song, they say yes I know that one, but if I have to specify the singer or something. That's a different memory process. We want to model the recognition process. We have to have a test that if they recognize it that they're not cheating. That's hot right now.

K: Is there currently a research project that is going on that plays fragments of pop, rock, classical, I think I might have participated

F: Was that the emotion experiment?

K: I think so yea.

F: Ana, yes that's Ana's experiment, another of my PhDs. That's Emotify.

K: I thought similar in terms of recognition.

F: I hope you did, you have to listen to a song and hopefully it puts you in some emotional state and then it tells what that is. It's a very cool system, it's more consistent than we expected.

K: Huh.

F: We hope to get the paper ready for that, by Friday.

K: Oh, that's exciting. There's a deadline.

F: Yea, there's a deadline. So the results are pretty OK. And that was, well, a little bit stressful I should say. We were not sure at all because its an emotional model that hasn't been used much before in this sort of research. It is more interesting than the other models, but also maybe people can't use it as consistently we can as the others. Apparently they can so that's good news. Anyway, but the hook game is a different one. It's currently being evaluated so if you want to be an evaluator, yes that's possible. So the problem is to , what we want to do is measure the time it takes people to recognize a song, or a fragment. If it's quick, it might be the hook, if it takes a long time, then its not. That's the research data that we'll get out of it. We have to make sure the answer is reliable. That's the difficult part right now. Maybe I shouldn't say too much how that works, its also not.. anyway. For us its basic

collection, but hopefully its fun too for people. We're now working on, I'm not that much involved in this part of the project. It's mainly the people working in Amsterdam, Henk Jan Honing and Burgeyone is involved too. What was I going to say. That there's going to be hopefully an interesting game play with this. With emotify the gameplay is not as exciting.

K: It seems like a survey.

F: most people don't play it on the Facebook so you can't get the social side to it as it was meant to have. Anyway, so hopefully by letting an enormous amount of people play this game, toward the end of the year for the top 2000 we get better data to understand what the hook is, so the the Amsterdam part will then be to say the identification of what the hook is, and come up with a musicological interpretation of that. Then we will use that data to come up with computational measures that tell us if you have a piece you don't know, it's most likely to be here, if not then there. Great research scheduled to be finished two and a half years from now. So that takes awhile. Okay, so that's the whole story, I started with computational musicology in the '80s to the research we're doing here now. I should say my computational side, most of what I'm doing is let's say music informatics, or music informational retrieval, and there is a smaller sideline basically musicology or the music, what you like to call it. That's 10% of what I'm doing. But I'm very likely to be involved in teaching the new minor in digital humanities which will start in September here. That's for undergraduate students.

K: Exciting, a minor in Musicology or, just..

F: No just digital humanities, I will be teaching that, so do you have to know about computing to be able to talk to computer scientists? Ha, I have that, that's very interesting. I'm not so much going to talk about how you write a program, what are an algorithm and why are they important, why does an algorithm never do what you want it to do.

K: Why do we entrust our research to one algorithm, sometimes

F: Yea. To understand the mindset of computer scientists, etc. That's what it'll be about

K: That sounds quite interesting.

F: So that's my, lets say, less time consuming part of my work but its still important to me. Do you have any questions left for me>

K: Well I think if you would be open to it I would like to do a follow up interview in about two weeks or so..

F: I'll be actually busy but after that...

[END]

"Marloes"

K: So, tell me a little bit about way back before you decided to go to TU Delft.

M: Already when I was in middlebare school, not exactly high school. I was already making compositions on the piano. Coming out of improvisation that I did on the piano. Then I basically had to choose what to study.

00:54 It was really hard to make a choice. I was already interested in sound and I also looked at language studies. But then I looked at one of the universities and didn't seem so interesting then I thought well, maybe something with some. I went to apply for universities that did stuff with sound, which was pretty hard at that time. There were no Internet sites where you could look that up. I don't think it was really, it hadn't caught on in 1996. I actually, all the dossiers they didn't mention these kinds of things. They didn't say well, I was looking at Physics to see like where they would to [ ] sound and others so I knew that my [ ] plane wasn't fit for conservatories and things. Based on the music education and at the middlebare school it was all very classical and what I expected form a conservatory. Become a music teacher. They didn't want to talk about anything else besides 1900. [Laugh] So I started writing two universities saying, what is your physics make a difference from other cities. nice these brochures that tell … that doesn't help me…Two universities, UvA and said maybe you should try Eindhoven or Delft, those are universities I hadn't written…I checked there and came to Delft a very strong acoustics department.

3:12 Chose to go to Delft. I specialized in acoustics there. In the last year I heard about sonology department in The Hague. I decided to do the one year course there, while I was finishing my Degree in Delft. That for me was a really good [ ] how do you make

mathematical properties of sound itself and maybe the room

There's a lot of digital signal processing, acoustics of course, techniques, how to [ ] I had already learned and more structural profound way in physics that

the other side computer music, different software environments to make music, the practical side [] than conservatory, gave me a lot of time to delve into that and get started with that.

K: you decided okay I'm still not done,

M: uh it wasn't immediately a PhD 5:01 My supervisor in Delft was a guest professor in Berlin of course in Delft they did wave field synthesis and I was really interested in that. Berlin my paper interested not for music sound [ ] so I asked my supervisor would it be possible for me to go there.

Gave me a contract, had to find financing for yourself, so I did and just went to Berlin.

Started out as a research project and I had other half-year decided to do more funding some work 10 month to month projects. Ended up being in Berlin for five years.

6:20 I think Berlin has a quite huge music scene, especially experimental noisy music. Opportunity to play there to work with [ ] electronics etc. performances just using a lot of opportunities to get up there and play.

K: And thereafter you decided on Montréal.

7:01 M: Yes, that was also – the connection was Gerald here from STEIM. He teaches at Sonology, he put me in contact with Chris Salter, that was back in 2003. Actually at a conference in Montreal, []

introduced us. [] Small world

Got to know Chris Salter and at some point we started collaborating on [ ] he got the job in Montréal at a university so he went to Montréal, so after [ ] he wanted to hire me as a postdoc on a full []. Seemed like a cool idea, so I went.

Did it have the same attractiveness as Berlin without the live performances?

Yea, but I was doing a lot of work with sound spatialization, a lot of opportunity to go further in sensor technology, wireless sensors, interactive performance.

8:42 That was really interesting to go there. Get into that.

K: Hm. Well as to comes to formal education, a rich and diverse history. Now,

I wanted to asked this follow up kind of question if you just talked about Berlin having this rich live performance scene where there are other remarkable characteristics about the environments that made you think -

to be honest the music studio in berlin was actually quite interesting at it was attached to the university but they have a lot of composers and artists come in to do work there. We're also responsible for organizing a lot of courses and festivals in berlin.

9:43 So its not a purely academic separated that there's no access. They also have this guest professorship every half year, a different one, a lot of interesting people that I met there through these guest professorships. Also you see some at other uni's at well-know institute, it's strict there is a distinction between who's an artist and who's a technician.

K: is that true?

At [ircom?] for example, they have that were slowly, they have a big research dept but they don't assume that people in there are also artists themselves. It's really sort of spread up. There it was much more open in that sense. That was also, a relatively small scale, it was a small department. Makes it interesting I think. Organization, a bit more people actually do stuff.

K: Get more play time?

M: Yeah.

11:21 Could you comment about Schwelle?

Schwelle was a dance piece that I did with Chris Salter and Michael Schumacher, it was a quite famous improvisation dancer based in AMS by the way. That was basically not a performance what we tried to do was create a dialogue between the performer onstage and the space, like the room itself. We somehow tried to give the room as much presence as the performer on stage which is really hard because you see a person, your attention is drawn there.

It was an interactive performance so Michael was wearing sensors on his wrists and on his chest that measured acceleration and then in the space there were light sensors. We tried to build up a very dense soundscape that would react to the performer and with changes in the space. So we also changed it depending.

And when you say dense, what do you mean dense?

A lot of different layers. So yea there were a lot of different types of sound layered on top of each other. We tried to sort of create different moods for the space we have to be in. Within the sort of

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soundscapes the sensors [ ] particular layers so that was one part, the less direct part. The soundscape

13:41 a number of more instrumental approaches, move an arm, and that would directly cause a sound. Directly related to the energy of the performance.

K: Were you also working with a choreographer in this piece?

M: Well Michael was his own choreographer but a dramaturge was involved. More the [ ] . Fixed seats in the piece but within those there was also a lot of improvisation. I would see people look at what Michael was doing and I had cues that were based on that, I would make changes based on that.

14:39 K: So you were like a technician for this event?

14:41 M well that's again back to that complicated thing. In a sense, yea, I think maybe you should call it musician. It is a technical system.

Back to that strange distinction you were mentioning before then. Well , strange distinction maybe that's not the right way to describe it – the distinction between artists and technical. I think about a talk about this last week at university.

Its basically I think in this piece all the sound is generated by the computer. But at times I'm also manipulating what is generated. How it is generated and art of changing the mapping from the data that come from the sensors to the sounds. Sometimes I change that during the piece as well.

15:43 K: So if an arm wave is at once suddenly hearing a violin on A

M, sort of. Changing these things. Basically the whole thing I programmed as like my instrument that I play during the performance. So in that sense you can't just, its not that easy to exchange the person doing that. It requires quite intimate knowledge of how the piece is working how the instrument is working. Just it's like, if you have an acoustic musician – composed and made apiece he would be quite some other performer to play a similar thing.

People are confused about that. As soon as technology is involved they get really confused.

16:40 What is an instrument or what is standard theater technology, its all an instrument that actually takes practice to play and understand how the piece is working.

17:04 would you say that some of the people you encounter sometimes still hold this strange distinction.

People try to change it. It is especially in a very theater world, there is a very strong tradition of light technician and a sound technician you take cues, it a linear process and already have video, not always sure who should arrange that, should that be the [] guy or the sound guy. They don't know what technician is responsible for the projection. That's been like 20 years or more.

And then things like interaction technology are something completely different. The whole development of these changes because of these interactive developments. Schwelle we had to try these things out with all the technology present. Usuall you don't hav the opp to practice with full theatrical light, sound set up. You can't always simulate the whole staged environment.

K: Sensors?

M: Testing the sensors, a long time.. What we also did with the lights became interactive, we had sensors on the lights again, to Create a feedback loop so you really need the whole thing.

K: Is that a recurring theme? Work that you've done interactively the papers you published. Rather than interaction bet technology and the audience if you will to the performer and the technology is what I'm understanding you say is— technology to technology? Is that correct?

M: In the end its about the experience, an installation, what performer gets out of it the technology helps making up that thing. Always thinking of two directions, how do I want to experience this, and how do I make the technology enable that. Input, I produce this output something will happen that will change my input again. That's yea, you have always an interaction between a visitor and an object or an environment that changes and [ ] playing with these interactions have the system up and going otherwise its just like input producing output, but the output will change your behavior again that will affect the input again. It's always a feedback loop. Does that make sense?

21:00 To me it does. The concept of technology and agency, tune or not tune characteristic.

M: Sometimes its useful to think about the technology that way. In the metaphors you describe or even while programming, the naming of the parameters, You can also [ ] with this kind of agency or, you know. The sort of the [] that works. Then we had [ ] we would get bored and start reminiscing, the first version there was a little microphone that would pick up sounds if you would talk to it, it would analyze that. Some frequency analysis and sort these traces of these sentences people spoke. And then we had different systems in how they evolved on these

take these phrases they had recorded stored, and it was based on if — they were just like, something in the voice — being something for awhile, they would take phrases that were longer ago, remembering these things, what else, some sort of favorite pictures, a lot of pitch in that sound, they would get more happy, they would change some filter on the sound. Thinking about the well-being of this plant we modeled, it was really [ ] to think about these things in such ways.

Produce things like energy levels, if it's been doing this for a long time, not a lot of energy at a certain point, go to rest, not be active for awhile, it might come back later again. Playing around with these different parameters to give the objects different attention spans or reactions.

24:01Preferences

Things that make them happy or sad. It kind of helps to get a nice [].

Was there a time when you were developing the concept for a project or working on one, of your own inception or maybe you were doing a project, it's cool — but there wasn't software or tech that didn't exist

was there a time in your work where that happened?

Most project I like to — there is already software to make it possible. Sometimes hard to [] on the other hand it also allows me to push the technology to what it can do and what it can't do and make be able to make things work within the image of what it can do.

K: a time or a project specifically?

Large project last summer which had twenty eight units that would produce sound and light and also sense sound and light and for instance with this data, wireless sent to a computer. I developed the electronics and the [] the software that ran on these units. And then also the whole composition control in the computer but the ways of transmitting data there were limitation. What alphas I could send, how

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long it would take for them to pick up new behavior [ ]. While compositing these he composing the technical limitations had to be kept in mind. I wasn't able to just necessarily change stuff, it would still look like it was all really not composed. So sort of knowing the limitation, making things more within these limitations. Good, reliable. Also during the development with the other collaborators saying that's not [ ] but we can do this, sort of. Sorting these things out, what's possible technically, and what does it mean artistically. What can we do what is physically possible, what can maybe done, all the ways, also interesting to see. You said, not going to sound like a good follow up to the example. But it makes me think but is there a difference between people who pursue your line of work at this level versus people who do this kind of work projects as a hobby?

28: 29 M: Yea, I don't know. Maybe, kind of hard to say. I know people who are really professors that do this as a hobby and they are better than professionals but its hard to make that decision.

K: Blurred line.

M: Yea. I can't, yea I can decide to spend more time on it. Might find it more nice. That's the same thing, if I don't get projects or funding or something I don't get what I need, so in a sense we kind of rest often, but [ ] .

How did you end up, well I don't know is it residency here at STEIM?

M: I'm basically working here as a freelancer in the hardware department. We have kind of a fixed agreement of how many hours maximum a week I work. That gives me a good basis to work from.

30:09 Nice base. I also do projects outside of STEIM.

30:25 M: That's actually teaching at the HKU I do that's for STEIM. We have an

Coming on Friday to the WFS.

M: Yes, I forward you the time. I didn't yet. We are doing a presentation about the spatial sound system for students from the HKU from 2:30 until 4. If some of you guys are interested in joining in. .

31:07. It's a wonder you're inviting us, contacted Gilles of course, the original person we got in touch with. We didn't know the system was here. Here, whoah it's at STEIM, coincidence, we thought anyway. We directed to Wouter from Gilles so we made a separate appointment with Wouter at 4, 4:30 I guess.

M: Uh, yeah, we can also combine it. I think Wouter can do it, so I can ask him

K: Bureaucracy, negotiation going on with that side I'm just like I just want to be next to it, and hear it. You guys figure out the meeting and who has to pay.

I will mention it again to the team. I don't know how many bodies from the HKU.

M: I'm not entirely sure.

K: I went to have an interview on Monday with ▮▮▮▮▮▮▮ from the HKU and he said the same thing, yes there's a coming down to see the thing. How many you think, he said a little less than twenty. I don't know, maybe not the most comfortable.

M: might be a little bit tight. But it would be interesting if you meant some of these student.

K: inviting tijs and pinar from soundlings, to come on board, we need a composter. Use the supercollider, don't currently have the expertise to do. Also continually in touch with them on this. But yeah.

M: Tijs will be here tonight as well. Ha! Laugh. I expect him around 6or so.

32:24 From when you started back when you were just beginning to study at TU Delft between then and now, is there anything that's happened from an artistis perspective or a technological perspective. That's revolutionary. Wow that s really, maybe besides the internet. The big button everyone pushes, but.

M: Well we had email back then but that also exploded. Things certainly have become more accessible. There's been a big change in the DIY electronics world. Things like Arduino.

K: Raspberry Pi

M: just getting started now, finding information on how to make these kind of projects has become a lot easier. I started with microcontrollers and stuff, the programming was much more low-level, finding out how to connect stuff was harder so it was actually, not as easy to get started as now. Well I guess I mean if now you want to do that low-level stuff, [ ] or Arduino that takes an extra step to sort of understand what's really going on.

K: well ,just copypaste some stuff.

M: yeah, I started learning form the low level perspective, going to the higher level. Sort of makes things easier, but I'm still always aware, if we call this function it takes this amount of low level instruciotns that if I do it different I can actually save some time. Being aware of what's going on behind the sense allows you to program things more efficiently.

236:04 Could you compare and contrast that to these slick off-the-shelf interfaces.

36:14 M You don't get any control on what's happening inside. What is that, that's going in two directions now. On the one hand you have DIY and [ ] but I mean with the mobile phone more, hardly get in more and more closed. You have to go to an app store to buy, to get software on your device. This move seems kind of scary.

Compared to the days of working with Linux.

M: Yea, yea. But in a sense that's also similar, computers scale up and its more sort of figuring out, what kind of operating system getting working on this, how can I do this. Now it's more closed off. At least in the commercial stuff, its much more closed like what you can do with the device or get the program working. The thing you can't program on the mobile devices themselves. Maybe also problematic.

37:45 [] M: Could very well happen that in the future, they have a [] on their mobile phone but not own a device that can write software for these devices.

They get the end user product but they can't get inside and change the way things are from the devices themselves.

38:17: Before, you thought, oh I want to hack it a little bit. There's just.. not.

K: A hacker mentality, even so far has hacktivism, activism, en so far as hacking activism. Has that affected your work at all.

M: Well I always make a conscious choice to go for open source software and hardware as much as possible. I guess that influences my work. But it's also kind of a problem of considerations in that one is more philosophical if I want to program something new, I look at how other people did it and learn form that. So I can't really make like make code that's not influenced by other people' code. There is a

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sense of like, I should give that back again, it's much more interesting, increasing knowledge that's there instead of keeping my knowledge for myself or not telling anyone how I did it. No one learned from that but I think yeah, there's a whole [ ] if ou share knowledge. A principle for science share your knowledge, increase science concept.

40:11 Very practical sense by using open source software I can say okay, I can grab a library from there, I can use stuff that's published there, put it together, and it works, rather than having to develop all the elemtns from scratch which takes a lot of time. Youc an go much faster in the development. If something breaks, if I buy a software package and it doesn't do exactly what I want, I cant change it. Source rule, if I find a problem in a piece of software I can either say ah, I'll fix it myself or I can write to the author and say hey I have this problem with your software I think it's this and this problem and he will fix the bug and then I have a fixed version. Commercial closed software you can also inform them of the problem but you may have to pay for the next update which may happen in a few years. And that's usually after your deadline for your project, so.

41:50 There's a couple of philosophical, practice reasons for open source.

K: Could you compare or contrast between working in different mediums,

installation performance other – go about tackling the project if you know what I mean.

M: kind of hard to say there is a definite, like with installation you're usually thinking about the visitor and how the visitor will interact with the piece. Whereas with a performance there's the performer, informed user, yea or someone who will know what to do. That makes it quite different to develop the piece, the performer you can tell them to do this and this and this, but in an installation setting you have to sort of create a trust in the visitor in a more natural way, has to find out what to do, not very interesting to tell him to push this button unless you want to make a comment on push this button. That's normally, being told what to do, literally is not very interesting of composing a piece. You want something more than clear instructions. With a performance you rehearse a piece and you play what you've built, create in the environment. Those are different approaches. At the same time you also need to keep in mind what the audience experiences. An extra layer, a different thing. I mean with both media you always have the showtime moment. Any performance or installation has an opening so it should work. Usually you have an opening, it should work and what happens most of the time. You reserve an exhibition space for a week or two weeks or a few months so it should be running all this time or it needs instructions for someone else to start it up, because you're in another country, maybe. You have to share how stuff will work. The same with a performance, the curtain goes up, the audience has paid for seeing a show, and the show should begin. But in both cases, the audience doesn't know what the show is until they see it, you can improvise with that. Also with both, you keep developing and changing the piece as time progresses. I have one installation together now with Chris which is showing for the 12th or 13th time shortly. Each time we change the composition a little.

K: Can I ask why you decided to change?

M: A mix of a couple of things. That piece, some thing we weren't happy with yet, how the mic was working. We changed the concept for that a little.

At some places we were also asked, it's a one person experience, when we did it in China, we were

asked to make a shorter version in the composition. They have thousands of people over a day going through the exhibition.

So many people are

46:45 Did you know that on the forehand

Can you make a piece like six minutes, we composed the piece to be six minutes. In France we made an even shorter version. So now we actually changed it so the controls for the attendant who starts the piece, he can choose between a three, six, or a ten minute version depending upon how long the line. I mean, it's also exploring the mediums, what other things we could do with it. Changing, interesting installation. And the same with a performance, each time you'll reflect okay how does this work, maybe we should try this. Change a few things there, could develop it.

49: Maybe the quality standard question is interesting. Or maybe not.

Knowledge transfer, I can't tell a technician how that it's supposed to work.

M: Well yea, I mean that's really based on the training as well. If someone else needs to take over the piece, depending on the piece, usually the most important thing is that the person would be able to catch stuff if stuff isn't working. If everything works fine it's easy.

50:09 K: And is that ear training or eye training?

M: That's like the, I mean, the training of the person who will take it over. Depending on the piece it can be really easy or it can be hard. For example with Chromotopia, I mean once the show started I didn't have to do anything. It was just, I had automated all my cues, there was no improvisation, it just ran. The setup, testing each day, knowing it's not working, it could be this problem, it could be this problem, checking all these, it does require knowledge of how the software system is transferring the data and how the electronics react to that. The [skills required?] are outside the standard theater technician, normal education so its not easy to take that over, you'd at least need to know supercollider and electronics.

K: So like a combination of both, not only working on the screen, hear something that's broken. Ah, shit, I have to. .

M: Yes, that's kind of

K: Well I have an example I could share, I came here last week to interview ▮▮▮▮▮▮▮▮ a bunch of guys were down in the studio at the end of their performance I approached the gentleman Jos but he mentioned to one of the performers, 'do you need to have that computer screen on so bright during the performance?', the student said 'well, yes I'd like to keep an eye on the feedback levels' That really struck me – concentrating between the screen. Some people want to make it independent of the screen.

M: Some with Schwelle I had a problem that the screen was way to bright but I still needed it, I needed to see the dancer in 5% light, I need to put a dimness level, add some gels to the screen keep my access at the low light levels, that was really hard.

No just to adjust, but to do things.

53:26 Make a part of how I work. Good to have something else, better than the ordinary sit and listen.

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Sometime it confuses people if you just stand in a room and you just stand there people say what do you do, you say listening 5357

What's going on?

K: What? Why? Well.

M: it seems like I'm just standing at some random spot in the theater. Also, you have ensuring that timing when you do your soundcheck in these theater places, its like a full theater, a lot of time goes into putting the lights off adjusting these lights, talking while doing this, darkness, if you do the sound you need no people in the room, no talking. Light is nice, you can see more people, sounding at different position in the space, understanding what you need to adjust. Taking an hour, it's difficult to get that dedicated time.

55:36 The knowledge transfer question.

M: Graphical feedback, a few things I learned from the exhibitions and installations is doing stuff 'auto-start' and I also sort of make system that indicate when there is an error. There is like, a practice, when there is an error, there's a problem with the light. I have a piece of paper which tells, okay, problem with the light, check this and this and this. And these instructions make people really able. A couple of troubleshooting steps that they can do and it still doesn't work, or if there's a problem. Something on tour, it's always been OK, to get no calls, I guess that's a good sign. It takes a little practice and time to get it to that level.

[END]

"Marjolein"

[transcript/recording begins approx. seven minutes after interview begins]

M: By doing projects that were outside the school but I could always use them for ECTS.

Kim: Study credits although they were not traditionally packaged in a course type of thing.

M: Exactly.

Kim: Okay so just to reiterate and make sure I understood, this was a really broad education, but you had the ability to customize your learning in the sense that you could choose which projects you got involved in, and how deep you went into theory or practice. That was really an interesting part. And congrats on graduating, by the way. Don't know if that was really hard. So interestingly enough you mentioned that a difference between yourself and those, who, like I said started off building things. They were all into knobs and faders type of thing, well I'm more interested in the poetic aspects of music, and how it really tells a story narratively. Those guys are more different. Are there other differences that you notice between people like you, I know that's a general term, but those who are more interested in the poetic qualities of music versus those knobs and faders, or is it more complicated? Do you notice when you speak to those knob and fader guys that you have a sort of language barrier?

M: Yea, sometimes, but its not a very big problem. I also have some basics in the more technological aspects of music. So I can definitely have a conversation with them and I really need people who know that part of making music.

Kim: Okay tell me a little bit more, and I should say that some of these questions may seem really obvious and really, simple-minded type of questions. Please don't be offended, I'm asking these questions to get it on the record type of thing and point at it. So when you say you need people, is it something about the nature of the projects that you work on that requires that.

M: Yea I think it's good to collaborate with people who are better or like the technical aspects more than me. Because that's their expertise. If you collaborate you are stronger together. Does that make sense?

Kim: Naturally you have a better outcome on almost any project if you aren't working alone, but if you can bring in people with different types of knowledge to produce something, and whatever that something turns out to be is a higher quality or more complicated to present out to the world.

M: Yes, and at the same time I realize that it's very difficult for me to admit it that you can't do everything by yourself and that you need other people if you want to create bigger things, bigger projects. But in a way it's the same as working with a choreographer. I can't make dance, but I love to make music for movement, for dancers and I studied music technology but the technology is more an instrument and I'm not very virtuous on this instrument. But I need it to create things and to make music and work out my ideas. Something I reach the boundaries of my knowledge and then I need other people to create some new possibilities to work out ideas. More the poetic aspect of music, or the more artistic qualities.

K: Could you tell me, in a little bit more detail about the project you did at Ubuntu?

MW: Ubuntu is a project by Mark von Vucht, and he's a teacher at conservatory in Utrecht, he does this

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project in music technology and students from the conservatory in the jazz and pop department. You have to block the whole week for this project. And that's why you're all together in a room and you start the day with some, lesson from Mark von Vucht gives, after that, he calls it MarkPlace, you can just ask the other students, Hey, shall we make some music today? Then you have one hour, maybe two to create something and the next day you will present it to the other students. So you make and perform every day. I think it's a very nice way to be creative with people from different background, different ideas, but it's a very nice project. An Ubuntu was, it's the same idea with alumni and he invited five professional musicians.

K: A partnership between alumni and professionals? Or the alumni are the professionals.

M: It sounds strange because alumni are also professional, 5 colleagues from mark von Vucht who have experience in that type of music.

K: Is that a title you would give to a workshop like his, this sort of improvised music?

M: Yes, improvisation, composing and performing.

K: If I understand it was sort of a speed round, where you're working half of the day on composing, and then on presenting.

M: Yep.

K: Very interesting. Would you say in your opinion, your professional opinion too, would you say these type of events are becoming more frequent or less frequent?

M: Actually I don't know. I don't know compared to what?

K: The past I guess, in terms of time. I don't know if you attend other type of events personally, if you personally attend them, other types of events. I guess a better question is, in my business mind, this is almost like a networking event.

M: Right.

K: A little bit. Are there other networking events that you know of that you'd like to attend?

M: Not in this workshop. How do you say this? This is really a workshop and you are making and performing, I think that's very unique.

K: I see what you mean. It's not just about talking, its about doing.

M: Yea, exactly.

K: To me that was a very interesting experience, I was reading up about it on the internet and I found, again, that it sort of stood out amongst conferences, or scientific paper submissions that you can participate in, just maybe with even the same people that you would participate in a workshop in but in a very different structure.

M: For example the soundlings collective has this Think Tank evening that more about talking about the subject.

K: Do you know if that's coming up anytime soon?

M: I think it's once a month, but I was not very active last months in my soundlings membership.

K: I didn't realize that you too were a member of soundlings. I saw you on the website I think but I don't know why it didn't strike me. I went to your personal website first before I found you on Soundlings but

now I'm remembering. Next to Jon Reus and Robin Koek and the other guys.

MW: And where did you find me?

K: Well I looked up the project of Ubuntu, and I saw the conservatory, and your work with Robin Koek specifically. I sort of want to move through to the other types of questions. When you were doing research about the, assuming you were doing research when you were engaged on projects about the narrative and poetic qualities of music and sound. Can you tell me more about the challenges associated with that particular area of research or practice?

M: I don't understand the question.

K: The narrative and poetic qualities of music and sound, I would qualify maybe wrongly, in my mind I place that in a very special area apart from other maybe more technical aspects of audio – could you based on your experience tell me a little bit more about the challenges with trying to investigate and create and perform in this narrative and poetic space? What are the things that make your brain tick, so to speak.

M: Composing is a very intuitive process, at least for me. I used a poetic concept to get inspired or as a starting point for example, a collaboration with Retina Dance Company last year, it was a project by Phillipe van Huffel, and his starting point was the body and architecture. And he asked me to make the music for this performance, for me that's a great starting point if you have this concept body and architecture, and architecture and music, and that's I don't know, that's for me enough to create something. In the working process there are other things that inspire me or give a direction to keep on working and to build on things in both a musical way and in a conceptual way by thinking about what is architecture and maybe the urban aspects. The feeling you have when you are in a very small room, or in a big space, yeah, I used that to create music and to build sounds.

K: So when you say create music and build sounds, is it, for this particular project, the Retina Dance Company. Did you go out and do some recordings to use?

M: Actually I had a lot of recordings because I did another project with Robin Koek, tuned city, I had a database with a lot of recordings. And I create more electro-acoustic compositions combined with these field recordings of city sounds. Also more abstract sound layers.

K: If you are, this combination, would you say that this happens often on projects, that sound designers have this database of sounds that they've had from the past?

M: I don't know about other sound artists or composers, but I reuse my own material. Especially when you're making music for a dance company, and in this case it was a performance of seventy minutes, so when you have to create one hour ten minutes all original material, then yea, it's impossible in the time you get for such a project. So then I also reuse my material. And I always give it another, sometimes I only use one layer and put it in another context to create a new sound, a new atmosphere with the same sound in another combination.

K: That makes sense, almost giving it a new feeling.

M: Yea.

K: When you look back at your education in Hilversum, I'm not sure if this narrative and poetic qualities that you also pursued there. I would assume in part that it was, were there specific authors or people

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that you read that also influenced, like big name theorists type-people. Or not really?

M: No, not really.

K: That's very interesting from an educational perspective. You sort of have to go out there and do it yourself so to say.

M: Yes, the thing is that, if you, the literature about narrative and about linguistic and emotion in music, its such a difficult subject and I read things about this subject, but I'm an artist, I'm making things, and I like to read literature about it, but sometimes its confusing because if you start reading about linguistics or semiotics its so complex that, it, how do you say this? It stops the creative process in a way.

K: I think I understand what you mean. You have to spend energy that you could use more productively in terms of creating, instead you're using that energy to process this thing that may or may not have any long lasting effect on what you end up producing.

M: No, for me this process is very intuitive. That works for me, I think it's interesting to read about things and of course I read articles and books about music and composing and things like that, but because it's totally different than reading about how to, reading a manual for an instrument, or getting to know how to use a new plugin or create your own software, that's totally different. And at this moment I'm still looking for this common ground between being researching and just creating what comes up when I have this concept and this concept can be architecture or tuning the city. That's enough if you understand what I mean.

K: Yea, and I just want to remind that there's no answer here. I'm not looking for something that confirms my hypothesis or anything like that, this is for me a very exploratory and I'm finding out new things about how the way it works and things like that so I hope I'm not restricting you in the answers that you give because you're worried there will be a right or wrong answer.

M: No, I totally understand there are no right or wrong answers.

K: Perfect, some people get really anxious, but you're the expert, there is no wrong answer.

M: I'm also a young professional who's trying to work my way as a composer, so maybe I'm saying things that I totally disagree in about a few years. I don't know.

K: That's an interesting thought. Maybe could come back to that later.

M: Speaking about software actually I know you said at the beginning the technical element is knowledge that you have, and that has boundaries, like any person, and is there a specific piece of software that you do most of your composing on, if I can ask.

M: I work in Ableton Live.

K: Okay, and is there something about that particular software for you that makes that better than other softwares that do similar things?

M: I started working with logicPro, but Ableton Live has more possibilities when it comes to live performance. It also works for me when I'm composing. Each software has its own qualities, but at the moment mostly work in Ableton Live. Also because I'm investigating how to be a performer as well.

K: Okay, no wonder, it explains in the name, Ableton Live, that's funny for me as a marketing nerd, but the curious thing for me, your interest in this idea of performance. Having created the music for the

Retina Dance Company as one example, that's not something where you as a human as a person are up on the stage, the performance, but something that was created by you, is instead taking the stage, if you will. Now when you say you were interested in getting more work with live performance, is what you've done already more of what you'd like to do, or do you mean performance in a different way?

M: No I think what I mean with live performance can be both – making the music live during a dance performance or making live music on stage in a more autonomous setting. The reason I create the music for Retina Dance company as a fixed medium – I made the composition and its totally set now, that's more because of budget. It was impossible to find the budget to take me on tour. So we decided from the beginning that it was a fixed media composition. And that's funny, because during rehearsals I was always fine tuning things live, and sometimes creating things live. But in the end it was brought back to a – actually I used a lot of, I recorded the run-through and I used that material to create a final piece.

K: When you recorded the rehearsal, you mean you recorded what you created, I'm sorry I don't understand.

M: I had a few layers that were set, and I was playing around with those layers and sometimes I added a few more sounds, or started another layer already because there was a visual cue. I recorded that and it was, the basis to create a final piece and to decide okay this is impossible to create now. It has to be something that starts on a visual cue, so that's something you communicate to a technician.

K: Oh sure, yeah someone who's responsible for making it go.

M: Yes, yep.

K: Interesting. Now, I'm sort of moving into the second part of the interview. A little bit more abstract I guess and this may have awKard silences in between while your brain works to find the answer, its obviously designed to have you do most of the talking. But please ask for clarification if it doesn't make sense. I have about twenty minutes left on the clock for the interview time just so you know where we're at. What prompted me to bring this up in terms of the switch was when you mentioned visual cue. In I think most new media education that are out there on the market right now, they really are focused on visual image and visual culture and those type of things. Would you say that that shift in focus maybe not in education but in the field of new media in general has impacted your work in terms of being an artist?

M: No, because actually I think that visual stimuli were always more important that aural stimuli. If we are talking about art and media. But yea as a sound artist or a composer I think that I'm very focused on sound and audio.

K: For you maybe that's not the truth, or not the thing.

M: No, definitely not the truth. If you are looking to the first movies, they were silent, there was no music or sound involved. But your question was how it works for me..

K: If it has impacted your work as an artist, whether alone or in collaboration with other people – what made me think about it was if a client comes to you with this visual image and says, I need a soundtrack, and obviously this visual image is a very general thing, it could be a live visual image, or something that's more on a computer screen type of thing. If that renewed focus has changed that you

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go about doing your work.

M: Hard to say. What I, realize when I talk with other artists or other people in general is that – I can inspire them maybe to *listen*. I think that's something I really like to communicate with my work as well. That you can create an atmosphere to make people listen more consciously, and when I collaborate with dancers or choreographers they always want a lot of sound, as much as possible. People working in theater, they forget sound and the power of sound. Sometimes they forget that because obviously in contemporary dance or in ballet, music is very important. Maybe in visual arts and in theater, its more a space to discover, to investigate the yea, what sounds I needed that were powerful or, make it more yea.

K: More, I don't want to say make it more meaningful.. but

M: Yea maybe but its strange when you start using works like powerful and meaningful it becomes very,

K: It starts to sound a little too abstract maybe.

M: Yea, or two, in the end its just sound. I always, because I started to research sound and the meaning of sounds when I was doing media studies in Utrecht. Ik wil het heel even in het Nederlands denk ik.

kim: Is goed.

M: Ik gebruikt het nu op een artistieke manier, en toen heb ik het niet over nagedacht of wat dan de kracht van audio was of de kracht van muziek. Meer op een manipulatieve manier, dat wil ik als componist wel vandaan blijven. Ik wil niet dat publiek manipuleren, maar ik wil wel een bepaald gevoel oproepen.

K: Dus je hebt een beetje – dus, welke type geluiden gebruik je om een bepaalde gevoel te uitvoeren, te geven.

M: Ja. En als je dan over 'powerful' hebt, dan wordt het bijna als je al machtig bent of zo, het kan ook op een nare manier zijn, geluid en wat je wil met je publiek invloeden.

K: En beetje meer subtiel, kracht – hoeft niet altijd luid te zijn, of lawaaierig in ieder geval.

M: Ja, dat hebt het dan iets mee te maken, maar het gaat om vooral woordkeuze denk ik.

K: Ja, ja juist wel. En, mag ik vragen, als je moet naar een andere artiest, gewoon een nieuwe artiest, als iemand naar jou komt om te weten iets, om iets te weten, 'vertel mij over dit', maar ook een artiest net als jij, hoe doe je dat? Kan je dat schrijven, of kan je het gewoon zeggen, of moet je het laten zien..

M: Oeh, moeilijke vraag. Dus hoe je eigen kunde communiceert.

K: Ja, juist. Dat is eigenlijk mijn vraagje.

M: Ik denk vooral wel laten zien wat je hebt gemaakt en hoe je het hebt gemaakt, en dan ook, kijk, als je met iemand te maken hebt die ook muziek heeft gemaakt, dan kan je stapjes terug in het maak proces, en dan ga ik het juist om al die stappen die je zet, en aan het publiek laat je een eindresultaat zien, maar aan een collega, kun je ook laten zien hoe je bij het eindresultaat komt. Ja?

K: Natuurlijk ben ik aan het schrijven. Maar ook laten horen, ook. Zijn er bepaalde 'tricks of the trade', or iets dat je nu weet dat je wilde eerder weten?

M: Ja nee ik denk dat het gewoon een proces is, en je denkt altijd dat je nog niet genoeg weet. Maar, ik wil altijd meer weten, maar ik kan geen specifieke ding van in opnoemen.

K: Dat is goed. Was er, is er, in de laatste, drie of vijf jaar, is er iets gebeurt dat jij denkt, nou, dat is fijn,

dit is beter voor mij want dit en dit – of niet, dat kan ook – qua technologie of qua arbeidsmogelijkheden, het kan alles zijn.

M: Ja op dit moment is het vooral natuurlijk heel erg jammer dat er zo geschrapt word in de kunst, bezuinigd en zo, want dat is al heel veel kansen weg genomen om heel vrij om te gaan met dingen maken en met mensen samen te werken dat geld Kestie komt altijd om de hoek kijken, en dat is een negatieve zin, negatieve invloed voor de kunst in het algemeen.

K: Is er iets specifieks voor auditieve kunst? Negatief of niet.

M: Nee dat maakt ik denk niet zo veel uit.

K: Oké.

M: Want ik heb heel erg gemerkt dat door verschillende projecten doen, met mensen, dat leer je gewoon veel van, daar leer je mensen kennen, waarmee je andere dingen kan doen, leer je gewoon veel van als een vak inhoudelijk gaat. Maar ja, dat is gewoon waar ik meest van leert en wat in gang moet blijven.

K: Ja, de mogelijkheid om met andere mensen te werken, maar ook ja centjes verdienen, ook belangrijk. Maar denk je dat als je hebt, zal ik zeggen dat, als je moet aan iets denken, het grootste, meeste – wat heeft, mag ik heel even in het Engels?

M: Ja hoor natuurlijk.

K: Je mag ook antwoorden in het Nederlands, later vertalen. If you had to think back on the projects that you've done after you graduated or while you were still studying, what was, was there a situation that really made you, where you learned something that impacted you now. Do you know what I mean?

M: Yea.

K: Was there one of those situations or moments of learning where you thought about it afterwards and thought wow that really affected me.

M: Well that's a combination of all the projects I was involved with I think.

K: So a sort of cumulative knowledge building over time, with each step with each collaboration you gain something from that.

M: Yea, exactly.

K: To me that connects to the idea of reusing content in projects as well, that you can sort of remix them and put them in a new context to fit a new assignment's requirements.

M: Yes, in a way.

[END]

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"Mark"

K: I wanted to comment about, or ask you to comment about people who choose the type of audio that you do as a lifestyle not only in education but after as a career, compared with people who pursue audio as more of a hobby. What are the differences between those two crowds that are most striking?

00:32 M: Wow, well it's a really blurry line between those two things. I know when I was teaching full time, or was involved full time. A lot of students that came in the first year were really kind of on a hobbyist level, they were studying. They didn't have, a lot of times they didn't have the mathematical background or the math education to do this. That's one thing I think that was really they key for a lot of these students when they kind of realized. To be a professional in this, I also need some kind of expertise that you really need. By the time you're studying it might be too late for that. The choice that people make to study, I think that has a lot do with the caricature of what the audio professional is. I think that there's this mad scientist kind of impression that people have of it, that's interesting to people. There's also appeal because, well, the story that someone told me a long time ago about electronic music. Electronic music is like you hear something about this restaurant, it's absolutely the best food in the world, so you think to yourself, wow I have to go there. And you go there and you realize that there's nobody serving tables, there's nobody in the kitchen, but the kitchen is amazing, they've got every ingredient you can imagine. The thing is, if you want to eat anything you have to learn how to make it yourself. That's electronic music for me, when I was learning it. Now when you go to the apple store you buy a Macbook, it's got, this amazing apply of things on there already. Even if you don't have money, on the internet, all this free software. So there is this appeal that it's really easy to make stuff because there's all these tools available. And I think that drives people to go into the field of education itself, to become educators. The kind of geeky, nerdy appeal of really great technology.

K: It's accessible. The fact not only that it's more affordable but more available, not just to just professionals but almost anybody who wants it.

M: Exactly. It's really available, it's out there. Whereas it used to take a lot of energy and a lot of brain power to make a bleep on a computer, now it takes a lot of energy to make your computer not make bleeps.

K: I suppose. I think to sort of extend the conversation to this concept of DIY type of stuff. Would you agree that the amount of tools that are available not just in a marketable software program, but this sort of hacktivist type of culture, not only can you break apart things that are already there, sort of build your old tools, just as you were saying. Would you say that's grown dramatically in the last 5 — 10-years.

M: I think there's a different way of saying it, I think there's a fork in the road. I think for a long time the kind of, pre-package tools, these more commercial kind of tools. Kind of the technical details, I remember the days of Apple Mac 9? The operating system memory wasn't protected. So any program could look at what any other program was doing. But anything you wanted you could kind of get. All that kind of stuff in modern day operating systems has been kind of shut off. What I especially find a bit upsetting is the iOS revolution where things are so completely shutoff that the device isn't really hackable anymore. That's one thing that's going on right now, one fork in the road, that technology is

becoming more inaccessible.

5:25 M: But I don't know if you know what the Raspberry Pi is.

K: K, yea its an Arduino.

M: Yea, but a really sophisticated one.

K: I've never worked with one. Only an arduino once.

M: The arduino, okay the arduino in itself is definitely a super-cool device. The Raspberry Pi is as a one, because there's, pretty much the same hardware, that's in a iPad, in terms of [ ] stuff like, but that it's entirely hackable. A low of level as you can imagine.

M: A Developed by people who without reason, so much technology is unhackable. People are in an attempted how to work that way but learn how youre supposed to use stuff, we dont learn how to work. I found [ ] super interesting development. Arduino is already interesting, th rasp comes back. K: Yea:

M: It's another path that if you can read all the kind of devices

M: blackbox. Exactly. Another track where you can hack things, that's how I learned how Apple computer works. I couldn't afford the software that I wanted to use, I could have gotten paid for it. I had to figure out how it worked and use it for free. And I think that's a way a lot of people start understanding how software works. Even the possibility to hack is kind of being shut off right now, thankfully there's the open source community and [ ] who's doing it in an legal and sharing educative way. Although I have to qualify this. I do need a lot of market software in my work. I mean, now that I don't have to do it anymore.

K: Laughs.

Marcel: You know. Hacking is a great way to learn things. Definitely.

K: There was a gentleman from the Hogeschool Arnhem who came and gave us a workshop on Arduino, he hooked it up to a synthesizer, or had input from the synthesizer that was then tweaked by the Arduino that fed into Ableton Live. We were all sitting there, and he's like, yeah, you know, I just soldered these circuits myself. There were several things, I was like no way what's going on here.

M: Once again, you know what it is, both my older brothers. I watched them do that all the time. And I didn't really, I was kind of just hanging out with them, I wasn't just interested in what they were doing. So indeed, it's like when I was looking at these composition students, who write a Bach's chorale without even thinking about it and I was really envious of that, but I understood how you soldered together an Arduino not because I ever actually learned that but was around that stuff all the time.

K: Exposure. Osmosis-type. M: Almost like osmosis. Right.

08:54 K: I wanted to, I thought at least it might be interesting in the research to go towards, ask you about working with digital audio workstations but I think I'll move on past that device oriented conversation and sort of go to… I did want to ask, right now what are the type of buzzwords that in your head, especially what you're currently working on, your projects, or the words you might see in a press release about something, or a marketing associated with your practice…

M: This might have more to do with the fact that I just got back from the Aussie coast last week, yea, I think asking negative publicity, a positive .. expendabilty is one of the things, they understand, understanding that's what we just talked about. Using the technologies not just because they work well,

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but understanding what goes on. Now, this my own personal bias speaking right now. I don't think, either maybe more of what I hope should be the buzzwords for technology or not.

K: Okay. Curious.

M: I'm not, one of the things from my more professional work, one of the things that I actually get paid for. What I am noticing very much which is a trend is musicality is becoming more important again. I see a lot of dance performances. Contemporary dance and still the things that people are getting exhausted by music that is very in the space the whole time. Very difficult very complex, very electronic and all these electronic sounds, and I've started with this last piece that I did in Australia very very musical in a lot of ways. I played nice guitar and stuff in B minor and you know those kind of things. You know people need that kind of stuff. It sounds pretty rare. I think that time that you have where you can make really difficult, electronic music and people will be really into it the whole time. The number of hardcore people like that seems to be getting shorter and shorter. And I'm noticing when I do these long hour or seventy minute performances I really need to build in at least twenty minutes of not necessarily muzak but music that is a little bit more rhythmical

K: perhaps

M: Its not [ ] something that doesn't cost too much energy, that doesn't mean that it's simple or cheap or any of those derogatory terms. You can simply make something really nice and complex, but not something that has to draw so much energy. That's something that I'm definitely noticing.

K: That's something that I think is definitely interesting, trying to draw comparison between interviewees so thanks for being willing to share. Since you're writing compositions or have throughout the history of your career written compositions for different mediums. Dance and live performance being one of them, computer motion graphics, like the Black and White Light one, could you draw a comparison between how you think about or what your attitude is for composing for each of those mediums? What are the differences between... how you think about it, I guess.

M: For me it's purely a technological thing. The reason I got into doing video is because I was working on things, a dance piece. This was in 1999. And a project together bringing different media together, music and somebody would do live electronic and somebody else would do video and I hate telling this story because it makes me sound arrogant but the guy doing the video and the guy doing the live electronics I said you know what guys I can do this better than you, I took over the whole project and I did the video and the live electronics myself and I really was technologically, by doing computer music I understood already basically how the [ ] worked, it was not a really big step from working with the software to make music going to work with video. Which kind of put me into working with video. Technologically I understood how it all works, a moment of education, it's all self-taught, the technology is not very different for computer music. Conceptually it's all the same. But in practice it's very different how to work with it, but a computer is something that simply pushes numbers around. So if you understand how you can push numbers around in a compute you can make video or sound or live else or anything.

K: Interesting comparison. But if you had to contrast between the outcomes for each of the different media. So between, the qualities of a piece that you would produce for live performance, and maybe

this is a silly question but, something that was produced for a, taken in from a screen as opposed to watching bodies move, do you see what I mean?

M: Yea of course. That's a different situation all together of course. Because no, I wouldn't be able to do a dance piece and do the choreography myself. That's absolutely a very different thing. This has more to do with lines of communication with the people that you're working with. About on what level you communicate with people. Because of course the nuts and bolts of my technique of working with computers is not interesting for a choreographer. So I always have to translate the ideas that are floating around between her and I into something that I can technologically realize. Most of the time, I find I can realize something a lot more interesting if I'm given a pre- I've noticed that a lot especially working with choreographers, a way of thinking about how technologies work that's based on how they interact with technology which is that black-box kind of thing. That I can often appeal to people by saying, give me an opportunity to show you something you're not going to expect. Like the one you mentioned [Black White] is a perfect example of that. Of at the time, people not understanding what the technology can do, but being about to produce a piece like that, understanding not only what the black box does but what the stuff inside that black box does.

K: Speaking of keeping things inside the box, concerning my last question before, we should wrap things up.

M: I can be a bit late. Ten minutes or something.

KW: So I'll save the big one for the end. So, second to last one. Knowledge transfer, not only between you and your students, unique educational perspective, you and the people you collaborate with on projects, that should, not necessarily yourself and a choreographer I mean, but yourself and another audio professional, would you say that the way that knowledge transfer has changed?

M: Yea, because there are a lot of things that I mistakenly assume that people know. Usually when I do a piece like a big dance performance I don't perform, I compose the music, I design the system and then I carry it over to a technician who does the piece. There's just so much of my background and my experience that I almost take for granted that other people who are into technology also have that, really difficult to bring the conversation down a step to talk about fundamentals as I'm training someone to do my work, to perform my work. Talking about those fundamental steps is extremely time consuming of course and in rehearsal you have people waiting on you so you don't always have time for that. So my first project in Australia I was really lucky I had a sound operator who was also a musician who also performed and who did his own electronic music, live electronic music when I showed them the maxpatches that I had made for the performance I was explaining to him how this works, he could operate them not because I had to explain how the patch works. He could kind of work with it, listen to the result, and understand what was going on and in that sense kind of a feeling how it worked. Unfortunately the second sound operator that I had, was just as well educated as the first one but he had never performed, operated sound. He understood the technology through and through, but he didn't understand when I said something like "this actually needs to be louder". He would say, "what do you think, 6db, 2db louder? And I'm like I don't know listen. Feel it. You have to know the details of how everything has to be, and there were so many things in the systems I designed that depended on

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what's going on on stage that the backside itself gets feedback from the performers to do its things. You have to be aware of what's going on on stage, aware of what the audience is feeling. You have to have all that awareness, especially people who are educated to be sound operators, but its rare to have people with that kind of sensitivity. To that aspect of it. It's very easy to educate someone technologically. This is how this works, this is what these buttons do. Something that you can't educate somebody in, things that they just have to become aware of in working with technology.

K: That mentality.

M: Sure, and have a compositional background obliged a lot. I had all that experience but it's very hard to carry that experience. To transfer that experience.

K: Yea, to cull it down into something, to gift wrap it.

M: Yea, or even just to explain to somebody.

K: In words.

M: Yea, in words. That sound operator I was talking about was used to looking at his computer screen and seeing what's going on and understanding it and knowing what he has to do, and I'm saying to him no, don't look at the screen, use your ears, use your feeling.

K: Very funny, when I was just waiting for you in the studio, they were having some live piece go on with some guy with a camera on his mouth, and I remember, Jos asked one of the guys, 'Hey, is there anyway you can turn the brightness down on your computer screen, you're sort of sitting there in the spotlight' and he said 'I kind of want to keep an eye on the computer screen for the feedback'

22:23 M: There are two trains of thought on that and I'm torn between the two, one of them is don't show your screen, perform with the computer, but make the computer invisible, the person on stage has another whole aspect to live coding, no, no no we really have to break it all the way out project your computer screen and there's really extreme thinking about that. Sometimes I'm on one side, and sometimes I'm on the other. It kind of depends on what the performance calls for. Funny that you say that because knowing what's going on with the students there, I would say no, keep the screen bright make it really obvious that you're working with the computer.

K: Besides, besides the introduction of this screen and also what goes on behind it on one side getting less accessible in terms of it being blackboxed to the extent that you can't really break it apart, can't take things and make it your own. On the other side there are all these console new things that are coming out, which extends to I fully made it myself and I soldered the wired together and looks it makes a noise look at me I'm so musical, are there other drastic changes that you experienced since the day you graduated your Masters to now and if so what are they?

M: Well first of all the kinds of things I do, whereas when I graduated it was a specialist field, it's really ubiquitous now. It's become, it's so much in the air. When my first Macintosh laptop cost me $4,000 which at the time, that was still, I was once sitting at a restaurant working at my laptop and there was this whole crowd of people going 'Ooh' you know, that was definitely had a huge impact. What I really love about here, performance, still know how to play their instruments. Stil the mentality and the feeling of excellence, there's somebody you should know about in your research. That's Kurt Ralke. He's written a couple of articles, the articles are quite old, but they pinpoint something that I see which I

think is going to start changing now. You know this idea we talked about, the duality between using these really slick iPads and soldering together something yourself. What I really worry about is the idea that just because you solder it yourself that it's automatically interesting. I don't find that at all, I think that's a misconception that happens a little too often right now. What Ralke talks about in a couple of his articles is how do we define excellence, how do we know when we go see a performance that what the person is doing is really special, and that is a really hard question with computer music and live electronics.

K: That's something I'm really looking for, and obvious I have a sort of theoretical framework, but authenticity. How is that defined in this DIY culture, and there's such a big gap between professional and DIY and there's varying shades of cool, uniqueness, how do we draw that line?

M: And even if you're an audience member, even if you're an expert you don't even know. One of the things he talks about is this projected aura of authenticity not actual authenticity but this projected really good really important and sometimes I've seen things performed even here at STEIM, the performer was putting on a big show, and I knew what the technology was, you're putting on a really big act, and you're not doing anything interesting. It's really hard to believe sometimes.

29:49 K: And you would imagine, my next interview, when I roll out of here is with a teacher of mine for a Digital music cultures course. How these techno DJs they're up there with their big screens, but all they're up there doing is just pushing play.

28:11 M: Exactly. I know, it's a disturbing. When that whole explosion of DJ culture, which I didn't experience much living in Canada, it's a very European thing. But this idea of one guy with lots of technology around him, if you think about it in some kind of, especially if you think it in a political way, a very looming scariness about it that makes me think of. In the sense of Mussolini, somebody that has maybe no inkling about what the technology actually is that they're working with but they know which buttons to press – I was really upset when I read an interview with James Blake, one of these pop stars that has a big name, giving an interview, ex-military, still young 24/25 talking about audience control. The thing about making music, is you've got an audience and those are people you manipulate and you have to control their emotions, its very much if you're in a war zone and you have the enemy and use this tactic to control it. I said wow you're really thinking of an audience in these terms, it was really something. But apparently, that what's DJs do, that's what DJ culture is. You're using technologies to manipulate people. And people are voluntarily available to be manipulated in this way. I find that very distressing in a very [ ] politically sense.

K: That's very curious. That touches also the point we see on Facebook for example. Things using your private data, it's this great experience, but its manipulating you in unseen ways.

M: A friend of mine did something funny on Facebook. I say a friend of mind, somebody I like to laugh at. He was complaining about the iPhone app for Facebook but his complaint was worded such that he wasn't mad at the computer and he was mad at the product. I was going to write this back to him and I wasn't going to offend him, but the thing he didn't realize is that that's not the relationship with this Facebook, he's not the computer, he's the product inside the computer on Facebook, that he didn't realize that was surprising. There's a billion people on Facebook now, that's really amazing. I saw

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something that I saw in a psychology book once, that they did some experiments in the 1960s with chimpanzees. Maybe they don't do these kind of things anymore, they implanted electrodes into the brain of the chimpanzees and they're all sitting in a room, some guy at a terminal to switch buttons. And by subjecting electricity into these monkey brains he could determine which of the monkeys in the room was the dominant one. I remember looking at that, it's disgusting that this kind of research is going on, but why are people doing that kind of research with chimps. Well obviously because chimpanzees are so similar to humans they're looking into doing this research with humans. This is kind of what Facebook has become. Now, Mark Zuckerberg, he has this aura that he's a computer nerd he's not, he studied psychology. He's a psychologist. He knows something about psychology.

K: Making people tick.

M: Exactly, and that's what Facebook is, it's not technology in the sense of what Apple is doing, that was interesting technology, that was about empowering people.

K: Exactly in the 1984 commercial.

M: That's the whole irony in that commercial. I think what they're doing now is exactly what they said in that commercial that they wouldn't do. I get upset. And here I am walking around with my laptop.

[END]

"Reinhardt"

R: So it's rolling now.

K: Yea. So this close relationship

R: That's really an extra assignment I have being in this place that people could just walk over and ask me to do stuff and we can.. they are sort of going beyond 'they hire me, I make stuff for them, I give it to them, they put it in'. That we are actually doing stuff together, and that's what I like most about my work basically. I always trying to enter a project as early as I can, probably when they're still deciding on what the game should be and how it works. Especially with my specialties, that I do the adaptive music, it can really, the decisions in how music works can influence how the game works basically, or the gameplay.

K: Survival horror games for example.

R: For instance, yea. Adaptive music is so, it has many benefits but the two main important ones are either you get immersed more in the experience you're doing as a user, but it can also be a type of communication tool used, without the aid of any visual. You don't have to have a HUD or a GUI and then you can just change something in the music and when its noticeable then the player knows something is up, so its an extra way of communicating. Sorry, I'm kind of an all-over-the-place thinker.

K: I sort of think that way in general so you should have no shame in this conversation. But I ..

R: Those questions I didn't have a chance to look at.

K: No it's not a big deal this is a semi-structured interview I just kind of wrote them down and I'll try to flow my themes that I hope to address in the conversation that we're having so theirs no right answers. You're supposed to do a lot of the talking as well, so if my questions ever get a little too long and hard to understand start shaking your finger at me. I'm noticing your desktop over here, is this generally what you're staring at for most of the day?

R: To be honest yes, actually basically we've got the office for doing actual work. That sounds really weird but when you're doing something that you enjoy so much and you get used to doing it in your spare time, and then it becomes your job, it gets really hard to do it in your home. It's the same place where you relax so there's no, either you can't stop working or you can't start. At least that's my experience. That's the main reason we got the office, to go somewhere, to be done with work, to come in to work, have your house.

Kim: Sleeping zone.

R: Start associating it with work or when you need to be working you are associating it with freetime, so that's when we started having an office. The first one was in Hilversum and then here. Now I'm here most, during the day I'm here always. When I'm really busy I like to lock myself us and disregard any

K: Social interaction.

R: Or any social convention, like you need to sleep at night. So just work work work, and then fuck I'm really tired. Sleep for a couple hours, wake up eat something, go to work, maybe watch a little television. And go to work again, just live outside of society basically. In generally when I'm not crazy busy like I am now I'm here most f the day. There are really some good opportunities to experience what's going on in the gaming industry. This, people are just play-testing their new game. These are just

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students, but it could be anyone. Then you, just walk over there, oh can I play your game, sure, then you meet new people, and before you know it you have a new project to work on.

K: Is there a lot of experimentation going on here?

R: Specifically here on in the gaming industry in itself?

K: Here, well it seems like you have a synthesize over there.

R: This is a MIDI keyboard. Connecting to the computer. Just to control the virtual instrument. I don't like to do everything in the mouse and the keyboard. Generally that doesn't really work. But experimentation, yea I think this is very much a place where that happens outside of universities and art schools and that's where it happens even more, because there are no negative consequences if you fuck up. But over here I like the way that there are so many different companies over here that focus on so many different stuff, like Monobanda, who I'm working for right now. A couple of things with them already. I really like how they're thinking like artists instead of like, what can make the most money, or they think, what doesn't exist yet that we could create that people would enjoy. I love that. And there are also a couple of guys who I am also doing a project for right now who mainly focus on making games with brainwave measuring devices. They put on a headset and they in some way extract what brainwaves, are you relaxed or not, etc.

7: 43 K: So are they going to render this before my eyes like I'm in VR, just for the sake of extracting my brainwaves, man, come on.

R: The first game they made was a breakout clone, you know breakout right, on the bottom there's this little paddle, which you can direct from left to right, there's this ball and you have to..

K: Arkanoid was the original Nintendo one right?

R: Breakout was the original. They made it that the more concentrated you were, the more blocks would explode on impact.

K: Talk about impact of visual culture.

R: I thought this was cool, and immediately when I met them I said we should do something with adaptive music. Almost nothing is more logical than combining adaptive music which is making a personal soundtrack for you with your own information that you're sending out, that you're giving to the game. They were into that, it's more like an app right now. Basically you have this landscape view and you start in the winter and the more concentrated or the more relaxed, you can choose which parameter you'd like to focus on. The more focused or relaxed you get, the scenes change, and animals start to appear, the weather changes. It's quite a relaxing app, and they're trying to sell it to psychiatrists, UMC, the hospital for psychiatric patients, or for soccer players who need to kick a penalty and get really stressed. All about leaRing how to train yourself to get into that relaxing mindset.

K: Serious games.

R: Yea, it has become that.

K: Can you compare and contrast between, well, this is going to sound like a huge question, you could apply it to game – not only composing for different type of games, but I saw that you did the installation for the boat, 1000 year old boat. Could you compare and contrast between your compositional activities for each of those mediums?

R: I understand the question but I don't know if I can really say, it really depends on the art installation or what is the game. They can be.. .for me it's more about what do you want people to experience. Like with the boat, you know that its this old boat. I've seen it hundreds of times in the museum, it was always just 'there'. It stinks, it really reeks. It tends to be quite hot in there, they ruined the whole ship. It was a part of the museum, they put the ship in there, they took away all the walls, then they put the ship in, then rebuilt the walls, since that, the whole building has become a monument so they can't get it out anymore. So they're stuck with the boat, not that they don't want it, but it's going to be there forever. And it's not that exciting. It's also a space where there's a door here and a door on the opposite side and people just use it to get from one side to the other and don't regard the ship at all. So for me and for Monobanda as well, luckily usually we're on the same page with stuff, that's good. It was about how do we get the attention back to the ship. Then you start thinking well the ship has so much history. Almost like this ancient beast that wants to tell you its life story. And how are you going to do that. Monobanda was responsible for the visual part, like projecting light on top of it and making some beautiful images. And I really wanted to let the ship have its own voice, but not to obviously, you're not going to do synth rock- or you know, some cheesy tunes for it. So it needs to be really organic ambient soundscape-like. So that's what I made for the ship. But if I'm working on Gus, the little fairy goblin game, it's a completely different music but that's just because you have to think about what does the user want and how long are they going to play it or be in this experience.

K: What is the outside of them, what is their world going to be like on the outside when they're at the screen, too, I guess.

R: Yea, yea. Exactly. Where do you play it, how long do you play, what the intention of the game or the installation. Whatever you choose. And just adjust the music to that. I also made some really weird soundscapes for [Boom].

K: What about the exploratory one that you made with seven worlds, it has a Dutch name.

R: Wereld van verschil. World of difference. That's also not technically a game. It's really on the border, you can look at it as a game, but there's an element of you doing assignments, but its most of all, its an online world where you can just interact with people who are also going through the same process, you're going through, well you probably know.

K: MouRing.

R: It's for children who lost someone in their family, they can get in touch through that medium. That was also very soundscapey and vague and long and meandering sounds. I wouldn't say that there's a different way of working for me whether its an art installation and a game its just a subject and how its meant to be experienced by the user. Of course there you have, sometimes you have limitations in software. It's really hard to make an adaptive music system for the iPad, because the iPad is built to play sound effects and music but one piece of music at a time. You can't have seven layers or fade in and out. Yet. That's not a problem in this building, silence. I usually use those big headphones. They're really like the cans, and you can wear them all day, and they're closed. Music stays in and this type of shit doesn't get through.

K: People knocking at your door, it just goes away.

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R: That's not why I'm facing the door. That's because of Red Dune. They say never sit with your back to the door and I never did. I might get stabbed.

K: You never know.

R: Technical restrictions are there but that doesn't really influence what type of music it should be. It's just something to keep in mind and maybe adjust your plans on what you were trying to do.

K: Could you talk about commercial software development or evolution for your line of work?

R: You mean the software I use?

K: Yea, or the software you once used and don't anymore.

R: It hasn't changed that much for me for instance. You do have now the Y's and AppMod (?) I don't know if you know them, they're pieces of software specifically designed to make that music that didn't exist when I started claynote. Or in a really rudimentary way. Right now they're really focusing on making it easier for developers to integrate adaptive music systems in their software. For example you have Unity, what people use to make games. You can really easily export an iOS version and an Android version. They're used to making games in that program. AppMod is basically a part of that. As soon as I leaR how to use it, which I don't, yet, then it will become even more easier to integrate adaptive music systems. But I can basically do it and make it myself, and even do a bit of the programming even though I don't know how to program stuff. It makes it easier to integrate, that sort of stuff. On the other parts, like DOS or synthesizers, they've gotten more sophisticated because technology progresses, but it's not that different. It doesn't require new composing techniques or anything.

K: I mean, has there been a change in the type of sound? The purposes?

R: Mmm. That's a good question. Well, yea, never really thought about that. I think that when new synthesizers arrive people think, new sound, that's valid for the entire music industry.

K: Or vintage, going back to try to reproduce..

R: Ten years ago, you had this big surge of companies trying to emulate the old analog synthesizers into virtual instruments and right now I can't hear the difference anymore. But yea, that's just general music progress. I mean that wouldn't exist if there weren't, if automated synthesizers weren't possible. That's all they did really, a shitload of variations on the same theme, just using automation as a rhythmic tool, basically. But for the line of work I'm in, I don't think, well, I don't look at it like that.

K: Your audio gestures tend to correspond with, well at least this is what I gathered so far, if you're going to make a compositional choice, an audio gesture, it will correspond with something in the user environment, so there's always that interpretive tie, you don't have to guess.

R: You just think, what would I want to hear if I were doing this and this. Also I might not be the perfect candidate to ask this question because I like to work really intuitively.

K: I read that somewhere on the internet in another interview with you.

R: I say a lot of shit to a lot of people and then they write it down.

K: Isn't that the way it should be? Cool, man.

R: I don't remember what I said or what I didn't. That's really, I've discovered this also, while doing this job, that I'm really an intuitive dreamer almost. I just, people need to give me some visual stimulus, like

we're going to make this game, it looks like this. We're doing this, it looks like this, it has these colors, it has this sort of atmosphere. Then almost immediately things start to pop up in my head, it should sound sort of like this, combined with the type of synaesthesia where I can almost make a mental painting of the music I want to make. Just make a mental photograph of that, put it in the file system and then retrieve it when necessary.

K: Is that mental painting or snapshot, look at it appears on your screen? Does it take a more organic form, or do you see almost the grid of the software.

R: It's a combination I think. I've always had this, since I was a little child. The synaesthesia thing. You could hear music and you sort of know, this is music that represents wood, and there's a little bit of dust on it. When you would touch it it would feel like sandpaper on the bottom. You know, vague stuff like that. Right now its also combined with, you know, I've seen a lot of waveforms in my life. Also, when I think about it, these sounds would have a certain shape. But I gradually discovered that this would also be sort of like the waveform that it would be, that actual sound. So I think in my head I've combined those two things. There's not a conscious process at all. I'm basically just glad that I discovered this cause now I can use it. What was the question again?

K: Yea, we sort of started on digital audio workstations and that stuff, going back to your comment about 'well I sometimes do a little programming, but I don't really know how to program' – do you think that's one of the things that differentiate between people who do this as a lifestyle, deliberately decide not to take it home, and someone who does it as a hobby, sort of what you did before Claynote was Claynote. Is there, is there a line? Is it blurry between lifestyle and hobby.

R: On the way you work? Yea, because now it's a job. And now it's serious. And I noticed almost immediately that when I started doing this as a job, my projects music-wise in my free time almost disappeared. Because when you make music all day, you're not going to do it for fun or something. I'd like to, but there's nothing left, or something. You put all those emotions and attention in your work and in my free time I now like to do completely other things than when I had a desk job and I couldn't wait to get home to start making music. I think the approach is also different because when you make stuff for yourself it's just purely for you and you can work in it when you want, do as much or as little as you like. I have a lot of projects in my free time that are probably never going to get finished. I almost, almost all musicians I know have these things, sketches ideas, never going to become something real. When its your job you have to start chiseling away at it, you just have to.

26:10 Of course there's also a difference between making songs and making game music. Game music almost never ends, or its not supposed to. It's supposed to loop, there's a lesser amount of, like an arc, when you're making a song, you start with the beginning, and then you start the buildup, you put in some kind of tension, arc, at ¾ its at the highest, then you start building it down, then it ends. In game music you're composing mainly for states of being. Or I am now here, what am I supposed to hear when I'm in this location. Okay it needs to be something like this, a little green and leafy, that needs to be constant, so it has to loop and also needs to be emotionally sort of stable. Also it needs to be diverse enough that you can listen to it, but the general gist of it should be like you said, the same – you can't tell a story inside a little piece of music like that. So it's harder and it's easier, but its

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different anyway.

K: That's good, going away from medium but a little bit more into the type of songs. Does, um, this particular, I mean, interactivity, like in general. Are there – I remember you saying earlier when you were working with Monobanda for example, there was this time when you had them tweak the programming after the fact. As opposed to you getting involved early on.

R: Yea, preferably.

K: So, besides this – are there typical pitfalls for someone who's composing for games for example? Typical mistakes that you see from people who are competing with you for example. What are those rookie mistakes, I would say?

R: You mean just in the process of making something for somebody else.

K: Yea, not for yourself.

R: A lot of people underestimate this. I meet so many musi, musici, musicians, jesus christ that word. Who play music for themselves or autonomous artists or people who like, who are from the film industry or any other kind of industry that needs music try to get into games. And they don't know how. And they somehow always end up getting redirected to me because people know I'm a nice guy and I will answer your questions [laughs]. I think they underestimate how different it is composing music for games, because even in film, you think this is for media, or for a medium, that process should be just about the same as what I'm doing now. Its really not, because even films are linear, games are so not linear. So like what I said earlier, stop thinking in where am I going with this music but more making a lot of pieces of music and have them have their own identity but like a constant identity. So I think it's difficult to switch from one area of expertise, if you are an expert at all, to games. Really pitfalls in working with other people, I don't know. Maybe you tend to discard your own voice, you know. Like your own ideas on what it should be. I notice that about myself especially in the beginning, like you tend to start making the stuff that you think people expect you to make instead of the music you want to make and you think is apt for whatever you're composing for. And that's really a big pitfall. It has happened to myself occasionally now and again. But then I have to remind myself that there is this part in me that can do marvelous things. At least other people think so, so that's good. And you need to trust on, my intuition in this is, is correct. I'm making this, and I stand behind it, by it otherwise you're just copying like, oh I have this type of game, it needs some kind of Zelda like music. I'll just listen to a shitload of Zelda music or take the rhythms of that, or the chord progressions and just slightly alter them and make it like that. I don't think that this will, well to me, that's not artistically, it has no value, you know. Not valid. 32.29 and you have to realize that people, well it's different when you start out because most of them don't know you, for me right now I have to remind myself that people hire me because they hire me, instead of the music I make. It's hard to explain, I hope you understand what I mean, or sort of understand what I mean>

32.52 K: My next question is, how, if you could afford it, and you could and you thought it was a good idea, could and would you train someone to do your job for you, or to take after you as a legacy?

R: Hm, that's a good question actually because I thought about that at one point I had the idea of becoming more of like, what do you call it, like an agency. Like developers would come to me and I

would like to hire composers and tell them what to do and bring it together and bring it to the developers. Act as sort of a..

K: Middleman.

R: Yea, middleman. I had thought about can I transfer this knowledge as your already say. I think I can, on the technical side of it, or how to compose, to think about it, what you can transfer, not in any area of work is your own most parts are transferable.

K: Except for that inner musical talent

R: Yea,

K: or synesthetic talent, whatever

R: Well not necessarily that, but the actual sound you produce. Like what do you like, not how would you like to do it, that could easily tell someone oh I'd like to do it like that and maybe you could do it like that as well. More, your personal preferences and your tastes, that's not transferable. But that doesn't need to be. I think.

K: So would you say the software is taking away a human quality to the music?

R: I don't think so (laughs) I don't think so because when you're good and good is very subjective term, but when you're good in my eyes you don't use the instruments, and I use the word instruments for all things I use, so not only the guitars piano virtual instruments synthesizers but what program you use, all things that make sound or well, have to do with your process of making music. What was I saying. They're just tools, they're just there to realize, to make real the thoughts that are in your head. I want to make this big cloud-like song, let's call it a song for lack of a better word. And then you have to figure out how do I want to do that. You're using these things to get where you want. And of course you have like the Kraftwerk is a good example, who are robots and that's really an artistic choice to become part of the machine you're using and then it's going to alter the way it sounds, but it's not, like, the intent is the same, I think. The tools are different. So I don't see it like that.

36:54 K: Interesting, that's great point.

R: Of course it generates, electro, dubstep.

K: I was at STEIM yesterday I saw three gentleman, one on a midi keyboard with a synthesizer, another kid with a bass guitar layered down on his lap that he was somehow scratching or something, there was another kid filming his mouth and there was another who was sort of this, strobe filter on it with some other instrument or something. I walked in there and the guy I was looking for wasn't even there, but I was just standing there in awe. And they were having a debate over whether one of the kids should keep his computer screen open during the performance and what that lended or didn't lend to the performance.

R: But as a viewer, whether you could see the screen.

K: Yea, and he said I want to use my screen. Which is perhaps questionable in itself, in terms of live performance, but he said I want to keep an eye on the feedback. Rather than keep an ear on, that was a big red flag for me.

R: You mean feedback, musically

K: Yea, I suppose that's what he was referring to.

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R: That's a question. I don't know, I see it more like what do you want to achieve. If you like to read out your feedback levels on your screen, go ahead, it's just a tool. When you're behind your drumset, nobody can see you, but you're still making the sound. So to me it doesn't really matter how its made. But what the end result is. What literally comes into your ears. Yea, no.

K: Good, that's I'm happy with your response. I think that's, we kind of went through everything tricks of the trade, knowledge transfer

R: No we're not done yet. That was way too fast. I'm going to talk here for another hour. And then, you can feel...

K: Ah

R: Ah, well okay, I could certainly talk more. Nothing more to do for the rest of the day.

K: That's very nice that you can now sort of sit back think on a meta level about what you do. In terms of buzzwords, I guess, what are the type of things that you, what are the things that keep you up at night if you can cull it down to such simple one or two word phrases.

R: Yea. Wait this is, like, poking me in all kind of different areas. Do you mean, what are my worries? Or do you mean, because buzzwords don't really connect in my head.

K: Oh, well I was trying to keep it nice and vague so you can take it in your own direction

R: Laughs. Well what keeps me up at night now is a shit-ton of work and my worries in professional life are always are the people that I'm making the music for. Are they gonna be happy with it? Because its such a personal investment you put into the music and you might convinced yourself that its completely right for what you're doing but then you ask the developer who's making the game and made the whole process of you working on the game possible, if they're not happy with it, it can be a problem. Usually we're on the same page, and I can let people hear stuff in advance, little snippets, basic structures and I tell them no, don't listen to how it sounds right now, just listen to the melodies or the atmosphere that it has. But I have projects where I was fully convinced I made this completely awesome soundtrack that was coherent throughout all the different songs I made. I made bits of music. And they said well no, we don't want it, let's get into this, it's fairly interesting I think.

K: That's excellent.

R: This is a real example I did for X-Form. They made this web-based browser game, a side-scrolling shooter, you're just running shooting stuff. I used to play a lot when I was small, little, I should say. And so I immediately started thinking in that direction, we could use all the weird sampling they did, the computer itself wasn't powerful at all to use small samples and loop them at the end, we could do that, and it would sound really really crappy but also really really cool.

K: Ha!

42:56 R: And I made this whole sort of melodic theme, and bam, there you go, it was an awesome song. Then, that game got so popular, they made not a sequel, there was an expansion. So instead of one world where you shoot the things, there was five. So for the four new worlds, they asked me if I could make four new songs for the four other worlds. And then, this is excellent because that's what I like, that's what I hoped would happen some day. I could make this complete soundtrack. And I was also really happy with the first sound. So I thought take the theme from the first sound and put it in

different setting, make this whole thing really coherent. You can recognize some of the melodies.

K: It reminds me of Crash Bandicoot almost.

R: I never really played that.

K: Oh, man it was one of those things where you had the same basic melody over time, although it was rendered in all that stuff and not as fun, it was a 2D strafing shooter, was this as well

R: Yea, rendered in 3D but play was 2D, yea.

K: That sort of, it was just morphed almost just transformed, you could still recognize the same.

R: Yea, like a leitmotif.

K: Yea, there you go.

R: But not connected to characters but the game itself. So I thought, let's do that, and I made these songs, I was so convinced they were all awesome. I handed it in, and they said oh no, we don't want that one to sound like that one. And then I said, no, but you're not getting it, this is the beauty of this, and its al connected to each other, and it makes this a complete package. And you have to take that out, and this entire thing. And they were really specific on what shouldn't be in there. That's also one of the traps you fall into, but that's when you make music for someone else or you make anything creative for someone else. They rarely can express how they do want it, but they're really really vocal about what they don't want and that's for inspiration that's almost like, yea, become a musical Munich. They take away stuff and they don't know, not in that direction, not in that direction, so that leaves this task, maybe like that, then you have to start feeling them out. Sometimes you're almost like a psychiatrist, trying to figure out what the people. They say words, and you know they don't mean them. You combine what they say, put that in the song, and it would sound like shit. You sort of have to become this, and luckily, that's why I still exist as a company, because I'm able to extract from them what they really want instead of what they're literally saying.

K: All they can do is tell you, and write it in words.

R: It's amazing how specific some people get and not mean anything they say. I mean in reality. My reality.

K: Mhm.

R: That's a hard part of this job. That's what most creative jobs and working for someone else. There's a discrepancy in act, you're creating, you're doing that from within yourself. Then there are other people who are going to say no its not good enough or its good enough. That part is always, au, nightmares. But to finish the X-form story, yea that really bummed me out. Don't write this down anywhere, but that really deterred me from, for a while at least, form working with them again. That was horrible. I was so convinced this was better. I made the songs like they wanted them, they were happy with it. I couldn't listen to that. It wasn't, in my mind it wasn't good enough. And the first one was brilliant, and they're idiots. There's that aspect to this line of work. 48.02 to go on a little more it's really hard to tell people I'm going to let you hear something, don't pay attention to how the sounds it right now.

K: So don't listen to it.

R: That's basically what you're saying. Listen it, but don't listen to it, it's really

K: Yea, you know the listening modes? Do the passive one.

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R: Yea (laughs) I could let you hear some examples. It's when you making stuff in MIDI or grab the first sampler or samples or synthesizer you can find, just to dumb the job down, the melodic idea and the atmosphere to have and the tempo. Like that. You just do it for yourself. And you are the point of people start asking, what are you making. Well I could let you hear something, but don't mind how the actual sounds sounds, but focus more on the general atmosphere. It's hard for people that are not in the music, who don't make music or who don't listen to a lot of music to listen beyond that, and they say they will because they're all.

K: Full of shit.

R: Ha, ha. Yea! Willfully disregarding their own handicaps. They will say to you, sure I will listen to it, and no I wont mind that, then they say, oh, I don't like this and when you change the instruments and make like a full orchestral version of it with the exact same notes, melody section, tempo and you let them listen to it and they say, this is what I mean, no this is wonderful. They can't.

K: Like the Emporer's New Clothes.

R: I literally did that today. Don't write this down anywhere. I made 8 different songs for some developers I'm working for and they all said Meh, I see what you're trying to do, but merh mer mer, and I thought this is taking way too much time. I'm going to do two songs. I'm going to fully like, decorate them, did all the little details and all the right instruments and stuff. And it might not even be the best idea from all the range of ideas I've had so far, but I'm going to fully work it out and then play it to them. And I did, and they said today. This is wonderful. And I thought oh, you're just here for the shiny objects.

K: Haha.

R: It's like beats and mirrors. That's actually a hard part in the composing for other people, that you have to watch out what you show them. Or let them hear in this case. Because they're not good enough to make that judgment on their own. They don't know what you're thinking and where you're going. You can say it in words and they can understand the words and they can understand you describing the music, that its going to be like that, and like that, but they instantly become a judge on what they hear now.

K: I had that experience. My internship is at the MediaLAB in Amsterdam and we're working for the AMFI which every half year puts on a catwalk show the AFW and there's 24 students, branding, design, management, producing 30 looks to put on the runway, I think, they decided it'd be the 15th of July. When we first got this project it was blank slate. We could have done anything new media-ish, which innovative ways can the school and its in-house brand present the collections, you know, in the essence of digital media because they've seen holographic runway shows, they've seen all this other stuff, spectacle if you will that's not really telling a story. It's not narrative it doesn't have any poetic qualities. It's mostly put it on 10, blast the techno, and have no idea what the fuck just happened half of the time. So we pitched them one this whole take advantage of the fact that people are sitting in the front row with their cellphone and use that and measure or track tweetscraping I don't know that's all the rage at Utrecht University these days. Might as well put my two cents, the other kids are from the UvA. The second one was a database, and the third one was we want to produce a soundscape

because you jerks are just blasting techno, and we want it to be more intimate and sexy than just the stuff that you're mixing together. Plus we listened to the soundtracks of the previous generations, and it was clear, plus our assumptions are confirmed when the guy told us he was mixing random crap he got from his students in garage man. All right man, you're a legit fashion brand. We were going to do this binaural recording thing but then they said no, nobody's going to wear headphones. They'll put them in the wrong way, or nobody wants this big thing on their head or do it like that, so we needed another way. We called up the guys who normally do sound included with the package, they're paying an arm and a leg to get up there anyway. And they're like oh we just put in like, a mono box, just one guy this one guy running the show. Stand behind the console. Don't think we'll have to work with just the one box, so shit, what are we really going to do, we really had to go outside the box so re rented from the game of life foundation the wave field synthesis machine. So it's 192 boxes, we can take those wave forms and throw them all over the room.

R: That's awesome:

K: The challenge to the project, we are now, the agency, we have to find the sound designer engineer technician composer, and then make the idea of those people talk to the software program that runs each speaker for the experience. So I'm experiencing the same thing when we had a meeting with the three top of the line fashion students with the group. We're telling them oh yea, we're going to have the arc, we're going to have it build up. We're going to use silence for a second, eventually one of the models is going to step out, we're going to spatialize the sound, they're like oh yea, yea, oh that sounds good. Might want to do it like this, leave the meeting, go home we get an email well we told our teacher this, and he wants to make sure he's at the next meeting with the sound design thing you have. We're like oh man, we didn't let him hear anything yet. They're already not excited. That's gonna turn out really cool. I've decided to do this whole thesis research on audio professionals my brothers a sound design guy, kid, he's more of the running the gig type of guy I guess but he's a protools logic nerd band player, bassist, digeridoo. Uke.

K: You got a uke over there I saw.

R: Oh I love that. It's so easy to make something

K: Dun, dunga dun.

R: I mean, sometimes people ask me, can you make a tune that's a little upbeat and cheerful and not too serious. I'm like oh, you mean the Uke.

K: Laugh.

R: That's like instant hit, then you put bells on it. And it's like chi-cha-shing-chi-cha-shing and you have like a folk song. Instant people like it, that's the way it sounds. So many commercials now. But yea, no I do understand. It's like people want the flashy stuff and don't really care where it comes from. And as a result don't really care how its made or how it develops and what is required for it. That's exactly the same with audio and games. People realize that it's necessary but it's usually an afterthought. Were making a game, we're making a name, we need audio, oh yea, this type of graphic style is beautiful, bum blah blah, and we need programmers, okay doo-doo, okay great, game is almost done, oh shit, we need sound.

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K: Haha.

R: Usually how it goes. Damn. And that's why I said I like to be involved as early as possible just so you don't get that. That's also why I didn't choose to compose for media for for films or television and radio are even worst. It's literally called post-production. And in my head it's like you want something that's absolutely elemental to what you're trying to do. And you're shoving it all the way to the back so that I have two days to come up with this brilliant tune that you want. That's not how it works. First of all, I don't work quickly at all. Like on anything.

58.29 K: Ha.

R: I'm more like hm, let's look at this for three weeks. Then ideas start to come up, then I let them marinate. I call it marinating. It takes time for them to develop into something that's worthwhile to do. You can't do this in the film and television world because its post production, its done already, it needs some finishing touches, like music. Which is at least 30% of the experience your user's going to get. That's why I didn't go into that and I like to be in this industry which is better than that anyway, be involved as early as possible, then you're part of creating the product and not delivering assets to the project.

K: Hmm. Okay. I have one last question, if you could say, if you could give some advice to students who are studying whether bachelors or masters, design, composition, for games or other mediums perhaps..

R: Yea, I get this question a lot and I never really know what to say. Just go fucking do it. That's what I did. I didn't know I could make good music that people would enjoy listening to. Because in my spare time the things I made were so horrible that only I could enjoy listening to them. Haha. They're so warped into what I liked. I literally had no idea I could do this. I just started doing it and saw what happened. Take it here. There are developers on top of us on the next floor who are students, decided lets see if we can be game developers. They saved up a whole lot of money so they could survive for a year, that's almost the same as I did, that's a good way of trying it out. If you don't mine potentially wasting your year, there's nothing that could stop you. Save an amount of money or have a like a secondary job, I used to tutor kids up until last September.

K: Yea I got that on your Linkedin.

R: Yea, of course. Yea, I did that. When I started that I did that because I needed a steady inflow of money. Just to survive. And then I found out I also really like working with children. I knew this already but it got so enjoyable and people wanted private tutoring. Even when Claynote was running well enough for me to survive on that I still wanted to do it. I just quit because I couldn't spend the time anymore, I don't really like it, not working there anymore. But that's what I did so I could at least like, 150 euros a week. Something like that. Just figure out the bare necessities, what does that cost, have that covered. You don't want to die. I don't at least.

K: Haha.

1:02:44 R: And then just go figure out what, if you can do it. And, yea. Just do it. That's basically my advice. Second of all, try to find out or determine those are both the same words, try to figure out.

K: Do something about it once you find out.

R: No, no. Try to figure out what your niche is. Your specialty. That's important. There are so many composers and even more composers who want to get in on this industry. I had adaptive music and that is really helped me, also because its new and emerging and stuff like that. But you need to have something that other haven't. When I said these are the same words, that you find out by doing it and thinking oh, this goes very well and I can do this. Or, determine it from the start. I'm going to focus on this and go in that direction. It's always going to be, I don't do adaptive music exclusively. Not by the long shot. But it gives you something to set yourself apart.

K: Your signature.

R: Yea, I think, at least in the game composing world, that's an advantage to have. Most people, its true for all industries, for people just starting out especially, they want to do everything, but you can't say that.

[END]

K.R. Waldbillig