

A man wearing a heavy, light-colored winter jacket, a fur-lined hat, and dark gloves is sitting in a dark, upholstered chair. He is holding a large, open book or portfolio on his lap. The scene is set in a snowy, outdoor environment with snow-covered ground and trees in the background. A tall, thin floor lamp with a large, conical, textured shade stands to the left of the man, casting a warm, golden light. The overall atmosphere is quiet and contemplative.

Morten Qvenild

# The HyPer(sonal) Piano Project

towards a (per)sonal topography  
of grand piano and electronics

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**towards a (per)sonal topography  
of grand piano and electronics**

[interactive pdf]

Morten Qvenild

This text, the albums *Personal Piano* and *the Karman Line* and the final concerts at NMH 16-17 August 2016, materialize the artistic research project **the HyPer(sonal) Piano**. The project has been conducted at the Norwegian Academy of Music (NMH) with support from the Norwegian Artistic Research Programme, from 2012 to 2016.

**Accessing audio and video material:**

**Printed version:** Find the artistic results, video and audio examples and other documentation lined up through this link. Follow the examples on a computer or tablet while reading.  
[www.mortyq.com/hpp/](http://www.mortyq.com/hpp/)

**Interactive PDF version:** Click the icons throughout the text. An internet connection is needed. Interactive Pdf must be read in Adobe Reader to ensure multimedial functionality. It is recommended to enable scrolling through clicking *View / Page Display / Enable Scrolling*.

**Credits:**

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I  
INTRO

## memory #1

My grandmother came down from her bedroom. This is the only time I remember seeing her in person. I don't remember her talking, eating, or taking part in family activities. I remember her calling us made my mother upset. I remember the instant when she came down from her bedroom, her long white hair spread unevenly over her ruby red bath robe. My mother had told me that she was taking medicine to calm her neurosis. To me, a three-year-old boy, she looked crazy. I was scared. I tried to hide in the sofa. She sat down at the her brown Steinway grand piano and played through a Chopin mazurka. I can still feel it, the blend of goose bumps and fear. The music took me completely. I was surrounded by the piano, swallowed by it. She finished playing and walked out of the room. I don't remember meeting her ever again.



## key questions

*How can I set up a grand piano with selected live electronics creating an instrument with sonic possibilities that correspond to my aesthetics and performing practice?*<sup>1</sup> (Initial key question, revised February 2014).

The initial key question said that I was trying to make an instrument that would cater to my aesthetics (poetics), as if the poetics were already there. But, as the instrument evolved the poetics changed. I changed. A new notion emerged in me: a notion that the use and development of technology and complex instrument systems is not a one-way street from idea towards musical and sonic realization. Now, I see this process as a partnership between instrumental, performative, musical and personal elements. I regard this change of situation a main turning point in my project. **For me, the present musical situation is one where the agencies, despite their difference in signs, language and logic, drive the artistic process together. This interagency, comprising exchanges between the agencies of instrument, music, performances/rehearsals and my poetics, constitutes the base for the HyPer(sonal) Piano Project.**

I found resonance for this change of angle in theories on post-humanism and distributed cognition, a field in which philosophers, psychologist and educationalists (among others) try to depict and explain how humans interact with technology, and how this interagency will evolve in the future. Writings on distributed cognition and post-humanism by Katherine Hayles emphasize that human capability depends on this interaction. She argues that ideas of a human autonomous will are a huge simplification made as an attempt to understand and explain the chaotic and emergent structures that we coexist with.<sup>2</sup> Philosopher Andy Clark refers to these structures as a cognitive technological environment.<sup>3</sup> Through the making of this project, by interacting with technological complexity, I came to a point where I saw this perspective as consistent with my reflections and practice because I experience these complex development loops in-between when I play and develop my instrument. Reflections on this topic led to a revision of my key question in March 2016:

**How can I develop a grand piano with live electronics through development loops in the cognitive technological environment of instrument, music, performance and my poetics?**

*What music arrives from this interagency?*<sup>4</sup>

*What reflections arrive from this interagency?*

In fact, the true power and beauty of the brain's role is that it acts as a mediating factor in a variety of complex and iterated processes which continually loop between brain, body and technological environment. And it is this larger system which solves the problem.<sup>5</sup>

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1 I should have used the term 'poetics' instead of 'aesthetics' to begin with. I regard poetics as constituting personal reflections on my practice and the results of that practice, as opposed to aesthetics, which I interpret as relating to a particular genre, field or more general theories on art perception and movements in the arts. I will use the word 'poetics' from now on.

2 Katherine Hayles. *How we became posthuman*. The University of Chicago Press, 1999.

3 The concept of a cognitive technological environment is discussed by philosopher Andy Clark in the article 'Natural born cyborgs'. <http://www.edge.org/conversation/natural-born-cyborgs>

4 Interagency: constituted from more than one agency: <http://www.oxforddictionaries.com/definition/english/inter-agency?q=interagency>

5 Clark, *op.cit.*

My reflections on the interplay-situation between the agencies of music (improvisation/composition), instrument, performance, myself (and the world) are shaping my actions. These attitudes are keys to how I filter information, how I process and deploy ideas. Accepting this diversity of voices is opening towards other sound-materials, ideas and technical configurations. How? By distributing music, videos, personal reflections, performance analysis and technical solutions in this document, I hope that glimpses of connections showing this intricate topography might appear. Even though this view of the process has made me less consistent, and more variable in my views (and in my playing).

Anyway, my projects outputs need listeners/readers and their individual experiences and reflections. My material becomes active when it meets your system of cognition. There are no rights or wrongs to how this material is understood or used.

**Viewing myself as a part of this interagency rather than being the autocratic master-and-judge of the process became a game-changer for me.** Maybe I am wrong, but I believe that many performers in my field are using and developing technology to realize concepts and ideas in a unidirectional chain of command. By leaving the paradigm of mastery, the line from idea/poetics to sound-realization through technical means is broken. By taking part in a system of distributed cognition, I see that I can get other artistic results. My sensitivity towards the exchange between ideas and attitudes, technical means and music becomes a catalyst. The output is not an extension of who I am or what's technically possible, yet it is made up by the dialogue in-between technologies, poetics and performances (and of course the world outside, which I will limit myself from discussing in this disposition).

Aims:

- **Doing research into techniques of multi-layering and accumulating sound using an electronically extended instrument.**
- **Strengthening, clarifying and reflecting upon the interagency between me, my music, my performances and my instrument.**
- **Developing my role, enabling me to use sound-processing as an integral part of music making to a degree where other technicians or technical conditions aren't too decisive for the final sonic result.**

## instrument setup (as of April 2016):

- A grand piano.
- The sound is picked up by a Yamahiko Pickup and two acoustic guitar piezo pickups, taking in different parts of the piano sound. One AKG 411 condenser microphone is mounted on a brass bottleneck slide to pick up sound when I play with it directly on the strings.
- A HelpInstill Piano Pickup system is used for high-volume projects.
- Two high quality condenser microphones are mounted very close to the resonant bottom, approx. 1–3 mm. away. For use with PA-system.
- A midi-bar (Moog PianoBar) is mounted on the grand piano keys picking up and distributing midi info. A novation 25 SL with TouchKeys interface and a Kenton Killamix Mini work towards the mixing interface in Ableton Live.

The sound and control signals are distributed to the following modules:

- A selection of effect pedals (also called stomp-boxes), most of them designed for use with electric guitar.
- A computer section with different audio and midi-tools, compiled using Ableton Live as the main CPU-interface.
- A second computer section with my own programming in MaxMsp, utilizing a random live recorder device and a random midi recorder device.

There is also:

- A selection of peripheral electronic sound sources interacting with the rest of the system.

The outputs from the electronics are routed to:

- Two moveable exciter loudspeakers.
- Two guitar amplifiers and two high-resolution PA loudspeakers for sound distribution. Sometimes a sub-woofer.

## me (and you)

'we are effectively black boxes engaged with black boxes in an exceedingly complex dynamic of perturbation/compensation.'<sup>6</sup>



[Video Examples Playlist – Ex. 1]

This is not a closed project. The music, my augmented instrument and reflections are outcomes of a 4 years intensive (re)search, a period in my life which I am very grateful for. This opportunity of going in-depth, the constructing, rehearsing and finally being elastic enough to play my music with new means has been one of pure gold. This process will colour the rest of my artistic life.

I want to invite you into my playing attitudes, reflections around my music, and technical insights obtained in this artistic research project. I will try to disclose what's inside the black box concealing it.

I like simple cornerstones in music. Melodies, chords without numbers, rhythms, lyrics. By augmenting the piano using different technological strategies, I try to engage in a more flexible relation to these cornerstones. I feel ambiguous towards them. I like them but I want to dissolve, mask, reshape, blur or destroy them. I need an instrument to help me realize this ambiguity in music.

The dialogue between instrument-building and music makes up the core of my project. I have taken on many roles. Technician, composer, performer, programmer, electrician, recording-engineer. Roles with their specific reflections, shortcomings and doubts. Engaging in a project like this is and should be a plunge into unknown territory.

<sup>6</sup> David Borgo. 'Openness from closure' in *Negotiated Moments*. ed. Gillian Siddall and Ellen Waterman. Duke University Press, 2016. Borgo talks about black boxes as human or nonhuman systems that we engage with and whose workings we understand, or sometimes do not.

## what could artistic research be (to me)?

'Frankly, it is not the poet that creates a good poem, it is the good reader.'

(Hans Børli, *Tankestreif*, my translation)

'It is not the voice that commands the story; it is the ear.'

(Italo Calvino, *Invisible Cities*)

Artistic research to me is to put artistic practice on display through artistic results and the reflections, insights, ambivalences and doubts that break the surface through the artistic process. The artistic output and reflection material constitute a body of work that may answer questions risen within the project and questions from the 'outside'.

The HyPer(sonal) Piano project is an attempt to make an instrument that communicates with and evolves alongside my poetics and performative needs. With this personal world-building and disclosure of the process, I am putting myself, my beliefs, my ambivalences and flaws up for display. The music is a manifestation of this world-building and the doubts following. The artistic outputs become verisimilitudes, a transmission of something that might not be true in a normal sense of the word, yet seemingly true in the power of belonging to a created world,<sup>7</sup> my world...

The HyPer(sonal) Piano project may generate a polyphony of questions.

The polyphony of 'answers' lies in the interplay between the technical tools, attitudes, performances, reflections and musical outputs presented here.

I believe that the artist's personal gaze, the doing through art and the reflections that follow may generate viable and effective insights without an exhaustive contextualization towards the field of art-science and art-philosophy.

*Scientific discourse seeks to eliminate ambiguity in its terminology and definitions. An artistic discourse would on the contrary often seek to be as polyvalent as possible, suggesting a network of meanings or implications.<sup>8</sup>*

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7 'Internal verisimilitude is the ...phenomenon of "seeming true"...not that it communicates "the truth", but that it compels us by its created world'. From a presentation by the director of the NordART center, Darla Crispin, opening the conference 'Unfolding the Process' at NMH, Oslo, 17-19 November 2015.

8 Lasse Thoresen and Andreas Hedman. 'Spectromorphological Analysis of Sound Objects'. Norwegian Academy of Music, 2001/2004. <http://www.ems-network.org/IMG/EMS06-LThoresen.pdf>

## methods

### Video analysis

In October 2014 I gave a solo concert at the Norwegian Academy of Music (NMH). Two years into this project, this was the first time I really felt that I could make proper music with the whole instrument, be flexible to make choices initiated by the music and not being held back by technical limitations or computer breakdowns.

Many examples throughout this reflection will come from the video of this concert. The concert can be watched in its entirety by clicking the link below. It is filmed with a head cam, showing the performance from my point of view.

[Video Examples Playlist – Ex. 2]

At this point I was reflecting on how the music and the instrument's mutual dependence could and should be a direct catalyst for the reflections in my project. I wanted this performance's taste of turning point to be the starting point for my reflection work.

My next move was to do a video analysis of the concert. I used the software *HyperResearch*, an analysis tool that let me extract parts of the video and write about them. This turned out to be a good writing exercise. The writing led me into my work from an unfamiliar angle, and the meeting between performance and reflection produced a substantial material. The writings from these sessions became material for further work. They contained pure sound descriptions, elaborations on musical, technical and compositional choices, and philosophical aspects that arose from the performance.

I exported the report from *HyperResearch*, looking for keywords and concepts that I saw as central elements in the performance. After a month of analysis and reduction, I had about 100 keywords. These keywords made the basis for this reflection, generating the topics and directions of the material. The reflections aim to preserve the intimacy with and interplay between the music and the instrument setup. Here is an example from the exported report. The different video snippets were categorized with codes, and each snippet has its dedicated annotations. I used two levels for the annotations: 1: A description of what happens and 2: A reflection on what happens.

Some examples from the exported report:

SoloKonsertNMH13OKT2014 Code: Loop material

00:05:30.845,00:05:40.845

Annotation: 1: Looping the voices in a four track software looper. (Mobius 2.5) Implemented in Ableton Live.

2: Makes the function and the meaning of the voices more hidden and abstract. Dampens the effect of using voice which is a drastic effect to begin with.

SoloKonsertNMH13OKT2014 Code: Musical stillstand due to tweaking the instrument

00:05:50.845,00:06:16.845

Annotation: 1: Setting up the next move by adjusting levels etc creates a musical stillstand.

2: Moving from one part to another in the music and in the instrument creates a lower energy and a feeling of process rather than musical making in action.

SoloKonsertNMH13OKT2014 Code: Leap: Improvisation mode to Song mode

00:06:10.845,00:06:30.845

Annotation: 1: The music moves from the improvisation over to the composed song.

2: The composed parts and the improvised parts share many elements. But they stand on different ground and have different motor and mentality. In the improvisation I am open to whatever idea is coming, and at the same time I know where I am going (to the composed part or a new improvisation). This is a contradiction that creates a musical tension. In the composed part I am also open to ideas coming, but the motor that is moving the music forward is more or less predetermined.

SoloKonsertNMH13OKT2014 Code: Adding elements to create crescendo and intensity

00:06:20.845,00:09:08.845

Annotation: 1: Working with the predetermined chord sequence, but adding elements to it and working with levels to create a crescendo and growing intensity towards a climax. Elements as distortion, pitched delay, granular delay, samples and reverb are added.

2: Working with the axis between tonal and dystonal to create a tension to the tonal material in the chord sequence. I like to cover clear structures with the use of processing, and I also think that this strategy gives an edge and energy to the music, making the written structure more "dangerous".

(I do not think it is useful to present the whole analysis I carried out in HyperResearch here, since that work was a catalyst for reflection more than an analysis for the analysis' sake. The material created by the 'free writing without pressure' was the main achievement using this method.)  
Yet, to keep the method open and transparent, the whole report can be viewed here:

[www.mortyq.com/documentation](http://www.mortyq.com/documentation)

## Notes

I have used Evernote software for notes during the project period, and I find it a good tool for structuring and finding back to older notes, pictures, videos and sound recordings with its *tags and search* functions.

## Text editing

When writing this text, I have used the software Scrivener, designed for novelists, screen-writers and such, people working with many fragments of text that they need to organize with ease along the way. Coming from my 'writing exercise' I needed this functionality. I wrote short texts based on my keywords, and I have moved them around in different folders, copy-pasted, cut-out, merged and reshuffled, very similarly to how I work with music in the recording studio. All of these functions are accessible in the Scrivener interface. For me, this helped me to maintain an open mind towards the text's form right until the end of the writing process. When I work in 'normal' text-editing software I tend to get stuck in a form very quickly.

## Interventions<sup>9</sup>

Intervention research happen when the researchers arrange a change in conditions, and compare the results to an original state. In artistic research we may use the method by putting up other conditions for the artistic practice, seeing in what way the interventions may change the practice. The intervention might perhaps interrupt or change materials, attitudes or situations of art making, and in doing so change the art.

Interventions in my project:

- Lab concerts presenting work in progress and discussing it: the jöK & seasick sessions that research fellow Ivar Grydeland and I arranged regularly during our projects, represent a clear intervention in our artistic processes. It was no longer a closed and private process, but a more open and open-minded situation that took new turns by the inputs from and discussions with people inside and outside our field.

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9 Either, 'the act or fact of intervening' or 'interposition or interference of one state in the affairs of another'.  
(<http://www.dictionary.com/browse/intervention?s=t>)



- Supervision extraordinaire! My first supervisor Henrik Hellstenius, and second supervisors Øyvind Brandtsegg and Eivind Buene, have gone all in with their immense proficiency and ability. For a musician, who don't have the writer's privilege of having a dedicated publishing editor, it has been a life-changing experience to have access to this to-the-point dialogue with people I have really got to know on a weekly basis.
- The deliberate complexity of the instrument. This imposes a lasting intervention to the musical output. The complexity generates a situation I can no longer fully control. This is a catalyst to changing my output.
- Other musicians have intervened in musical and technical aspects of my project. When I thought the instrument was 'there', that I had sturdy technical solutions, new sonic situations with other performers demanded change. This has led me to making several setup versions of the instrument, adapted to different interplay situations.
- The writing. I started writing these reflections in November 2014, when I had almost two years left of the project period. I have been working with them on and off since then. By doing this, instead of reflecting retrospectively, the writing has become a voice participating in the aesthetical, musical and technical exchange in the project. Especially, **the writing has been a major tool trying to comprehend the more or less abstract connections between the different agencies of the project.** I take part in a dialogue with the grand piano, poetics, music, technological tools and performances. The writing makes me clarify my inputs to and understanding of this dialogue.

Constructing the instrument, recording, performing and writing. All in parallel. This has been the guerilla-method of this project.

Interventions in artistic research carry the potential of finding new insights in artistic practice based on outspoken encroachments into the art-making process. This openness may reduce the risk that artistic research becomes an act of narcissism, a situation in which we seek to research and understand ourselves, resulting in introvert excavations locked off from the field that we are a part of. Interventions show us other angles and views of our artistic works and practice. By opening up the practice for the outside, I believe that we also open up insights hidden in practice, our so-called tacit knowledge. Knowing a little bit more about what that tacit knowledge is may result in greater elasticity in developing and sharing this knowledge. The artistic research is not a lonely act of digging into ourselves, yet it is an act of digging into the interagency that we take part in.

## **jöK & seasick**

From 2013 to 2015, research fellow Ivar Grydeland and myself initiated and held 12 lab-concerts under the name jöK & seasick at NMH. The idea was to lift the artistic laboratory out in public, open up for a live critical reflection on the artistic presentations and stimulate our artistic and reflexive works.

The audience consisted of students, research fellows, teachers, supervisors and other employees at the academy, and artists and musicians from elsewhere. The sessions started with 2x20 minutes performances by Ivar and me, and continued with 60–90 minutes discussions based on the performances. The audience was encouraged to contribute with their views and comments.

Seen in retrospect, the concerts and following discussions have been effective catalysts in moving my project. The pressure of trying to come up with new approaches every time, having direct feedback from an informed audience and the mirroring of my project in Ivar's project has contributed to this movement. Despite this, I see that these sessions could have been designed more carefully to be more effective. Audience-composition and clarifying the thematic of each session might have strengthened the reflexive and artistic outcome of this methodical move.

*This essential arena has been an amalgam of the ease of the rehearsing space and the tension of the podium. I believe that this climate has given me and my project different questions and answers than what would have been the case if I only were to present my artistic outcome in more formal situations.<sup>10</sup>*

This forum gave me the chance to do isolated tests of different modules in my system, playing with ideas in an instrument that was far from finished. This created unstable performances having interesting musical occurrences, flukes and failures. *The pressure of the podium* acted as fining and filter towards reflexive processes on which modules, ideas and strategies I desired to keep, and which I decided to discard during the project span.

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<sup>10</sup> <http://www.ivargrydeland.com/artisticresearch/node/50>

## **(B)Log**

[www.mortyq.com/documentation](http://www.mortyq.com/documentation)

From day one I initiated a project log on researchcatalogue.net. I have presented concerts, reflections and technical findings there along the way. I know that a group of interested people has been following my work there, a fact that makes me very happy. The log has had a similar function to the jök & seasicK concert series, as a place to present unfinished thoughts, bold statements and more or less successful artistic results along the way. It provided the pressure of the podium in the form of a public notebook...

In upcoming research projects I want more regular log posting and more functionality. At times the posting has been too sparse and not of adequate quality to stand as artistic research statements. In some phases I just didn't need the log to move on in my project, and it suffered from this. If I make a similar open log in the future, I should consider if the motivation is there to use it as a main tool of the process. I would also like to have the functionality needed for people to comment and initiate a public reflection of the works online.

For sure, this log is documenting that I have been researching and reflecting, but I felt that the easy access vibe of the log needed a little refinement to appear as focused reflections on the project. So I have decided to keep the log as source material, an archive that I have used when writing, alongside my keywords from the concert-video analysis. The direct perspective from the concert analysis and the more processual view of the log has fed this text from different beneficial angles.

### **Ambivalence**

**The disclosure of ambivalence, not only for myself, but to go public with it was a clear turning point for me.** It changed the psychological aspect of performing and making music a lot. Previously I needed to deal with doubts and limitations before I went on stage, a self-therapy to build the right level of tension and self-security before a concert.

**Now I take the insecurities with me. I trust them.** I enclose them as a part of performing. Doubts are not dangerous. They are vital. They invite me to explore, to do mistakes, to fall apart and to reassemble.

# hyper(sonal) piano<sup>11</sup>

## Hyperinstrument<sup>12</sup>

An instrument augmented with an array of electronics and playing styles, expanding the sonic palette of the instrument.

## Sonal

Pertaining to sound; sonic.<sup>13</sup>

## Personal

Of, relating to, or coming as from a particular person; individual; private.<sup>14</sup>

## Personalness

The quality of being personal or of belonging to a person.<sup>15</sup>

## Personality

Refers to individual differences in characteristic patterns of thinking, feeling and behaving.<sup>16</sup>

## HyPer(sonal) Piano

A piano with sonic extensions, made to establish a relation between instrument, personal sound imaginations, poetics, expressional needs and sound.

I want instability, melancholia, joy, doubt, memories, balance, nerve, light, tranquility, tears, darkness, laughter, pondering, flow and friction. That ambivalence I felt with my grandmother's piano is driving me.

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11 Working with Helge Sten for many years has been a foundation for this project. He introduced me to much of the technology I use today, including the Moog PianoBar, maybe the most important tool in my setup. Learning from his thoroughness in preparing instrument and recording setups, his honesty and conversations with him on musical poetics have had an invaluable impact on my work.

12 Other related Hyperinstrument projects that have informed mine are Hilde Marie Holsen's electronic trumpet extensions, the Metasax project by Matthew Burtner, Maja Ratkje's work with voice and electronics, Andrew McPherson's magnetic resonator piano, Tod Machover's self playing piano, Palle Dahlstedt's augmented piano, Victoria Johnson's work with electric violin and the Yo-Yo Ma Hypercello of 1991.

13 <http://dictionary.reference.com/browse/sonal>

14 <http://dictionary.reference.com/browse/personal>

15 <http://www.oxforddictionaries.com/definition/english/personalness>

16 <http://www.apa.org/topics/personality/>

# terrain

several viewpoints

not a single faced certainty

different views on the topography

ambiguity

a place for content to wander, vegetate or develop

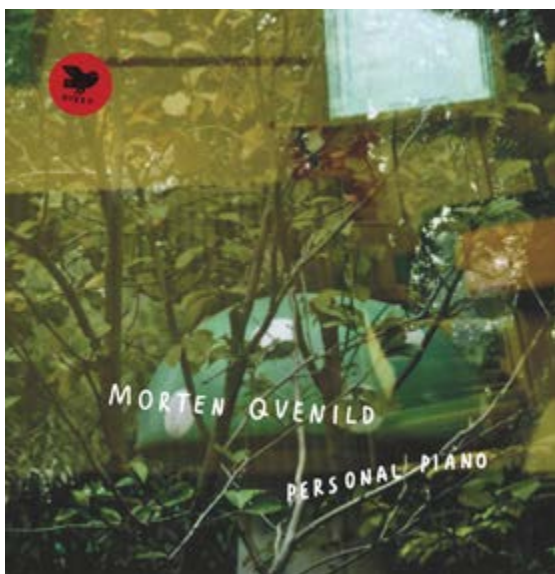
different view, different meaning



# II

## ARTISTIC RESULTS

## personal piano<sup>17</sup>



[www.mortyq.com/artistic-results](http://www.mortyq.com/artistic-results)

My project and especially this album came to life for one main reason: I really wanted to realize a personal song material with lyrics, and I couldn't do it with the piano as it was.

The solutions I found using the studio-tool was implemented in the instrument, and the instrumental changes I found when researching the technical field were used for recording and became integral in the music. The compositional process is now totally depending upon my instrument to function. **One might say that I have recomposed this music again and again using the instrument's attributes as a composition tool. And one might say that I have restructured the instrument again and again, using the music as technical tool.**

I wrote these songs in 2011–2012, at the same time as I applied for the position as a research fellow. I thought they would be a good backdrop for instrument-building. Mirrors for my sounds. I thought I could go ahead and make my instrument right away. Yet, when the instrument started to take form, and I was going to record these songs in the studio, a full-blown avalanche came. An avalanche of doubts, technical considerations, poetic reflections. There were no songs anymore. The songs had to adapt to the instrument, not the other way around like I had thought...

When the instrument changed, the composition started. The songs fell apart, became skeletons of ideas, bits and pieces, structural baselines. The instrument demanded re-composition. Further down the line, the music changed through this compositional process, establishing a dialogue between music and instrument. This dialogue opened up to a constant discussion in which both agencies underwent a change in response to the other. The music changed in ways that I didn't expect, and this again made for changes in the instrument. And so it went on: the songs were reworked again and again in the studio for almost two years. Then I finally could say: 'YES, this is the way I want the music to come across!'

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<sup>17</sup> Morten Qvenild, *Personal Piano*, Hubromusic, 2015 (CD, LP, Digital).

Workflow: Adding layers, editing, removing, writing, learning to programme, improvising, switching technical devices, new setup, reshuffling, programming, recording, improvising, rearranging, writing lyrics, patching, soldering, writing...

There was/is a paradox here. I also did this project because I wanted to move away from myself being the premise-maker and main source of content in the music. I wanted to leave something for the technology. But I called the project the HyPer(sonal) Piano... And made personal lyrics about depression and my daughter... Still, I have changed through the constant interventions that my project was exposed for: the supervision, the discussions with other research fellows, the short talks in the elevator (what is your project?), the private reflections, the public reflections, the public presentation of unfinished works, the electronic device's complex and partly autonomous voice, the writing. These occurrences have been mirroring me when making this album and doing this project. Now I am using these mirrors in my artistic process to a larger extent.

Here are some examples of song material from before/after the project start. The before-examples are from May 2011, and the after examples were recorded between January 2013 and February 2015.

Before [Audio Examples Playlist – Ex. 1]

After [Audio Examples Playlist – Ex. 2]

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Before [Audio Examples Playlist – Ex. 3]

After [Audio Examples Playlist – Ex. 4]

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Before [Audio Examples Playlist – Ex. 5]

After [Audio Examples Playlist – Ex. 6]



I needed to alter my voice

Change my instrument

The music changed, the instrument changed, my voice changed

This swirl, again and again and again

*between the stations*

*behind the temple, behind the spine*

*under the underwood*

*the piano slowly lying down*

*between seaweed and a plastic whale*

*the piano gurgling, floating*

*towards destruction*

*before it; against all odds*

*rises towards the surface*

*slowly slowly slowly (slowly slowly slowly)*

*the frail station of quietness*

*the transistor of slowness*

*the human piano*

*broadcasting all night long<sup>18</sup>*

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18 Excerpt from Frode Grytten's poem *Til Morten Qvenild*, performed on the radio programme Salongen, NRK P2, by Frode Grytten 25 January 2016. Translated by Morten Qvenild with permission.

## **Frame**

My music longed for other things, other directions. It talked differently, unfolded otherwise. The music became an amalgam of my personal voice and the instrumental complexity. Together they shouted out:

WE want pop music

WE want melodies

WE want resistance

WE want noise

WE want the birch, the listlessness, the kids, the snow, the James Blake, the words,

the wood, the Radiohead, the plastic, the running, the stutter, the kid, the pine,

the melancholia, the travelling, the travelling too much, the not travelling, the travelling to the wrong places, the cabin, the ash, the Olivier Messiaen,

the not knowing, the euphoria, the brooding,

the skis, the underground, the Murakami, the kayak, the country, the countryside,

the in the country, the dark chords and the shimmering flutter.

## the karman line<sup>19</sup>



[www.mortyq.com/artistic-results](http://www.mortyq.com/artistic-results)

In the beginning there was no music. There was Gard Nilssen on drums, and me on my augmented piano that was in the making. This was the first duet-experiment in my project. It was November 2013.

There were no rehearsals, no compositions.

There was a studio, Propeller. In Oslo. They wanted to test their new recording space for drums and a new grand piano. They invited us. This was also an experiment for them. None of us had an idea about what we were going to make.

We did our setup, tested sound, started to play. Talked a little in-between the takes. Changed setups. Played more. Words appeared when we talked about the music; abrupt, space oddities, ambient, darkness, energetic, cat fights, uneasiness. Some safe houses incarnated as small melodies, a chord sequence, a rhythmical pattern came to. References. Svein Finnerud Trio, Elephant 9, Beck's album *Sea Change*.

We listened. Picked out passages that we liked. Deleted others. Shuffled different parts. Reshuffled. Changed setups. Re-recorded some stretches based on what we heard. Went on like this for three days. New keywords appeared, images, titles. The Karman Line, the point in the atmosphere where the air is too thin for aeronautical flights. Chopping wood in my brand new moon boots. Landing day. Digital cigarettes.

Pause for three months. Listening on and off.

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<sup>19</sup> sPacemoNkey, *The Karman Line*, Hubromusic 2014 (CD, LP, Digital).

New studio session. Reshuffling. Composing with the improvised material. Doing drum overdubs. Playing recorded sounds through the grand piano and recording them once again. Abstracting the concrete, concretizing the abstract. Balance. Making the piano disappear/making the piano more visible.

My instrument was very unstable at this point. I used my different modules separately on this recording, focusing on one element at a time rather than layering and connecting them like I am able to do now. The work-method of improvisation and substantial editing made it possible to realize ideas in post-production that were not realized fully in the initial improvisation. This realization showed me what the material could be like if my instrument was constructed and played differently. **The method gave pointers towards strategies to realize material in real-time, but I needed the studio investigation to arrive at these strategies.**

Mixing. Finding rooms for the sounds. Connecting them. Separating them. Ambiences, dust, grains, edges, seasickness, ring modulation, distortion. Clean up. Bigger. Less noodling. More sub bass. Less clever. More 70's.

## duets

Playing in duets has been a specific arena for testing in my project. The making of music in these duets has happened spontaneously in real-time. The musical communication with the other reveals the flexibility and agility in the performer/instrument relation and the musical content that our instruments can produce. I get to mirror my musical expression in another performer and use the other performer's musical output as a catalyst for my own music making. This changes my output.

When performers create together in real-time, one might say that there is a negotiation going on, a negotiation that results in one collective output. **This negotiation puts poetics and technical solutions to the test. Closing in on or contrasting another musician's sound or expression can be a valuable work-situation to develop the instrument and the strategies on playing it.**

Playing solo, I have more time. I don't necessarily need to respond or change musical material very quickly, and this allows me to involve in complex transformations. I can have a different relation to how sounds are distributed in time, and let the instrument unfold more autonomously. In a duo or with ensembles I need more control, being able to respond quickly and with a content relating to the other performer's output. I base my output on simpler, fewer and more perspicuous processes to minimize response time. I adapt my sonic layout to the other performer's sounds. I am forced to work more simply and in a more clear-cut way.

### **DUO with Hilde Marie Holsen:**

[Audio Examples Playlist – Ex. 7] (from a studio session 21 June 2016)

[Audio Examples Playlist – Ex. 8] (from a studio session 21 Jan 2016)

)) *Triad chords, a shimmer, a broken trumpet tries to come through. Will she make it? Searching for every tone. Will she find it? The search is it.*

*Breathing, far beyond anxiety. Almost a respiratory failure... Is it possible to live in this place? It is blowing everywhere, from all directions. There is no heartbeat, no pulse. It is cold.<sup>20</sup>*

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20 These sound-examples are extracts of the duet work in progress. The duets with Hilde Marie Holsen, *Al Khowarizmis Mekaniske Orkester* and Gard Nilssen (sPacemoNkey) were presented at the closing concert on 16 August 2016. The videos of the closing concerts will be published as a part of an RC-exposition of the project.

Piano and trumpet. Electronics. Caught in a spider web of references from traditional jazz, Nordic jazz, ambient music... You name it. It sounds like we are searching for a way out of and beside these references. We are searching for an originality, whatever that is. We are trying to take a stand and comment on our references, and maybe also on yours? The ambient music, the tonality, the unresisting beauty, the noise music. We are trying to steward our inclination towards tonal material and our urge to go in the opposite direction. This tug of war keeps the music moving. It sounds like we are talking about this balance through playing. It sounds like we both try to be poetic but without the traditional means. No pure sounds. No melting together like butter. The poetics is in the resistance, the surprises, the strange hiccups, the irregularity, and the long distorted tone popping out of a windy, chaotic landscape.

### **DUO with *Al Khowarizmis Mekaniske Orkester*.**

[Audio Examples Playlist – Ex. 9] (from a concert at NMH 30 October 2015)

Another duo cooperation was done with Christian Blom and his work *Al Khowarizmis Mekaniske Orkester* in October 2014. This is an algorithmic instrument with bells, strings, bellows and a flute. It does not listen. It has all the challenges of a deaf and stubborn colleague. It will stay silent for five minutes, leaving the floor to the improviser, only to burst into something completely unrelated.<sup>21</sup> This calls for a different interplay. I need to relate to what the instrument is doing in real-time, but because there is no human interaction and no logic, it is impossible to know what is coming next. It is difficult to work with formal aspects because of this. On the other hand, I find that this chance-operation-based interplay is opening up for other musical and formal possibilities. These were my thoughts after playing this duo:

*The output of the mechanical instrument is very low on volume, especially the 'flute' and the 'string'-sounds. I had to place myself in the soft dynamic range of my instrument, working with details in a narrow dynamic area.*<sup>22</sup>

In the interplay with Al K. I couldn't use too many elements, and the result was that the single sounds and the details of my instrument became clearer and easier to grasp. **This experience was an eye opener for using the softer part of my dynamic register.**

Other duets: *sPacemoNkey* (See "the karman line" on page 26), with *Ivar Grydeland* (guitar and electronics) using the Folktek Sound Field, with *Thomas Strønen* (drums and electronics) on the Serendip Festival at NMH 2015, with *Pål Hausken* (drums) on *jök & seasicK*, with *Roger Arntzen* (bass) on *jök & seasicK*, with *Sigbjørn Apeland* (harmonium and manual wood-pipe organ) at the Orgelkraft Festival in Stavanger Konserthus.

21 From Christian Blom's reflection text on his artistic research project *Organized time – strategies for trans-medial composition*. Norwegian Academy of Music, 2016.

22 Text from my RC-log written down after the concert.

## memory #2

24 Feb 2015, 08:35

I am walking down the main street in Shibuya Tokyo. I see real people in a robotic, synthetic, neon lit world. This meeting... I want it to occur inside my instrument.

The mixture of synthetic and human is disturbing. The conflict and tension between nature's chaos and silence and technology saying Now! Come on! Buy me! Use me now cause I am dying in two years!

Make something new! Kinder, schaft neues!<sup>23</sup>

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<sup>23</sup> Wagner's injunction in a letter to Franz Liszt in 1852.

III  
TRAILS



**The movement on trails makes up my music. In between opposites like tones and noise, regularity and irregularity, instrument and music, soft and loud, public and personal, kitschy and refined, open and closed, improvised and written, tuned and detuned, smooth and coarse, pleasant and uneasy, shimmering and dark, safe and insecure, distanced or locked in an embrace.**

The HyPer(sonal) Piano can move my music and me away from the tonic sound object, the melody, the pulse, the equally divided rhythms, the clarity. I imagine that there are trails from these safe spots, going towards other terrain. The instrument is extending my reach down these trails.

*Why trails?* An axis establishes opposing poles and a line in between these. I am wandering, but seldom in a straight line. Trails can go in circles and they twist and turn. When moving on these trails, I am using and changing the topography of my project. There are trails from A to B, and there are round trips. There are trails taking me far away and trails close to home. Trails that you barely see. Trails that carry 20 tons of logging machinery. I like trail-running, preferably for a long time in a slow pace.

The relation between oppositional places make up the trails of my project, decide where they go, their pass ability, elevation curves and surfaces. The instrument's attributes, the music, the listening and the performing situation constantly change the trails AND the terrain.

Trails have emerged through the instrument-building, the improvisation, the composition, the reflection and the performances. This process has pointed me away from a pitch-based material, going towards noise, accumulations, irregularity and complexity. To describe this process, I have stolen some concepts from the theories on spectromorphology by Lasse Thoresen and others.<sup>24</sup> Yet, I use these concepts adapted to my music and reflections. The theory has acted as a source of inspiration, especially through its descriptions of axis and transitional objects.

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24 Thoresen/Hedman, *op.cit*

The following text is structured in these categories:

**Trails on sounds and sound-layers:** Flow–friction, tonic–dystonic–complex, soft–loud, one layer–many layers, bright–dark, tuned–detuned, fine–coarse, rest–motion, close–distant, far from source–close to source, hiding–revealing, comfortable–uneasy, idea–representation.

**Trails on composition:** Flow–friction, improvised–pre conceived, idea–representation, hiding–revealing, close–distant, safe–insecure, predictable–random, comfortable–uneasy.

**Trails on performance:** Flow–friction, creating–tweaking, hiding–revealing, analytic–mindful, safe–insecure, interplay–internal play.

**Trails on instrument construction:** Flow–friction, safe–insecure, interplay–internal play, weight–function, function–flexibility, software–hardware, acoustic–amplified.

I imagine the act of constructing an instrument and playing music with it as maneuvering on many trails simultaneously. If I play a pass with a very clear and simplistic melody, I might try to dissolve the rhythm to destabilize and destroy the beauty. If there are no harmonic structures, I might try to establish a rhythmical pattern to structure the situation otherwise. If I use a delay-device, I must move the filter-device elsewhere in the effect chain to have the desired control over the frequency spectrum. If one part of the setup grows, other modules are affected. Where I am situated on one trail determines where I am going on another ([See "fx pedal section" on page 127](#)).

## flow-friction



[Video Examples Playlist – Ex. 3] (from a solo concert at NMH 30 October 2014)

)) *There are several materials here. One gravitates towards a steady pulse. One is threatening to dissolve it. One is tonal and one is disturbing the tonality. The music is moving, accelerating and decelerating, but still moving. Materials rubbing create vacillating shifts between unstable and stable.*

The flow-friction trail is a primary one in my project, and relate to many levels. This dichotomy is a premise for many of the trails and concepts discussed later in this text.

1) **The sound object level:** How do the sounds play out, are they obstructed by occurrences in the sound itself or in the surrounding sounds? The processing of a pure sound can be viewed as imposing friction onto the pure sound.

2) **The compositional level:** How do the structures and improvisations play out? Is it music with elements in opposition or harmony?

3) **The performance level:** What situations make me as a performer experience flow? How do I relate to the input from the room, the instrument or other performers?

3) **The rhythmic level:** How does the altering, dissolving, nudging and stuttering of rhythm affect the flow-friction correlation in the music?

4) **The instrument setup level:** How does the instrument cater to the musical needs? Do the musical ideas flow through the instrument or are they met with resistance and interference from the instrument's own complexity, its own voice or autonomy?

The room in between tonal sound and noise holds a potential of friction. This room opens for other expressions and readings by engaging our inner library of tonal references. Lasse Thoresen coins this *dystonal* sound.<sup>25</sup> **The dystonic landscape is questioning and challenging my references.**

The flow/friction in the playing situation is related to the different tools of the instrument and how they project and process/abstract/obstruct the musical material. They can add friction in the surface of a sound, obstruct regular rhythm or create contrasts between materials. The tools impose friction on many levels. Some hinder flow and some contribute to it. I think that friction is transforming the musical output to be more dangerous, insecure, ambiguous and darker. There is a flow-friction correlation in the music that the processing- tools can alter, nudge or destabilize. **The ability to create friction is a main reason for me to use electronics the way I do.** All the processing, feedback, transformations, playback and abstractions happening in the instrument are creating sonic depth, gravity and layers chafing, generating resistance and traction for the musical material.

I imagine, and hear, flowing elements and frictional elements at play in my music. Working with this balance is one of the main tasks when processing and abstracting the piano sound and the peripheral sounds of my instrument<sup>26</sup>. The complexity of the instrument creates friction towards me. The flow that Sten Sandell is describing are somewhat hindered by the large creature surrounding me.<sup>27</sup> My ideas are met with the instruments autonomous voices, hindering their flow through the instrument. I experience resistance in my performance, and I want this resistance to happen.

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25 Thoresen & Hedman, *op.cit.*

26 By *peripheral* I mean other sound sources that are incorporated in the instrument's electronic setup. (See "emulsification" on page 100).

27 *Sitting in my childhood home in a big room, and suddenly discovering, in an act of seeing, the entire room at one and the same time. Seeing the whole room, without glancing to one side or the other, with its ceiling, walls, windows, light and furniture. A strange feeling of being in a state of total seeing occurs, a state that begins when flow arises in the music, and I just am in the space with all its sounds and impressions. Is there a sounding language in front of, behind, beneath, over, and between us?* Sten Sandell, *On the Inside of Silence – English summary (PDF)*, <http://www.stensandell.com/object.php?id=68&l=e>



[Video Examples Playlist – Ex. 4] (from a solo concert at Kongsberg Jazz Festival, 4 July 2015)

)) *A song played on the piano. The drums follow the pulse of the song, but the same drums are stuttered and add a second layer disturbing the pulse. Piano is processed and comes out as dystonic grains.*

## memory #3

Autumn 1996

Hearing *Song for F* with the band Close Erase at Gyldenløve Hotel in Kongsberg established friction and resistance as a central figure in my thinking about music. The band, comprising Christian Wallumrød, Per Oddvar Johansen and Ingebrikt H. Flaten, showed a way of playing where they held back on the music's propulsion, adding an original gravity and elasticity in their timing. The music didn't feel light-footed like many of the other jazz-bands I listened to. This music had more resistance, like running in a bog. I like that.

flow is balance

friction swampy

flow is letting go

friction is analysis

flow is forgetting

friction self-aware

flow is movement

friction stutters

flow needs resistance

stopping needs friction

flow is generative

friction distorts

flow is feedback

friction will feedback

friction is unstable

flow is absence of thought

flow occurs unexpectedly, often when worn out

flow needs gravity

friction is gravity

flow is not self aware

flow is pulsating

friction is vacillating

flow ist geworfenheit

# Trails on sounds and sound-layers

## tonic – dystonic – complex

The theory of Spectromorphology leans on Pierre Schaeffer's ideas on *l'écoute réduite / reduced listening*, aiming to zoom in and describe the single sound object. A pure piano note is a tonic sound object, with a defined pitch. A dystonic sound object consists of both pitched and un-pitched material. This trail points further from the dystonic sound through complex un-pitched sounds and towards the other extreme, white noise.

**In my instrument and the music I am producing, sound objects are organized in layers and the relationship between layers become important.**

When my musical output moves from tonic material towards dissolution, I find that there is ambiguity arising within the music. Moving towards more complex sound layers creates an unstable situation where the music may go in many directions. These situations nod towards the very core of where my music is feeding, a paddock of ambivalences and emotional complexity.

The following examples show that it is difficult to isolate a single sound object in my instrument (and in my music). I am hitting the keys once, yet the output consists of many layers that are initiated by this one hit makes these sounds.

A tonic foreground layered with other tonic sounds, one with a vacillating surface:

[Audio Examples Playlist – Ex. 10]

A tonic foreground layered with a dystonic layer and a tonic vacillating layer:

[Audio Examples Playlist – Ex. 11]

A tonic background with complex layers in the foreground:

[Audio Examples Playlist – Ex. 12]



## The tonic to dystonic music

[Audio Examples Playlist – Ex. 13] ('Hilma', *Personal Piano*)

)) *The detuned piano is threatening to dissolve the tonic quality of the chord sequence. There are several sources of noise material, a processed harmonium in the high spectrum, an artificial voice, a piano that moves far below its normal habitat, one pulsating noise panned to one side and a bit-reduced piano sound panned to the other side.*

*Working with the path between tonal and complex create friction in the tonic material of this chord sequence. I like to cover clear structures by the use of processing, and I also think that this strategy gives an edge and energy to the music, making the written structures more dangerous.<sup>28</sup>*

### Energy

Edge, energy, danger... What does it mean? There are elements in this music capable of tearing it apart, taking over as the driving force. This music can go many places. It is somewhat testing its own contingency, there is an uncertainty to where it wants to go. From my point of view this pulling in different directions adds energy and transforms a naïve and stubborn chord sequence into a dark and potentially explosive force by introducing doubt, staggering and instability.

### From dystonic towards noise:

What attracts me to noise is that it engages my imagination, my inner ear. A constantly shifting mass of sound points in many directions, and I (probably because I want to extract some meaning from this mass) start to hear structures, notes, melodies, timbres that are not really there. When the point of departure is a clear melody or a harmonic structure transforming into noise, I imagine the noise absorbing the structures. They are at the verge of destruction, but they can still be heard in my inner ear. **The destruction of beauty makes the beauty come across stronger.**

[Audio Examples Playlist – Ex. 14] (From jöK & seasick #12, 02nd March 2015, NMH)

[Audio Examples Playlist – Ex. 15] ('Aeronautics', sPacemoNkey, *The Karman Line*)

Both examples have dystonical objects in the foreground layered with several complex objects. (See "one layer – many layers" on page 45)

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<sup>28</sup> Quote from my initial analysis of this video-clip.

## soft – loud / idiomatic – non idiomatic dynamics



[Video Examples Playlist – Ex. 5] (from a solo concert at NMH, 30 October 2014)

)) *A sudden stop, the distorted overtone is still at play. Then, a machinery inhibits the piano, making it sound like a myriad of different unpitched sounds. A feedback sound and a Theremin sound engage in a dialogue above the carpet of machinery. Lost control. Drastic dynamics. The machinery's potential energy. The feedback and Theremin sound break out and use it.*

*The myriad stops. A simple ostinato starts. Clean. Low volumes.*

I play with Knut Reiersrud on guitar and he plays an amazing blues-solo before me. With an acoustic piano I might as well just lie down and cry. But now!!! The piano is a guitar. I can bend and stretch the notes. Create feedback in the amp like my heroes. Use distortion to deliver a frequency spectrum pointing towards the stars. Wind in my hair (or wind machine). Drums beating away, loud. The revenge over the guitar players that could turn up their amplifier and drown the piano sound completely...

Expanding the sonic palette of the piano gave me an urge to expand the dynamical palette of the instrument, making the instrument sound much louder and much softer than an acoustic piano. Now I am able to be the guitar that can play louder or the silent whisper that is barely heard.

The electronics hold a new range of dynamic tools. I can make dynamic shapes that are not possible with an acoustic piano. The electronic instrument's valuable (and dangerous) feature of turning the volume up or down is introduced. Amplifying the acoustic instrument above its limit of feedback is also possible. I like using feedback as a source of sound, because I like the unpredictability and the

inherent dynamic signature of this process (that can rise from a soft sound to a very loud one in no time). Feedback introduces attributes of danger and lost control.

Here are some examples of using my augmented piano creating different dynamic shapes:

### **Categories<sup>29</sup>**

1: **No profile/static** sound (sound that do not change in time):

[Audio Examples Playlist – Ex. 16]

Made using a distorted feedback of the piano contact microphone through a Squarewave Parade Pollen pedal.

2: **Weak dynamic** profile (sound with slow undulation in time):

[Audio Examples Playlist – Ex. 17]

Made with the Strymon Big Sky pedal, glimmering and with infinite reverb. Two other layers, one with a synth pad and one with white noise with small irregular dynamic shifts in all layers.

3: **Formed dynamic** profile (an object in balance with a start, middle and end):

[Audio Examples Playlist – Ex. 18]

Made with the IRCAM/UVI prepared piano sample (clothes pin), and a tail of synthesized sound using the OP-1 with midi-info from the grand piano keys.

4: **Impulse-like dynamics** (percussive sounds. A sudden thrust and then a fast decline in energy):

[Audio Examples Playlist – Ex. 19]

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<sup>29</sup> These dynamic categories are taken from the ‘Spectromorphological Analysis of Sound Objects’ article

Made by hitting the keys in a staccato manner, yet sampling this sound and creating a hold-function with the Squarewave Parade Teaspoon window sampler.

5: **Cyclic dynamic profile** (repetitive dynamic changes in time):

[Audio Examples Playlist – Ex. 20]

6: **Vacillating dynamic profile** (vacillating dynamic changes in time):

[Audio Examples Playlist – Ex. 21]

Both examples are using the Red Panda Particle pedal.

**Onsets:**<sup>30</sup>

The HyPersonal piano has possibilities of a wider range of onsets than the acoustic piano. With the electronic extensions I can create a swollen onset introducing electronic sound towards the acoustic onset. I can also play a gradual onset in the same way and I can create a tone with no onset using no acoustic sound at all by pressing the keys silently down and let this start an electronic process. I can also start the piano tone's vibration with an electromagnetic playing device called eBow.

**Swollen onset** (a distinct onset that swells immediately):

[Audio Examples Playlist – Ex. 22]

Using the Squarewave Parade Teaspoon.

**Gradual onset** (onset rising gradually from zero volume):

[Audio Examples Playlist – Ex. 23]

Using eBow on the strings.

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30 These onset categories are taken from the 'Spectromorphological Analysis of Sound Objects' article.

**Silent onset with electronic sound** (onset where the piano is silent, yet the midi sensor triggers electronic sound):

[Audio Examples Playlist – Ex. 24]

Midi signals from grand piano keyboard start an electronic process.

## one layer – many layers

[Audio Examples Playlist – Ex. 25] ('Hilma', *Personal Piano*)

)) *Piano chords. One layer with clean piano and one with a pitched and time manipulated piano recording. Scraping sounds from trying to hear my daughter's heartbeats with an ultrasound machine when Rønnaug was pregnant. Another layer. You can hear the heartbeats. A robot voice says fright, flew, you, close, true, live, long, strong. Another layer. The intensity rises. The robot sounds are abstracted. Love. Lust. A heavily processed harmonium comes in. Another layer. Piano sent through a stutter pedal. Another layer. Fright, you, flew. The piano is gradually destroyed, as everything else. The layers transform. Me, live, long. Singing. The intensity falls. Hilma's heartbeats. Chords. Singing, closer now. Wooden sounds. A sudden dynamic rise. A piano figure pops out. It is the piano that I learned to play on when I was a kid.*

The layers sounding simultaneously relate to each other in their contribution to the sound output. The relation between the layers, the scraping and chafing creates frictions, pulls in diverse directions. Their dream of a total union will never be fulfilled.<sup>31</sup>

Keep dreaming about perfection. You hold a mirror for the imperfect.

The vast space between layers holds potentials of motions, implosions, tractions, negotiations, intensities, frictions, and explosions.

I pull the strings of this in-between. For every bit of imperfection or contrast I add, the tensions differ. And so does the meaning of the sound. Total union is beyond reach, the love of another cannot abolish that.<sup>32</sup> Chaos is human. From the utopian perfect fusing of layers to the total opposition between them. On this trail I can move and express myself.

### Sounds

The layers of sound can accumulate towards the point of a full sound spectrum, the noise. The layers move in pitch, dynamics and frequency profile. They change in length and gait. Their accumulation brings chaos, but the movement in-between layers will produce new constellations in the music.

31 'Naming of the total union: "the sole and simple pleasure" (Aristotle), "the joy without stain and without mixture, the perfection of dreams, the term of all hopes" (Ibn- Hazm), "the divine magnificence" (Novalis); it is undifferentiated and undivided repose...!' (Roland Barthes, *A lover's discourse: Fragments*, Hill & Wang, 2010)

32 'Dream of total union: everyone says this dream is impossible, and yet it persists, I do not abandon it...!' (*op.cit*)

Layers constantly shifting: imagine several opaque images moving inside the same frame. Or clouds drifting.<sup>33</sup> Each image will be variably visible, and the total will shift constantly. An ever changing image, yet with the same main compositional elements. The electronic memories of my instrument and the processes that transform material gradually are at play here. When many layers play out more or less autonomously and simultaneously, the result is a system that is unpredictable and seemingly has a life of its own. An accumulation of sound that erases the single layer's identity, creating an output not possible to dissect.

- One musical structure in the piano can be dubbed in other sounds using midi signals from the PianoBar.
- The instrument can play back material recorded earlier in the musical pass or in another setting.
- The different processing systems can refract the same input, creating different outputs.
- The same sound can be sent to different loudspeakers and amplifiers, giving the sounds different spatiality.

**Layers** and **coating** are connected. The piano sound's surface can be processed in different ways, and with its individual coating each version becomes a layer in the total.

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33 Layers and the notion of clouds drifting are also found in Ivar Grydeland's webpage with reflections on the project, 'Ensemble & Ensemble of me, what I think about when I think about improvisation'. Our projects have evolved together in the same institution, mostly through the presentations and reflections made as part of the jök & seasick series.  
<http://www.ivargrydeland.com/artisticresearch/node/51>  
<http://www.ivargrydeland.com/artisticresearch/node/50>

## Pitches

[Audio Examples Playlist – Ex. 26] (from a solo concert at NMH, 30 October 2014)

)) *One pitch in the piano. Another pitch a prepared piano sample with the exact same timing. A third layer with a distorted and stuttered effect. The combination liberates the piano from its tempered tuning. No, that's an illusion. The pitch of the piano is still there, but the other deviant pitches are covering it up. The sum of these microtonal relations decides how far 'off' we perceive the tonal result.*

Detuned, dissolved, likely to fall apart

The different tunings and timbres create conflict in the material, pointing towards a dissolution or implosion.

*Fix it*

*Untie it*

*Grasp it*

*Lose it*

*Decontextualize it*

The keeping of pitch and dystonic qualities in the same instrument at the same time lets the instrument grow tentacles. They can reach out in many directions. Towards and away from references, emotions, tonality, notions, chords,<sup>34</sup> homophony, heterophony, polyphony, melody.

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34 "I found those chords in an old room, very far away. The door to the room was open then," she says quietly. "A room that was far, far away." She closes her eyes and sinks back into memories. "Kafka, close the door when you leave," she says.' Haruki Murakami, *Kafka on the shore*, Vintage International, 2006.



## tuned – detuned

[Audio Examples Playlist – Ex. 27] ('Blown Away', Personal Piano)

The starting point: a piano, 88 fixed pitches with equal temperament.

(I could have brought and used a tuning wrench of course, but no one would hire me and I would be the most unpopular piano-player in the universe, especially with the piano tuners. And, to be honest, it's the relation between tuned and detuned material that I find most interesting.)

I often envied the other players that had the possibility to work with tuning as a part of their musical expression. I wanted that as a part of my instrument too. Deadly inspired by listening to Harry Partch, the instruments and scale system, I started to search for possible ways to dissolve tuning.<sup>35</sup> My instrument can layer the tuned sound of the piano with other detuned sounds. The tuned sound of the piano can be muted by holding the string or playing so soft that there is no sound. The layers of detuned sounds can drown the tuned piano by its volume. The tempered pitches could be more or less present.

The piano sound has a fixed tuning, so the impression of detuning is made by layering sound with different tunings or layering the original piano sound with tuning-processed material. The ring modulator, PT-10 delay, Teaspoon, Rainbow, Arpanoid, Particle, Oto and Blue sky alters tuning. In the digital module, all the devices except the Compressor and Twin Tremolo effect can alter tuning. (See chapter VI on page 154 for details.)

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### 35 memory #4

12.09.2013

Harry Partch, Delusion of the Fury, Nationaltheatret – Oslo, Ultimafestivalen.

The German ensemble MusikFabrik and director Heiner Goebbels had reconstructed Partch's entire fleet of instruments, and performed this work as a theatrical piece.

I was there. I suddenly understood where the poetics of Tom Waits, expressed in songs that I have listened to for many years came from. The deliberation of pitch and the sound qualities of these instruments felt like a landmark.

## bright – dark

The bright or dark characteristics of a sound are depending on how the sound spreads in the frequency range. This establishes the trail between dark and bright.

My instrument palette ranges from dark to light, depending on register, what microphones, amplifiers and loudspeakers I use, processing strategies and what peripheral sound sources are involved. The filtering tools and different sound-distribution outputs of my instrument allow me to work with transitions and sudden changes on this parameter. Now that I can perform drastic changes in the domain of brightness and darkness, they take a more important role in my music making. When playing, I am constantly listening to analyze the expanse of sounds I produce, and to decide what area of the spectrum my sounds inhabit. I can filter a sound to be bright or dark, depending on what function I want for this particular material. A filtered, small sound with limited brightness and darkness may for me be a soundification of fragility and vulnerability. A sound containing more of the spectrum is often more obstinate and stronger in the musical hierarchy. I can enhance the high-end to be able to cut through in interplay. I can also boost low end to make the piano work in a sub-bass area, an area where the acoustic piano is not initially native.

[Audio Examples Playlist – Ex. 28] (improvisation from my studio)

[Audio Examples Playlist – Ex. 29] ('Darkness', SpacemoNkey, *The Karman Line*)

In my pedal setup there are several options for filtering sound. The impedance input can be adjusted in the Radial DI, affecting brightness. There is also a lo-cut option on this device, used if the low end is difficult to control. The first link of the effect chain is a TC electronic BodyRez, enhancing the mid frequency area and making me able to play at higher volumes without feedback issues. Next there is a bass/mid/treble (ToneBone) EQ to adjust pickup sound before processing. There is lo-cut on the direct signal and hi-cut on the delay signal on the Bugbrand Delay. Finally, there is a parametric digital EQ that can work narrower spectres, taking away or adding frequencies before the amplifier. The amplifiers response also plays a role, the attributes and size of the loudspeakers decide the sensibility to feedback and the uniformity of the sound between different registers. I will rather use smaller than bigger amplifiers and loudspeaker-surfaces, because they are more precise and uniform.

The Delta III, the Teaspoon, the Decapitator plug-in and the Pollen pedal adds distortion to the sound, ranging from subtle to extreme. The Rainbow machine, Arpanoid and ring modulator can add brightness to the sound, generating sound material in an adjustable frequency specter. The Hadron and Crystallizer takes sound info and pitches it up or down, adding to certain frequency areas. The sample and synthesis devices like the OP-1, the prepared piano and Bassline dub the piano sound with sound that can be tweaked to a specific frequency profile.

## fine – coarse

[Audio Examples Playlist – Ex. 30] (from a test in my studio)

)) *I hit a chord. I play it back through my guitar amplifier. It sounds a bit coarser than it was. I process the sound. I play it through a detune process. The tuning is altered with a sine wave moving above and below the original center of pitch. I engage the red panda particle pedal. It takes this detuned chord and breaks it up into little grains. The sound was a big flake that just broke into a thousand pieces and now it is a sky of falling dust. I disengage that pedal. The material's surface is again whole.*

Electronic processes can be used to alter the granularity of the original sound, making the sound surface coarser or slicker. Processing will not only alter the sound, it alters the musical meaning and function of the sound in the compound. A slick sound will have a different function than a rough sound.

When the piano sound meets the microphone the grain structure of the sound changes, the sound resolution is lower and its spectrum is narrower. The choice of microphone and preamp decides the coarseness. Using contact or dynamic microphones are making the sound less detailed, while using a condenser will give a higher resolution (and far more feedback problems). All the distortion processes in the system are making the sound rougher and grainier. The Lo-Fi loop sampler is making a very grainy representation of recorded materials, as do the time-stretch and random functions in the *MaxMSP 4 track recorder* ([See "digital section II, Max" on page 123](#))

The effect chain with the Hexe Revolver and the Teaspoon is degrading and adding roughness to the sound surface, as does the bit-crusher functions of the Oto machine.

In the digital section Hadron, Decapitator, Buffer Shuffler and the Spectral Harmonizer work in this domain.

## rest – motion

[Audio Examples Playlist – Ex. 31]

**A sound with a vacillating surface tends to lose its foothold. It is ambivalent and restless.**

A sound can give the impression of rest or motion. The motion can alter the pitch, dynamics or frequency profile of the sound. My focus is often on how I can manipulate the surface of the more or less fixed acoustic piano sound.

I have a crush on vacillating movements in a sound. A cyclic or regular motion in the sound surface makes me lose interest in the sound. **A sound with a vacillating surface can hold my interest much longer. It is ever changing. I can perceive the main essence of a sound quite quickly, but it is the irregularity of the surface that engages my brain, keeping me on the lookout for new patterns.** The changes in the surface make me want to experience the sound again and again. The erratic movements point sound in unpredictable directions.

Expanding the sonic palette of the piano means working a lot with altering the piano's sound surface. A strong surface motion or altered granularity of the piano sound transforms the expression, even if the original sound representation is still there. Ring modulation is a good example, used here on the piano layer.

[Audio Examples Playlist – Ex. 32]

The Tremorama is working with the dynamic gait of the sound, and the Buffer Shuffler in the digital system is working on the same thing. The Rainbow machine Arpanoid, Ring Modulator and RP Particle can add a wide variety of gaits. The Blue Sky reverb, Valhalla reverb and the PT-10 delay adds adjustable modulations to the processed sounds.

All the recording devices of the system can add pitch gait to the recorded materials.

## close – distant

[Audio Examples Playlist – Ex. 33] (*sPacemoNkey*, *sPacemoNkey*, *The Karman Line*)

The reverb processes in the instrument have the potential to impose different types of ambience onto the sounds. Different artificial rooms, spring reverbs, plate reverbs; the ambience will decide the feeling of distance to the sound, how the sounds are perceived and how I play them.

The task of reverberating different sound sources in amplified settings is often given to a sound engineer.

I wanted to get away from this work method, because I see reverberation as a musical tool, alongside all the other sound processing that I do. **An important aim in this project was to take back the control over how my sounds were processed in the mix, both in the studio and in the live situation.**

Reverb move sound from near to distant, from tactile to intangible.

The same sound can, with different types and amounts of reverb, obtain different spatial placements. This decides the sound's role in the totality. Moving on this trail creates a dimension of depth in the sound image.

The main reverberation tools of the instrument are the Blue Sky, the Valhalla reverb and the Fender Deluxe reverb unit. The colour, length, naturalness, motion, bi-products like shimmer or noise and response of the reverbs differ and create a signature which is unique for each of the reverbs. Tweaking these parameters in real time will move the sound on the close-distant axis.

## far from source – close to source

The piano and its acoustic sound is the starting point for the electronic processing. When catching this sound and using it to generate new sonic material, the result varies in its fidelity to the original sound source. High fidelity means reproducing the source accurately. The trail is going from processing the piano in a manner true to the original sound towards a point where the processed sound no longer relates to the original source.

All parts of the signal chain contribute with changing the processed sound's fidelity. The resolution, quality and placement of the microphone, the quality and sonic attributes of preamps and other hardware, the bit and sample-rate of the digital equipment (bit reduced piano is one of my favorites)<sup>36</sup>, the attributes of the digital processes at play and the quality, placement and resolution of the loudspeakers distributing the sound. The piano in this passage is processed with the OTO machine, adding bit reduction to the sound.

[Audio Examples Playlist – Ex. 34] (from a studio session with Hilde Marie Holsen, 21 June 2016)

**A potential for expression lies in-between the presentation of the acoustic sound and the re-presentation of it in a processed sound material.** The electronic processes can act as a solvent to the piano. Dim or dull it. A colour or sound being contrasted is perceived as stronger.

The electronic sounds create sceneries for the piano to merge with or be alienated in. The other sounds introduce a constantly shifting light on the piano sound. Different fidelities alter the function of the piano-sound and generate contrasts. The distance of expression between the piano and the processing that relates to it is a musical catalyst.

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36 Bit reduced piano sound has this weird balance between a sound we know as acoustic and an exaggerated digital signature made by limitations in the digital sound-resolution. I find this blend very expressive.

## idea – representation

There is a crooked path from sound-idea to sound-realization. Where does an idea come from? Sometimes from my inner ear, other times as a response to the instrument's sounds and behaviours. When an idea occurs, the realization of the idea in the instrument as sound starts changing the idea. **The relation between idea and sound should be one of interaction.**

The idea of a sound is impossible to realize as sound. The sound will always be different from the idea. Then, if the idea serves as yardstick for the quality of the *sound as is*, the sound will be judged as a failure. The sound needs to be changed, not the idea. If, on the contrary, the *sound as is* serves as a guideline for evolving the idea and vice versa, there is a dialogue going on that may change the music.

We see it all the time: concepts override auditive results. The ideas are good, yet the sonic output doesn't match in clarity and complexity. The brilliant idea might not work as sound or music. I feel the urge to evaluate and re-evaluate this aspect again and again, making sure that I am not tricked into being blindly faithful towards the ideas, not listening and evaluating the premier aspect in music: the sound output.

Mantra:

It is easy to be tricked into thinking that a good sound-idea always will work sonically. That is a mistake. Stick with what you hear, not what you think.

# Trails on composition

## improvised – pre-conceived

I write songs and lyrics. I carry them with me, they change from day to day when I am playing them. I want them to appear as fresh, even though they are old. I improvise, meaning I change them on the spot, add new parts, different instrumentations, other sounds. Maybe I use a slightly different setup. I try to stay sensitive to how that song wants to play out on that particular day. **In the live-situation the songs often transform into or merge with improvised parts. These transformations play an important part in my performances.**

Ideas, textures, sounds and structures have emerged in the studio or at the rehearsal space and become part of my performing experience and poetics. I carry these with me, importing them into the present moment when I play. In the playing situation I let the preconceived material and my improvisational practice meet. They oscillate. This is one way I compose the present moment.

Improvisation to me is an attitudinal tool of trying to be flexible towards my preconceived materials; I interconnect them, reshape them, reshuffle them. An attitude of being open to whatever may occur of mistakes, new sounds and unheard directions in the music. My improvisations are heavily biased by materials from the past. My materials are me. The listener will hear that this is me, even though there are differences in every performance and on every recording. I go inside materials, improvise with them, twist and turn and see what comes out. Occasionally, something new and unheard occurs. If I like it, I take it with me in my archive.

A majority of the improvisations on *The Karman Line* album come across as written parts, even though they are not. This is because many of my improvisations generate chord sequences, a melody or some regular rhythms, elements that may be perceived as written. This haphazardness attracts me.

My improvisations use materials from the past, and sometimes they develop into detached movements of playing, it becomes something new (to me), something of the present. Improvisation to me is a lens of refraction, it treats and changes the matter from the past, showing new possibilities and unseen aspects pointing towards new music.<sup>37</sup>

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<sup>37</sup> I am split when it comes to improvisation. On one hand I like to be the keyboard player who replicates an album and manages huge technical setups. I can be happy playing the same material with small variations day after day, as I have done with Susanna & the Magical Orchestra or the National Bank. On the other hand I like and relate to the traditions in jazz that merge compositions and open improvisations, like Paul Bley, Peter Brötzmann, Marilyn Crispell, Close Erase or Svein Finnerud trio. This is the approach to improvisation and composition found in the bands *In the Country* and *More & More & More & The Instant Gratification* that I have worked with during the project.



## Transformations and merges

Listening to my live performances, especially the *Personal Piano* material, it is easy to interpret the music as a movement between written parts and improvised parts. This is not precisely the case. The different materials merge and transform.

I create friction between the composed materials using the processing tools at hand to dissolve it and transform it into improvisation. This improvisation can again be challenged by inputs from the written material. My music is shaped through the interference between sound-surface and structure, and by the possibilities of sound- and structure-abstraction in the instrument. The memory modules of the instrument (loopers, recorders and so on) make it possible to layer and merge different pieces of musical material, for example improvised and composed material. Other tools that dissolve pitch, tonality or alter frequency profile can abstract a written material. The rhythm altering tools, the stutter effect or the modulated/randomized playback and tempo features of my setup can abstract rhythms, forms and tonality, allowing for an exchange between composed and improvised material.

## In the studio

The *Personal Piano* album consists of seven compositions. They are recorded in my studio. Small sketches. Skeletons that needed sounds. Sounds made by playing and listening, searching, recording whenever I found something that I liked. This is a method that I use for learning and exploring the possibilities of my instrument: Searching, listening, recording. When I have mapped out a series of sounds that I like, I start to improvise with the sounds towards a song structure, on this album often a 5–10 minutes pass with chord sequences, melodies and lyrics. Still, I am not working in the traditional verse/chorus/verse/bridge/chorus-frame. The genre-markers of a song become starting points. I try to redefine and reshuffle known attributes of a song to generate a personal take on the format.

More Recording. I repeat this process with several attempts of improvisation and with a series of sounds. This material is kneaded towards an arrangement with a specific instrumentation. On this album, I also re-recorded some of the sounds by sending them through the exciter loudspeakers sitting on the piano's resonant bottom, recording them again, a new and different way of reamping.<sup>38</sup> I wanted to integrate the piano's inherent ambience in some of the electronic sounds that I use.

The arrangement process could go on for weeks. A lot of the sounds and improvisations were discarded, but the *doing* in this process is a very effective rehearsal. It develops materials and action on my instrument.

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38 Reamping is a common technique to alter sound that is already recorded, sending the sound out into an amplifier, recording the sound again and replacing or dubbing the newly recorded sound with the original sound. It is mostly used on guitar and bass.

## **In concert**

The record is out and I am going on tour. Then what? Materials I have used days and weeks to knead, tweak and tighten in the studio, how do they translate to the concert situation?

I try to reproduce the sounds and arrangement from the album. Often they are too complex. I have two hands and one brain. I have to rearrange once again, finding out how I can present a musical essence in real-time. I improvise, finding out which elements to keep and which to discard. This process generates new sounds and solutions from my instrument once again.

*The composed parts and the improvised parts share many musical parameters. Still they stand on different ground and have different motor and mentality. In the improvisation I try to stay more open towards the sound occurrences and musical turns of my instrument; but I know that I am going towards a composed material. This is a contradiction that creates a musical tension between the idea of being free and the boundaries of the known destination. In the composed part I am also open to ideas coming, but the motor that is moving the music forward is more or less predetermined.<sup>39</sup>*

**By improvising to create material, and after that, using that material again and again, the borderline between improvisation and composition in my music is fading. The two standpoints are closing in on each other.**

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<sup>39</sup> Quote from my video-analysis.

## hiding – revealing

The piano sound can be hidden or revealed. When I play the piano and simultaneously start a process to alter the sound, the acoustic piano will be present. Moving towards the extremity of noise, the piano is covered by other layers of sound, camouflaged, hidden inside the sound mass. The layers integrate or hide the piano. This accumulation creates ambivalent sound combinations that are pointing towards a dissolution. I like the jumping in and out of traditional harmony, and the poetics of that ambivalence.

There are often key elements in my compositions. Clear harmonic structures, rhythmical structures, text, vocal melodies, piano, known musical forms, elements which are present in the pop songs heard on the radio.

The instrument is there to transmit. To reveal. The instrument is at the same time there to hide and destroy. Mask, blur, filter and randomize.

Can hiding a content reveal another content? The piano sound itself has a clear texture, a tactility, a surface. Due to the mechanical design of the instrument these parameters can only be varied to some extent. With processing the surface of this sound is altered. The grains are bigger or smaller, the response harder or softer, duller or stronger. The surface alterations acts like filters on the original sound, and different angles onto that sound and its content are revealed.

The act of hiding content may give away responsibility for the content creation to the listener. How the spin-off from this confusion works at the listeners end may depend on her references towards the piano sound. Glenn Gould, Elton John, Cecil Taylor, men with baroque wigs? To hide the piano sound using processing, means hiding the most stable element in the music. The contrast between a sound we know so well and the processed representation of it may release potentials for other hearings/readings of the music. Every listener will probably have a personal comprehension on the balance in the music, affecting the way the music is perceived.

## pattern – random<sup>40</sup>

To me pattern-random are not antagonists, but a relation in which the two states feed each other.

The clear and logical musical material. On the other side, chaos and randomness. I like it when I can move a material from predictable to unpredictable. From cliché to novelty. From accessible to inaccessible. This is reflected in my tools, where I use random algorithms and complex combinations of different sound processing strategies to create an unstable situation. Breaking or disturbing musical logic generates new materials and patterns. I import these patterns into my vocabulary, where they become a part of my musical logic. This iterated change of vocabulary, the importing of material turning it from novel to well-used, will affect the way I construct my technical systems. **The programming of randomized sound-processes arrives from a reflexive process on how the randomized sounds can relate to or feed my existing vocabulary.**

The idea about randomness is an illusion. I am deciding how the random tools are working and their sound. I still think that tools utilizing chance operations are destabilizing the certainty of my music, making the music more chaotic, unpredictable and illogical. I am searching for the ambiguous qualities of these randomizing tools, the situation where I don't know what I am getting in return. Balancing control and lost control.

*..., randomness has increasingly been seen to play a fruitful role in the evolution of complex systems. For Chris Langton and Stuart Kauffman, chaos accelerates the evolution of biological and artificial life, for Francisco Varela, randomness is the froth of noise from which coherent microstates evolve and to which living systems owe their capacity for fast, flexible response; for Henri Atlan, noise is the body's murmuring from which emerges complex communication between different levels in a biological system. Although these models differ in their specifics, they agree in seeing randomness not simply as the lack of pattern but as the **creative ground from which pattern can emerge.**<sup>41</sup>*

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40 A dichotomy taken from Katherine Hayles. *How we became posthuman*. University of Chicago Press, 1999.

41 Hayles, *op.cit*

## comfortable – uneasy

I find that there is an uneasiness present in my music. When the structures are too simple, too beautiful, too idiomatic, too easy, it kicks in. To achieve this uneasiness I work on the sonic representation of the musical ideas. **My music often contains a simple structure with a complex surface.** This transformation can be achieved by amplifying certain frequencies, distorting, ring-modulating, using very short delays or very modulated delays, adding grit, low end, noise, recording the sound and layering it in a different timbre or making the materials oscillate. These strategies can create demanding, dystonic and dubious realizations of musical ideas.

I want my music to establish friction between complexity and the simple and unsullied. I like simple stuff, but I cannot bathe in beautiful chords and melodies for hours. I get restless. After a few seconds I start to feel uncomfortable being there. To balance the music, I put up elements that for some people may generate uneasiness listening to it. My search for balance in the material makes the material more demanding.

In September 2015 I did a remix at the Punkt Festival<sup>42</sup> of Saskia Lankhoorn playing the piece *Dances & Canons* by Kate Moore.<sup>43</sup> In my remix I used the same processing tools as in the HyPer(sonal) Piano, working with introducing dystonic material, abstractions of the original compositions and adding (from my point of view) uneasiness and friction to the material. My remix caused reactions of displeasure from audience that also attended the original concert. Some of them left.

Original material: [Audio Examples Playlist – Ex. 35]

Excerpt from my remix: [Audio Examples Playlist – Ex. 36]

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42 I am often stressed by the diversity and effectiveness of festivals, but the *Punkt Festival* in Kristiansand makes me feel at home. The musicians Jan Bang and Erik Honoré curate the festival. It is based on a remix concept, where almost every concert is remixed or improvised over directly after by a constellation of musicians. It is a scene for singer-songwriters, electronic indie-pop, poets, noise, contemporary music, ambient and free improvisation. Basically all the main references for my music are incorporated there as current coin. This broad scope is framed by the remix-concept, making a musical dialogue between different positions in the field. Being at this festival have inspired me to think that this dialogue of (p)references may be realized in music. The fact that my (p)references are in a dialogue with each other decides my musical and technical choices and leads to an eclectic musical baseline, rather than a strict relation to a specific genre or field.

43 Saskia Lankhoorn. *Dances & Canons*. ECM records, 2014.

# Trails on performance

playing – tweaking – listening



[Video Examples Playlist – Ex. 6] (from a solo concert at NMH, 30 October 2014)

To introduce new structures I need to play the piano, often with two hands. To change the music from one state to another, I need to use hands and feet to adjust the control surfaces in my instrument. It's often called tweaking.

**Tweaking is now an integral part of my music making, and the tweaking changes my music because this way of playing is laborious and complex. An area that attracts my awareness using electronics is the change of timing and response in the musical execution, and how this affects the musical output.** Dealing with a larger interface and more complex sound processes imposes changes on the music, from how it evolves to how fast I can respond in interplay and how precisely I can distribute sound occurrences in time. The instrument work becomes slower and more tedious. **Tweaking takes time and is not as direct as playing hands-on.**

The playing phases with *both hands on the keyboard* and *tweaking* enter into an interplay of active phases in a performance. The playing phase and tweaking phase answer to each other. My listening is monitoring and informing my decisions in this exchange. The changes I have done in the tweaking phases will inform the hands-on phases and vice versa. The hands-on phases introduce musical material and structures more directly, while the tweaking phases are changing sounds, altering and adding to this material. The timing between these states is important to how the music plays out.

My father once came home from a concert saying: 'they used one hour of pushing buttons to get to the point, and when they got there it was over'. Hopefully, the musicians didn't feel like this. Often, when watching musicians using electronics, there is a mismatch between what I see and what I hear... They probably worked with the tweaking as a part of the point. I want the tweaking to be a part of my point. Yet, I understand my father's frustration. Tweaking can often be perceived as a tedious and transitory state.

An ambivalence using technology is the difference between the demands of the musical situations and the technical means available. The physical act needed to change the music may move focus away from the music and disturb the flow. This occurs because of limitations in the interfaces, hands and feet and other physical and technical factors. My perceptual abilities in any situation also set a limit. These factors lead to a constant negotiation on **when to change and when to keep, when to play and when to tweak?**

## analytic – mindful

The consideration of *changing, tweaking or keeping* is a rehearsal of balancing musical needs with the performer's urge for change. The choice may be distorted by the performer being too close to the music, too turned on, unable to have the overview needed to consider whether the music needs a change or not. **Der abstand ist das Geheimnis.<sup>44</sup> The frigid distance as an opposition to being emotionally absorbed.**

The complexity of my instrument moves me away from the *being present in the moment* towards another position which is in-between. In-between the present moment, the technical and musical considerations and reflections done upfront and in real-time. A path appears between analytical thinking and submersion.

I focus on the ability to move swiftly on this trail depending on the nature of the musical and technical circumstances. Technical issues in one moment of a concert should not destroy the musical presence in the rest of the performance. Abandoning a position on this trail moving elsewhere is challenging, yet an essential aspect when performing.

The concert situation demands quick considerations on both musical choices and technical issues. How to make transitions, how to balance volumes between different processes, where to send the sound output? How to filter a single output to make the timbre adjust to the total, how many layers to produce without losing the clarity, how to steward the musical material in general. Many thoughts are needed in parallel.

The analytical/improvement potential/details/hairsplitting optics comes natural to me. It is a view on the world that I obtain (far too) often, and I wish that I could throw away those glasses and get another pair, milder, with a softer focus. More of the myopic type. In the concert situation the analytical glasses can hinder the view to what is actually going on. I need to move between intellect and intuition, analysis and abandonment. **I need presence, overview and attentiveness. I need to be mindful and analytic at the same time. I need to grasp complex technical situations both aurally and intellectually. This is a balancing act.**

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44 Peter Handke and Peter Hamm. *Es leben die illusionen*. Wallstein Verlag 2006



## memory #5

I am in the middle of a concert and I remember playing a chord deep down in the register. I scan the responses from the instrument right now. Do I like it or not? How is the frequency profile of the sound? The complexity? To what extent can I modify the sound now that it is already out there? Is there any sound in any layer which I don't need? Any unwanted leakages from other instruments on stage? Are there technical aspects relating to this that I can improve? I seek to understand what is going on in the instrument, why the sound output is like it is. I want to give up control, but at the same time I want to evaluate the sound, see if the sound correlates with my taste. I struggle with this balance. The instrument will sometimes provoke me, challenge me. Make me take a stand. Induce reflections on my poetics based on these challenges. They will sometimes clarify my taste more, sometimes dilute it, sometimes I am becoming sterner.

# Trails on instrument construction

safe – insecure



My urge for a complex and layered output has resulted in a complex and layered instrument that is difficult to control. I try to make setup solutions that are intuitive and distilled, without losing the potentials for a diverse sound. I always end up with big setups, having to rehearse a lot to gain control. Still, I like that the complexity makes me feel alert.

Insecurity in the technical setup gives me inspiration. If the playing-situation is too stable, I often modify the setup by adding to or regrouping the instrument's modules. This destabilizes the instrument and opens up for unexpected things. **There is a balance between *loosing control to generate energy and losing control period.***

Complicated instrumental setups or music that is technically difficult to execute may obstruct flow. I have focus on rehearsing the instrument and setting up the different interfaces allowing my movements in and actions on the instrument to be natural and without stuttering. I am trying to move like one of those trained sushi chefs. Not a single hesitation, getting the work done in a wave of actions.

## interplay – internal play

I am playing. The instrument responds in unpredictable ways.

I started working on an acoustic solo project a couple of years before I initiated the HyPer(sonal) Piano project. Immediately I started to feel lonely as the only content creator in the music. I always liked the interplay in bands.

The solitude of playing the acoustic piano alone bothered me. I realized how much I depended on musical response from other performers. This situation initiated the construction of imaginary interplay within the instrument, an internal play.

These elements have been important:

- 1) To get unpredictable responses from the instrument.
- 2) To get direct responses, yet more or less abstracted, establishing the sound-output as a merge between my output and the device's response.
- 3) Making the output difficult to control, using devices or processes that are going bananas. Feedback processes are working in this manner, the unpredictability of the feedback system generates new material to the interplay.



[Video Examples Playlist – Ex. 7] (from a solo concert at NMH 30 October 2014)

There are moments where I am in charge and moments where the instrument and I are more aligned, meaning that the instrument's unpredictability gives it an autonomous voice in the internal play. **This positioning is challenging the musical hierarchy by giving the technology responsibility for musical execution.**

Examples of imaginary interplay partners in the instrument are: The hadron particle synthesizer, the 4 track looper (Max), the midi looper (Max), the Squarewave Parade Teaspoon window sampler in combination with the Hexe Revolver pedal, the feedback generated by the pedal section, the feedback generated by the digital system in combination with the exciter loudspeakers, the contact microphones in combination with the Max4Live Stutter patch.

## weight – function

My music is presented through recordings and by playing concerts. Playing concerts is an international operation, involving airplanes. The maximum limit for one piece of luggage is 32 kilos, but usually I will have to pay for everything heavier than 23 kg. Carrying more than one piece of luggage, even below the limit of 23 kg is a hassle. Carrying over 3 pieces is impossible because of overweight costs. The budget for the concerts I play doesn't cover these expenses. And the artistic expression needs concerts to evolve...

All cables, power supplies and casings must be as light as possible. Regarding processing devices I always have to consider weight versus function. **Does this analogue device add something essential to the sound palette? Can I do something similar using my computer? How do I distribute the devices in my instrument setup to make it as practical as possible when rigging the instrument?** An essential part of the research in this project has been to find good sounding, lightweight and durable tools that take up little space and connect them in a setup according to my musical needs. Despite this, I ended up with a pedal board suitcase weighing 26 kg. I am supposed to use the other half of that suitcase for clothing. The fashion department suffers...



## function – flexibility

My neighbour<sup>45</sup> quoted from a lecture on interfaces, that ‘the perfect example of an interface is a door-handle’. As soon as you see it you understand how it is used. Software and electronic hardware isn’t generally intuitive and understandable right away. These tools demand a preconception. Software is aiming for something the door is not, a more or less unlimited set of options on how to use it, and the possibility of user customization. The idea, that the tools can be molded, attracts my attention.

*It is an ambivalent feeling, the feeling of attraction to what computers can do, and the nausea creeping in when the computer is crashing, there is too much latency and the interfaces are clumsy.*

*I like guitar pedals because one pedal does one thing.<sup>46</sup>*

When I search for hardware or do programming, I often have to consider the pros and cons of a simple and functional tool like the guitar pedal against a more flexible and editable computer-based process. The guitar pedal often wins regarding interface and stability; one switch represents one sound function. This makes the pedal a direct and responsive tool. When it comes to interconnectivity, flexible and abstractive potentials, software is superior. **The tool has to be chosen based on musical and functional needs and in relation to the rest of the setup.**

I have tried to move processes that take a heavy load on the computer CPU and hard drive capabilities out of the digital domain or moving them into a second computer to ensure stability. I have replaced the sampling of longer materials in the computer with a dedicated 4 track recorder hardware, the ElectroHarmonix 2882. I have also moved several options of pitching in real-time, random like alterations to delayed material and granular processing to my stomp-box setup.

An issue working with computers is latency. Some musical processes are very sensitive to latency and some are not. I have patched my setup with the stomp-box setup having no latency, meaning that I can place latency sensitive operations there. Moving CPU-demanding processes out of the box means that I can generally run AbletonLive on 128 samples (8 ms) latency. This is acceptable for my use.

I have also experimented with a two computer setup. Both run Ableton Live, but have different latency and sound cards. This setup can run latency sensible operations on a computer with low latency, and other functions on another computer with higher latency. This works quite well, and is a good compromise if the setup becomes too complex to be handled by one computer. This setup is also a safety measure, I will still have some sound if one machine crashes...

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45 Composer and research fellow at NMH, Christian Blom.

46 RC-log, November 2012.

Anyway: there is never enough RAM, and never a processor fast enough. Switching to SSD-disks has helped me a lot.



47

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47 Død = Dead

## software – hardware

Software, hardware, analogue, digital. What sounds best? What is most versatile?

Not possible to answer, I would say. All electronic circuitry, analogue or digital, has a sonic signature. Different software has different sound. Hardware and software sounds different. To me there are poetic distinctions and not quality distinctions in these differences. Different sonic signatures give different functionalities. The choice on what to use is a choice on sonic signature and functionality. The aspect of functionality includes perspectives on weight and versatility as well as performative ones. If I really like the sound of a device, this usually trumps all other considerations.

Interesting though is the combination of the digital and the analogue, the software and hardware in a setup. These different systems can communicate by certain means. Midi from a modulation tool in the computer can be converted and used analogue as control voltage(CV). CV from the analogue boxes can be converted to midi- or USB-signals and used in the digital domain. Sounds from the digital system can be routed through the analogue sections and the opposite. Interesting and complex correlations (and problems) between the analogue and the digital, the software and the hardware appear when working on interconnecting sound and control signals from devices of different technological origin. **Unexpected sounds arise from the complexity of connections.**

### Computer flexibility

The possibilities when knowing how to programme your own software patches are limitless. To be able to programme good tools, I need to have a clear idea on what the patch will contribute in the music, its poetic function(s) and a disposition upfront for the main modules of the patch. If I am starting to make a patch without a plan, the options will kill the process. The openness and possibilities of the tool are overwhelming. On the other hand, if I start with an idea, there's a good chance of a fruitful merger between that idea and the possibilities offered by the programming tool. **The adaption of my ideas towards the 'personality' of the electronics, and the adaption of the electronics' 'personality' towards my ideas, shows interagency.**

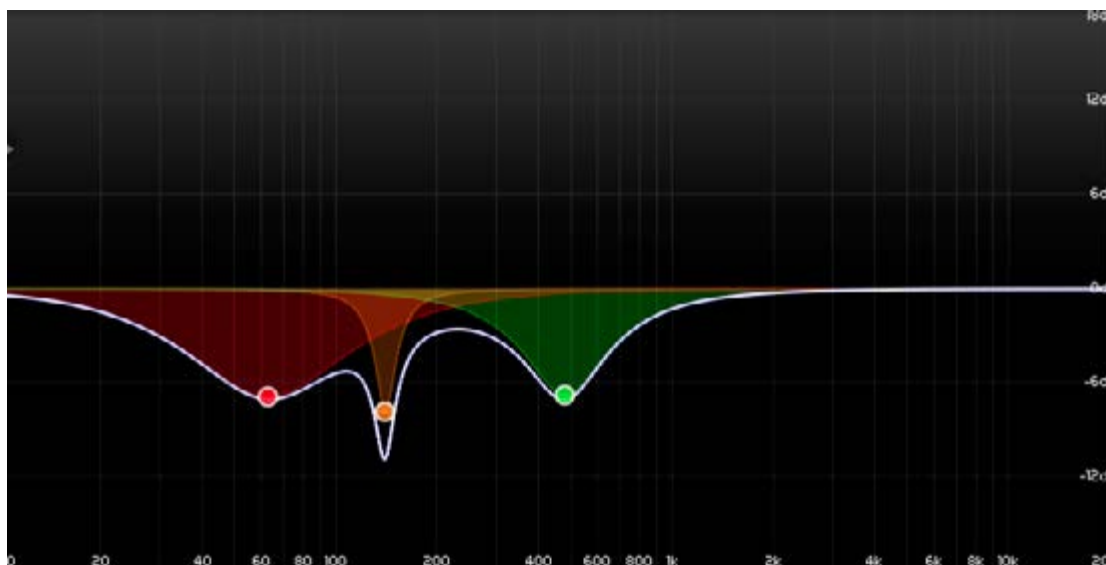


## acoustic – amplified

I do not regard amplified sound as a correct yet louder representation of the acoustic sound. To me, amplifying means re-presenting a sound using electronic tools. For many years, I worked with the Norwegian live-sound guru Asle Karstad, and I owe this perspective to him. The amplified sound I produce might be very different from the acoustic source, but to me there is no quality loss in this difference. The amplified sound has its own signature.

When taking the acoustic sound into the amplified sound domain, several things happen:

1) When the sound gets louder, it will engage the room and its resonating frequencies. To avoid the sound being too boomy (too much lo-mid), telephonic (too much high-mid) or sharp (too much treble), I remove some of the frequencies that engage the room, and maybe enhance some other areas of the spectrum. In Nasjonal Jazzscene, Oslo, I always have to remove energy around 80 Hz, 160 Hz and 500 Hz.



(Illustration, screenshot from using the Equilibrium plug-in)

2) Using several microphones, each microphone is picking up different representations of the acoustic sound. The output is a reassembly of many different sources. I need to balance and equalize (EQ) all sound sources to make a new representation of the sound.

3) The sound will go through loudspeakers, and the sound from those go into the instrument again. This will amplify certain frequencies more than others, and there is a need for EQ-ing and leveling towards a balanced sound result. I have EQ-devices before and after the processing chains in my setup.

Involving electronic tools, many considerations on sound poetics are introduced. Since I am re-presenting a sound I can choose to add features to that sound, such as distortion, reverb, drastic use of EQ and more. This demands a reflection around what features I want from the sound in the actual setting. The sound that I need might be closely related to the acoustic source or a far relative. [\(See "far from source – close to source" on page 53\).](#)

## other trails

beauty danger

emotions cynicism

grass bryophytes

running walking

daybreak twilight

containment openness

cautious reckless<sup>48</sup>

extrovert introvert

dullness temper

heavy light

perennials weeds

hollow solid

ignorant empathic

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48 The recklessness of Svein Finnerud and his trio with Espen Rud and Bjørnar Andresen in the 60s has opened up a musical room where everything is allowed, as long as you mean it. I like operating in that room.

# IV

## POETICS<sup>49</sup>

This part describes topics that I find central to my project. The trails describe areas of musical, instrumental and personal movements. The poetics underscore my motivations, the reasons behind the doing. These reflections are the map and the terrain, they determine how I move on the different trails.

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<sup>49</sup> *Poetics of music in the form of six lessons*, Igor Stravinsky. I read this text at the start of my project. The personal expression, the bold stands, the energy and clarity of these lessons (that were actually written down with the composer Alexis Roland-Manuel as ghostwriter) has stuck with me. They made me think that my change of instrument and sound palette called for a formulation of my poetics; an attempt to write out a framework for the technical-musical interagency. David Borgo's writing about improvisation and his work with improvisation and technology in the duo KaiBorg have also inspired and informed me in this process.

# On artistic core

## interagency

poetics inform instrument

instrument informs poetics

poetics are attitudes

attitudes inform performances

These are hard translations. Different languages. Diverse logics.

Cables. Feelings. Pitches. Timbres. Binary numbers. Sweat. Noises. Melodies. Muscles. Meanings.  
Programming languages.

I am a part of this web. My way of maneuvering in it shapes the making of music, making of sounds, making of an instrument. These agencies oscillate. Not like the usual chain of command: idea, technical solution, sound. **The human subject is not the origin of everything.**

## ambivalence

'Authenticity comes from a single faithfulness: that to the ambiguity of experience.'<sup>50</sup>

The wanting to stay put and leaving at the same time. I sense it strongly on many areas.  
The ambivalence seems to be a part of who I am.

Me: a mixture of doubts, self-contradictions, emotionality, need for control and need for chaos.

Piano: a stable mechanism. Sturdy. Unlike me. I find this stability somewhat disturbing and compelling at the same time.

Technology: could be stable, but also very unstable, fragile. Unpredictable and difficult to understand.

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<sup>50</sup> David Shields. *Reality Hunger*. Vintage Books, 2011.

## techne<sup>51</sup>

Heidegger's term. Describes the difference in skills between the bringing-forth in art and in the *real* world. Using materials instrumentally, *techne* describes the process and skill of controlling and using materials to obtain specific results. Heidegger suggests that the artist can work in another way, the *poietic* way. This way brings the material into appearance, not like a means to reach a goal but as a material free to be what it is. He suggests that the artist can create from the oscillation between these two understandings of *techne*. This implies a tension between a technological and a poetic revealing of a material, a tension with potentials to open up the arts. If we mirror this concept in the theories on distributed cognition, the view that our involvement with technology and materials are interactive, this makes even more sense to me.

Heidegger can be interpreted as technology-skeptical. Technologies are there for human beings to use the world, to keep it at their disposal, and in the end destroy it. He asserts an unfavourable relationship between materials and technology.

The aesthetic revealing of materials is considered by Heidegger as the saving force, a direction with a potential of showing us another way. The arts may have possibilities to do so.

The introduction of artificial intelligence and the capacity of machines to be agile and able to adjust to inputs, suggests a situation where the technologies can adapt to and create material autonomously. Materials are no longer at the artist's or machine's disposal, yet they are in dialogue with the agencies of man and machine. Art may emerge from chafing between machines, an oscillation between materials, the machine and the artist. May the relationship between materials, man and her machines become one of dialogue rather than one of mastery?

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51 Perspectives gathered from the book *Heidegger Reframed* by Barbara Bolt. I.B Tauris, 2010.

# On composition and rhythm

To say it without saying it and how can I say it? Is there a potential in being unclear? The too obvious outputs tend to lose their impact. The too beautiful chord sequence demands destruction. The strong melody screams for a sound that could fall apart any time. In my world... The coated and hidden content creates doubts, depths and a variation that is closer to the truth as I see it.

## baroque

Ornaments. Never-ending details. Harmonies and melodies. The variations in timbre and layers of sound. Ornaments on a simple structure. Fold after fold. Excess. Variety of impacts. Halls of mirrors, new viewpoint, new effect. No modernism. No reduction. No scarcity.

Never stopping.

Rough surface, unpolished, leaking out in all directions, stabbing away, overpowering, clogging the structure.

Now and then the ornaments take over and become the material. **The instrument becomes the music.** The structure is wiped out. Baroque and beyond. From the collapse new structures arise. (See "[structure/surface](#)" on page 83).

## delyrify

[Audio Examples Playlist – Ex. 37] (“Turning Returning”, *Personal Piano*)

I like major chords without numbers. The ones you hear in country and western music. I like melodies. I am a simple boy from the countryside.<sup>52</sup>

These parameters are referred to as simple, lyric, poetic, tonal or romantic.

This concept describes a musical setting where lyrical or poetic material are delyrified by abstractions in the processed material. To me this represents a balance in the music, like sweet/sour or silence/sound. The poetic tonal language I like using can be (bitter)sweet, but by using these strategies I feel that the output is balanced and deepened, residing between beauty and danger.

---

52 yeah right!



## denaturalize

If the piano represent something natural and pure, this project is about denaturalizing it, contaminating it, befouling it, destabilizing and muddling it, placing it in unexpected surroundings.

Take the dynamics out of a normal range. Play electronic sounds through the piano. Dissolve tone and pitch. Distort tone and pitch. Multiply the sound. Dub the sound. Play tonic piano and prepared piano in the same instant. Make the notes longer than physically possible. Make the piano sound like you name it ... Layers of sound. Accumulations of sound. Noise. Dust. Dissolve pulse and alter gravity. Echoes without gravity, without pitch. Seasick reverberations. Wobbles. Hiccups. Drift and try to land on both two feet.

## instability is human?

*Qvenild let the electronics find the way into the grand piano, but there is something more to it than a light-footed effect construction. In one way or another the piano player manages to let the twisted become moving and deeply human.<sup>53</sup>*

In this review of *Personal Piano*, the poet Øyvind Vågsnes is describing a **main reason for me to apply electronics to the grand piano: suddenly there is an alien sound- substance entering the acoustic world**. The role of the piano is challenged. One may think that introducing this sound-world would lead to an alienated acoustic sound; that the piano sound could easily be homeless and the electronic sounds indisposed in these surroundings. I don't think so. I find that the immanent potentials of these sound-worlds, their strengths and weaknesses and their emotionality are uncovered when put side by side and allowed to interact.

I think that the electronic tool's ability to destabilize the music is the key to the humanity of this interaction. The piano sound itself is quite obstinate. The electronic tools has the potential of challenging this obstinacy, tearing the sound apart, introducing instability and contingency to different parameters.

[Audio Examples Playlist – Ex. 38] ('Wild Horses', *Personal Piano*)

)) *The simple piano line that could be tiring and one-dimensional when looped for four minutes, is treated and twisted electronically to become a trembling, fragile organism that drives the music forward. At the same time it suggests that the situation is so fragile that it might just dissolve into dust.*

When the piano is treated like this, it resembles this life, this body, this nature, rather than suggesting a stability that is not existing.

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53 Øyvind Vågsnes. *Dag og Tid*. 10 September 2015 (my translation).

## song lyric<sup>54</sup>

Personal distant artificial emotional cold kitschy

2-1-7-o

Where does that cable go?

Where is the point where it really matters?

Where is the point where it hurts the most?

Too heavy, strong, bland, blurry

Where is life in all this?

Why grasp something that wants to slip away?

Why say something that exists beyond being said?

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54 Playlist when making dinner 23 September 2015: Wilco – 'I Am Trying To Break Your Heart', Robyn – 'Be Mine', Joni Mitchell – 'A Case of You' (from the *Both Sides Now* album), José González – 'Every Age', Daniel Nordgren – 'Like There Was a Door', Beck – 'Guess I'm Doing Fine', Annie Lennox – 'The Saddest Song (I've Got)', Kanye West – 'Runaway', Sufjan Stevens – 'Should Have Known Better', James Blake – 'Retrograde', Radiohead – 'Paranoid Android'.

## structure/surface

[Audio Examples Playlist – Ex. 39] ('Landing Day', sPacemonKey, *The Karman Line*)

)) *The piano resides in several places in the music, because of the different treatments and spatial mix of the original piano sound. This coating decides its presence, distance, directness and emotionality.*

Listeners sometimes describe my music as *coated*, meaning it is difficult to grasp what they see as the most important element, the piano. Often the piano sound is a shadow of itself, not easy to grasp, hidden in other layers of sound. From the visual impression of me playing, I can understand this confusion. There is a conflict between the visual and audible output of my project in the live-situation (and also on the recordings. I state that there is a piano being played, yet it is not always present). For me this conflict holds a potential; the audience sees or imagines a big grand piano, surrounded by cables, blinking lights, computers and boxes. The piano is at the centre, the mothership. Then, when there is sound, the piano is more or less blurred. The conflict appears. The piano is not the centre anymore.

The potential? The fact that the visual info states the piano's presence, while the sound is on an axis between tonic piano sound and noise, is presenting a dubiousness that I like. The conflict between what you see and what you hear resembles the ambivalence that inhabits my music.

In architecture, a pivotal point occurred when the exterior walls of a building didn't have to support the whole structure. Introducing steel or concrete columns as building structures in the 18th century, allowed for non-structural walls and surfaces. The introduction of so-called *curtain walls* opened for a construction technique where structure and surface had independent functions. The columns have a bearing function, and the surface could either reveal these structures or hide them. This allowed for an aesthetic surface function in combination with its other non-structural function of keeping the weather out and the occupants in.

This perspective led me into some experiments of thought:

What if:

- The musical idea is the structure. The instrument creates the surface, shows and filters the structure alongside visual aspects, my gestures, audience and sound production. Sound constitutes the surface, ornamenting of the musical idea. The surface's opacity decides what parts of the structure we perceive, its clarity and poetic potentials.

Or

- The piano-sound is structure. The processed material makes up the surface. The processing can reveal the structure, illuminate it in different ways, magnify and diminish. The surface can hide structure, alter it, subdue it, make quiet, distort it, destroy it.

And further:

- The ornaments take over. The structure disappears. There is only surface left. Ornaments become structure.

The last scenario here is interesting regarding my project. When the technological extensions of the instrument is capable of taking over, what started out as a detailing and extension of the piano sound has developed beyond a point where the extensions itself can become the instrument, the structure and the musical material. **The ornaments become the main thing.**

This situation occurs more often now than when I started the project. I notice that I am using the piano less, and the processing modules more actively. A small seed of piano can start long excavations with the electronics. Yet I always know that the piano is there, and I think that this anchor is making me go even further on my electronic outings. This situation occurs because there are two main materials merging in the music: the acoustic sound and the electronic. The acoustic sound is so stable that it is functioning as a safe haven for castaway electronic evolutions. Good or bad? For me, this possibility of retreat is opening for more trust in the playing situation, less anxiety, and a courage to push limits in the electronic domain, seeing how far I can go. From my perspective, **this turning of what used to be the ornaments into the main material opens other rooms.**

## density

The ideas are too many, the urge is too strong. I am too restless. I am a maximalist who wants everything to happen. I have difficulties taking choices, excluding, setting up limitations. I am afraid of missing something if I do. When I talk on the phone, I talk too soon. Before the other person is finished talking, I am interrupting.

I wanted to be a one man band; drums, chords, bass, vocals, loneliness, driving, promoting, rigging, doing sound. I border towards tacky. There is not much silence in this.

## melody

I don't do free, but still I try to be. I don't do open unbiased improvisation (whatever that is) but I merge the pre-conceived with the present. I gravitate towards melody, and at the same time I want away. **The melody is my spokesperson.** It can be obnoxious, kitschy and emotional. It can be a druid, telling far too obvious things with capital letters, important stuff, but heavily simplified. It needs the resistance and the noise of my instrument in order to balance, to be sincere and honest, to go in depth and be nuanced. It has a pull towards melancholia, at the same time it wants away, becoming clear and cold as mountain water. **It wants away from what is, but at the same time it is clinging to it.**

## vocals and influences

Using the voice is functional to what I want to say, and to my poetics. At the same time using the voice evokes a heavy set of references.

I make songs with chords and lyrics. My project is heavily influenced by pop music. Radiohead, Beck, David Bowie, Prince, Annie Lennox, Scott Walker, Bruce Hornsby, Japan, Nick Drake, Abba, Tom Waits, Frank Ocean, Jamie Lidell, Joy Division, Depeche Mode, Kraftwerk, Air, Leonard Cohen, Prince, Bob Dylan, Daniel Nordgren, Herbie Hancock, Daft Punk, José Gonzales, Wildbirds & Peacedrums, Bon Iver and James Blake, to name a few.

And: the Europe-cassette I bought when I was 4, the Metallica (80s) and Judas Priest albums I stole from my brother, the Beatles vinyl that I listened to again and again, Phil Collins, the blues-concerts that I went to with my brother on guitar, my other brother playing drums in a pop-band. The big band, the Dixieland-band and the 'The Doors' cover-band that I played in when I was in my teens. I studied jazz, learned scales and chords with many numbers. Played too fast and never too slow. Misha Alperin introduced me to a big array of classical piano music and folk music, and I met with Jørgen Munkeby and his hangups on Lutoslawski, Messiaen and Ligeti. I met Torggrim Sollid and his surrealist mind. Paul Bley and Svein Finnerud trio. Jon Ebersson and his enthusiastic approach to everything. Jaga Jazzist, 10 different pairs of ears onto the alternative music scene, prog-rock, big ensembles like Oslo 13, Tortoise. I played with Susanna Wallumrød, establishing a connection between my sounds and her voice that I was totally submerged in for many years. Solveig Slettahjell, who wanted to play very slowly. Pål Hausken and Roger Arntzen, whose intuition is now mirroring mine after 14 years of playing together.

These diverse meetings blurred my preferences. They made me question them, address other issues with them and see them from other angles. I search for a way to merge the (for me attractive) formal aspects and contents of 'pop' with my other inspirations, the noise music, Glenn Gould, the Messiaen, the Schumann lieder, the improvisation scene, the sound-art scene. Other inputs moved me to a personal standpoint where I have a strong relation to the voice, the melody and the lyric, yet I also have a strong urge to question, mask and destroy the directness of this medium. It came natural to me as a non-singer to start altering the sound of my own voice, making it more artificial, less direct. I have tried to move the vocals away from directness towards the ambivalent, distanced and layered nature of an instrumental expression. The vocals also depict my ambivalence.

I have used several vocal processing techniques in the studio making the Personal Piano album.<sup>55</sup> Hardware: Roland SVC-350 vocoder, Electroharmonix Voice Box. Software: Antares Auto Tune, Native instrument The Mouth and SpeakerPhone.

When realizing this material in concert, I use several programmed presets in a TC Helicon Voicelive 2, receiving midi signals from the Moog Pianobar.

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<sup>55</sup> Hearing the songs 'Woods' by Bon Iver and 'Hide and Seek' by Imogen Heap, I noticed a strange, subdued and twisted emotionality in their processed vocals. This marked a sharp contrast to the colder vocoder-use in music by Kraftwerk, Herbie Hancock or Daft Punk, to name a few. I like both approaches, but the challenge of combining these approaches was compelling to me.

## a regular skin

[Audio Examples Playlist – Ex. 40] (from a studio session with Hilde Marie Holsen, 21 June 2016)

Regular pulses divide time into equal segments, the irregular into unpredictable durations and the stutter is an intermediary category which destabilize the regular.



[Video Examples Playlist – Ex. 8] (from a solo concert at NMH 30 October 2014)

)) *Repeated notes in the piano. Dubbing with an artificial piano sound adding low end to the output. Five layers: 1) While playing I am trying to mimic three different unrelated metronomes playing simultaneously. 2) The sound material from the piano is pitched up and altered (Hadron). 3) The same material is frozen occasionally when I hit a foot pedal (Squarewave Parade Teaspoon), creating a new pulse. 4) The piano is dubbed by an artificial sound that is processed. 5) The piano is dubbed with a prepared piano sound.*

Layers 1, 2 and 3 constitute different irregular pulses. The relation between them creates a situation with the attributes of a regular metric, even though the different durations on pulse-level are not equal or fixed. There is also a hierarchy between the different layers, which is deciding the perception of pulse.

**I often search for an irregularity in a rhythm that at the same time suggests the regular version of the same rhythm. I find it useful to imagine that the rhythm I am playing shall refer to something regular, have a regular 'skin'.** When the irregular inherit this nod to the regular, I am playing with urges to look for and feel regularity in music, and interesting relations between the listener's perception and my intended output may occur.



## stutter

‘The flow is broken by repetitions, prolongations or abnormal stoppages.’<sup>56</sup>

Stuttering disturbs the pulse. When there is stutter, the regular gravitation towards the next beat is disturbed or broken. The repetitive function of a regular pulse is challenged. Stuttering adds tension between what we expect to hear from a regular pulse and what we really hear. For me, stuttering opens up a new set of timing possibilities when I play. I feel much more free, no longer bound to mathematic subdivisions. The stuttering gives interesting variation to the repetition.

Stuttering disturbs the linearity of the melodic line. When there is stutter, the gravitation towards the next note is disturbed or broken. The self-will of a regular melody is challenged. Stuttering adds tension towards what we expect to hear from a regular melody and what we really hear. For me, stuttering can be poetic, emotional, lyrical, because the stuttering will question the expression, act like a resistor, throw the expression into a relief.

In the HyPer(sonal) Piano there are several electronic memories that can create unrelated rhythmical patterns. The custom made four track recorder (Max) is not related to a master sync tempo, and the tempo on each track can be manually adjusted after recording to deliberately create a situation of non-related timings. The smaller memories like the bug brand delay, the lo-fi loop sampler, the teaspoon or the hexe revolver pedal can create those rhythmical patterns. In addition to these memories that create layered pulse situations, there are processing tools that use pulses as a part of the processing, such as the crystallizer, hadron and LFO wobbler.

The instrument also has processes that utilize steady material. Pre-recorded drum sequences. Delays with a certain tempo. Vibratos with fixed speed. Arpeggiators, low frequency oscillators, tremolos. For every rhythm-conserving process in the instrument, there is at least two that can destabilize rhythm. Granular processing, delays that vary in tempo, vacillating tremolo and vibrato, ring modulation, stuttering effects on percussive sounds. Unsynchronized samples and sound clips. Distortion that generates irregular feedback. Random playback of looped material. Random length of playback. Many rhythmical layers. Augmented, accentuated, stretched, altered. A trail from a clear rhythmical output to a situation of rhythmical ambiguity.

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56 <http://www.stutteringhelp.org/faq>

## many tempos

A fixed tempo has a gravity pulling towards the next beat, but the complexity of the many tempos stops or stutters the horizontal movement.

When attacks collide at uneven intervals, the movement and gravity of the total rhythmical output is altered.

The situation is trying to ram itself down into the soil. The arrow of time is broken, and we are left with a vertical dance on the spot.

## short loops



Vimeo Ex. 9 (from a solo concert at NMH 30 October 2014)

**))** *The sounds and the looping here adds an artificial vibe to the rhythmical aspects. Like a broken vinyl-record stuck in the same groove. An opposition to the flow of moving on.*

Taking out short parts of musical movement and looping it creates a temporary freeze in the musical pass. I like this way of looping, it generates a new momentum for the movement of the music.

## memory #6

12 March 2014, Ghent, Belgium.

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The concert starts.

This week I have been updating my Ableton setup to the latest version running on 64 bit. I didn't have enough time to test the stability.

The computer crashes. This happens seven times during this concert. My insecurity escalates for every time. The music I play is based on this system. If I drop it, and play acoustic piano only, it is not my music anymore. This option feels even worse than the crashing.

So I play with my left hand while restarting with my right hand. My left hand is not very virtuosic. Roger and Pål, the other players on stage notices in a split second that something has happened. Insecurity spreads, but they deal with it. They cover for me when I am struggling with this shit... Force quit. Start again. Not working. Restart the whole damn machine, wait, start Ableton. Now it is working. 7 times... This must be the worst situation I have ever been in on a stage. The instrument that I use to present my material for a paying audience is not working... After half an hour I find a configuration that is not crashing. We play the rest of the concert without problems, but we use a long time before the feeling of despair is shaken off.

**This situation showed me that the electronics and the piano are no longer separated modules delivering different content. They are one. If one disappears, my music disappears...** I am willing to go through a lot to make it work. This willingness implies an ambiguity towards the machines. I have to trust them because they play a major role in my music. I like the insecurity of a complex setup, but complex or unstable work differently on my limbic system. If I don't trust them to be stable they make me anxious, and I don't need anxiousness on stage. This leaves me with a choice, a choice to take the instable factors into account, or try to ignore the risk of inexplicable crashes until something really happens. This is not an easy situation, especially not blended in a cocktail with more general nerves set off by the performing situation. But, as far as it goes, I try to be ignorant ...

# On performance

## risk

when something is at stake

the hearing is different

the sweat smells different

there will be turbulence

there will be energy

there will be mistakes

adrenalin is involved

one is exposed

the fall is higher

the tall is taller

the dog barks

there might be fireworks

the body feels different

what is to be trusted?

the instrument takes over

you are not indifferent

no one in that room is indifferent

the instrument is not indifferent

it will not be flawless

the flow will be obstructed

there will be instincts

## restlessness

or

a feeling of constantly looking for something to improve

that gaze

looking for something to add

or remove

alter

subdue

constant change

constant sorrow

## elasticity

**Elasticity is reaction. The opposite is inertia. Elasticity is dancing with the material. The opposite is clinging to it.**

My elasticity towards a musical material depends on my control on the instrument, how I rehearsed, how much I rehearsed and how I set up my instrument. Also my overview of the signal routing plays a role. Too much insecurity is stiffening. To little insecurity is dulling. The right balance is when I can be elastic, fast and alive with my material.

Elasticity in musical performance (to me): being able to work with elasticizing pitch, rhythms, chords, details. To swiftly perform what you hear. To be able to go away from the original plan. To go back again. To move away from my material. Time to turn back? Or break loose? Repetition: Elasticity is reaction. The opposite is inertia. Elasticity is dancing with the material. The opposite is clinging to it.

### **Elastic ideas and technology**

An interface designed in relation to the music and the musician could provide more elasticity. The musical ideas must take part in the tool making. What do I want to hear and how can I achieve it technically? And next, how will the technical development change my poetics, what can I achieve technically and how will it sound?

When expanding the technical possibilities, I am also expanding the sonic possibilities. It is easier to make technical changes based on poetic needs. Technical expansion for the sake of technical innovation may not be precise enough for my ideas. Despite this, I sometimes need to plunge in, try new equipment, carry out a programming or download some software based on a hunch, install it and see what happens. The sounds found by this kind of searching may expand the sound-vocabulary in unexpected ways.

## accidents

play a vital part<sup>57</sup>

small artifacts grow when listened to

listening is nourishment

water is running through my piano

an island emerges from the water

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57 This approach to mistakes is found in the movement of glitch art, a field where the aestheticization of digital errors, such as artifacts or other 'bugs', creates the artistic outputs.



# On sound

## sound<sup>58</sup>

At the ears, sound arrives first. Then tones, chords, structures, melodies, texture, ambience.

Sound is always first.

Searching for sound was also my starting point.

The sound quality must be taken care of first.



(Photo by Paal Audestad)

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<sup>58</sup> My approach to sound is coloured by working with the producers Jørgen Træen, Andreas Mjøs and Kåre Vestrheim, all of them considering electronic sound-shaping of acoustic sound an important tool in creating a personal output. I have also been moved towards this standpoint by listening to producers like Daniel Lanois, Brian Eno and Nigel Godrich.

## sound control

It is important to me that the musician's role is developed, so that they take in and control the whole process of shaping sound while making sure that other factors, including the actions of technicians, are not placing overly strict conditions of their own on the final sonic result.

[Audio Examples Playlist – Ex. 41] ('Chopping Wood In My Brand New Moon Boots', sPacemoNkey, The Karman Line)

)) *A melody, played and looped. The processing makes the sound tremble, it sounds fragile. Cymbals. A shaking sound. Another piano enters. Shimmer. Several movements in the back are commenting on the acoustic piano sound playing a solo. Bells out of tune. In the back, a reminiscence of a destroyed piano. Air. Low-end. Gospel chords.*

Usually, the concert situation plays out on a stage with a stereo PA-system and a mixing console in the audience-space. In a normal ensemble situation, the sound engineer creates the sound-scenery by altering and leveling sound from each musician. This situation is comparable to the layering of different sounds internally in my instrument. Sometimes, it is beneficial to isolate different layers for the sound engineer to balance, especially when I play in big rooms with little overview of the audience's listening conditions. With the HyPer(sonal) Piano I deliver a stereo mix with all the processed material, a stereo mix with percussive material, two amplifier signals and sometimes I send sound through small loudspeakers in the resonance case of the piano. This moves much of the spatial and leveling work over to me, but still I need the supervision and the communication with the engineer to secure a balanced output in the audience-space.

The reason for not leaving more work to the sound-engineer is that I want to make sound-decisions an integral part of music making.<sup>59</sup> The sound placement in the stereo image, low or high fidelity, presence, distance, levels, stereo width, frequency profile, distortion, noise, pitch... These are musical and not solely technical parameters. Still, I need help to administer my outputs: an engineer making adjustments, giving me feedback if my scenarios aren't working within this particular room's technical layout and listening conditions.

To foresee how the sound in my listening position will work in the audience's part of the room is of the essence. I try to develop this ability by recording and listening back.

The sounds act very differently in different areas of a room, especially amplified sounds. The stage is a separated 'room', meaning I will never have complete control over the sound in the audience-space.

59 Jon Hassel, Arve Henriksen, Helge Sten, Fennesz, Maja Ratkje, Tone Åse, Øyvind Brandtsegg, Thomas Strønen, Nils Petter Molvær, Squarepusher, Audun Kleive, Eivind Aarset, Ivar Grydeland and Hilde Marie Holsen are some of the performers in my field working with processing their signals before the sound distribution, and in different ways augmenting or abstracting their source sounds. The members of the band *Supersilent*, Ståle Storløkken and Helge Sten have used the processing system *Kyma* for some time, and they use it mainly as a tool in improvising and interplay. John Paul Jones also uses this system for the same purposes in the band *Minibus Pimps* with Helge Sten. I did a two days workshop recording and discussing *Kyma* with Ståle Storløkken in May 2014.

The sound engineers Daniel Wold and Ingar Hunskaar have been working with me for many years, they know the project, the music and the technical solutions I use. Many solutions have been realized after discussing issues with them. I trust them to administer and comment on my output in the audience space.

## feedback

#1: I play and record what I play. I send the recorded sound to loudspeakers sitting on the resonant bottom of the piano. I play on what I have recorded. I record again. What I played on what I had recorded and what I had recorded earlier is recorded again. The material from the past is feeding into the present. Like watching a portrait where the portrayed person is holding the same portrait.

#2: The microphone and the exciter-loudspeakers are directed towards the same surface, the resonance bottom of the piano. When I gain up the microphone and open the loudspeaker, there is feedback instantly. The feedback is recklessly dynamic.<sup>60</sup> Without close attention it will escalate and eventually destroy the loudspeaker. With one hand on the frequency shifter, EQ or ring-modulator and another one on the volume control, it is possible to play with the feedback. Making dynamic shapes and gliding tones, it feels like having an argument with the instrument. The feedback has a very strong will, reacts to the room and is unpredictable.

#3: The sound is sent via a separate output to a 2x3 metre grey carpet with built-in led-strips and hundreds of acrylic triangles forming its shape. Before the led-strips, the sound meets an Arduino-board with programming that in different ways relate to the sound it receives. I control which programming state the carpet is using, there are 15 different states available at any time. I have a mirror on stage to make sure I can see the visual results of my playing. The fact that I see it will affect my playing, and the change in my playing will affect the visual result. (See "lightning mountain" on page 151).

#4: Every room is different. Some are lively and will produce a substantial acoustic reaction to my output. Dampened rooms produce a smaller reaction. The room's reaction to my output will come back into the instrument feeding the instrument processes and the way I play.

#5: In a setting with other performers, I will inevitably get some of their sound into my processing setup. My sound will also feed into their systems or microphones recording their instruments.

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<sup>60</sup> The harp also has a large resonance case, which makes it similar to the piano. This creates a situation where feedback can be created as a musical element. The harpists Rhodri Davies and Zeena Parkins are both working on electronic and mechanical extensions of this instrument. Davies, especially, uses feedback as a central part of his expression.

## emulsification

In cooking, there is a sauce technique called mounting. Just before serving, cold butter is added under constant whisking to emulsify the water, milk-proteins and fat in the sauce. In a split sauce, this emulsification process has failed.

In the beginning of this project, I struggled getting the piano sound to emulsify with the processed and abstracted sounds. The sounds separated the music. They didn't seem sonically or poetically connected. A communication in-between the different sound-categories in the music was lacking.

I often let other sound sources into my instrument. I use pre-recorded materials like voices, rhythmical tracks, I sing and I use synthesizers and other electronic sound-generators like the Bug Brand Postcard and the Folktek Sound Field.

***The sounds from the outside became the emulsifier needed to make a more united sonic situation with the piano and the electronic processing.*** The piano sound and the processing still feels like two sound-categories in the music, but the additional sounds are connecting them and strengthening their interferential connection. The processed sound is often harsher and more lo-fi than the piano sound. *Other sound sources* provided the frequencies needed to fill the gap between the two sound-categories.

## humane/human

[Audio Examples Playlist – Ex. 42] ('Meanwhile In a Galaxy Far Away', sPacemoNkey, *The Karman Line*)

I want my electronic sounds to be humane. How does *humane* sound? Compassionate? Real? How does real sound? Warm? Fragile? Approachable? Democratic?

Living organisms inhale and exhale. They are dynamic, vital, steadily changing. They have flaws, outgrowths. Listen to the heartbeats of a newborn baby. You might be afraid that the child has a heart defect, but the **variation is nature, it's human.**

I want my electronic sounds to have some kind of natural or human attributes. Notions of wood, metal, bugs, birds, listlessness, anxiety, melancholia, imperfection and fragility. The sounds may be perceived as human because of our associations, cultural references and such. A sound like the Theremin was hardly perceived as human in the 20s, but I believe it is now.

Human and non-human exist side by side in my music creating individual layers, they mirror each other, shedding light at each other, discussing, creating confusion. *Like HAL 9000 in 2001: A Space Odyssey. A human voice coming from a robotic red eye. Putting the piano in an artificial scenery takes it out of its jurisdiction.* What happens then? Is it challenged, alienated, neglected, illuminated, blacked out, elevated?

# On instrument-building

## tools

'You're telling a story using tools, you're not using tools to tell a story.'<sup>61</sup>

This quotation cannot be applied to my project, yet it marks a distinct division between two ways of thinking about the instrument's role in constituting an artwork. I make music using tools, but I also use my instrument (tools) to tell the story (music), to shape it or change it. And the other way around; this influence is omni-directional.

## manual labour

I am a fan of the Norwegian poet Hans Børli (1918–1989). He was a writer and forest worker, doing hard manual labour in all kinds of weather, winter and summer, still managing to create a large production of poems and novels. He often memorized new poems while working, writing them down at the weekend when he came home to pen and paper. For Hans Børli, the combination of hard work and writing was ambivalent. He describes it as a division in his mind between living one life for his hands and body, and another one for the dreaming and yearning. He could never completely make up his mind whether this contrastive life was beneficial for the writing or not.

In my opinion, basing an artistic output on a life that holds elements of physical labour is not just a romantic 'one should suffer to make art' cliché. The labour does influence the art. Building and constructing instrument setups, soldering, toiling, travelling, repairing, troubleshooting. I own and feel the instrument in a different way now. It has become a part of me through all the labour we have done together.

There is something about Hans Børli's approach to writing that I like, an approach I suspect is coming out of a life of doing manual labour. He approaches writing as he would approach a tree, with respect yet with precision, confidence and determination. There is a tranquility in his poems that marks a sharp contrast to the anxieties, melancholia and feeling of smallness that is also present. Yet this tranquility is different and more similar to the state of being worn out. I have a hard time seeing this state coming out from an artistic life in which all spare time is used for promotion on social media. I can't help but thinking that it is the nature of a forest worker to be in physical balance and to know by heart the total exhaustion induced by heavy labour. And I can't help thinking that this backdrop may ground the artistic process.

I envy those who have physical labour as a major part of their artistic process, like a Terje Isungset molding his ice-instruments for several days before a concert or a Liza Lou in the painstakingly slow

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61 Taken from an interview with George Lucas.  
<http://nofilmschool.com/2015/12/charlie-rose-show-george-lucas-interview>

process of making her glass-works. Both in a situation where the labour of the process becomes as significant as the work itself.

The HyPer(sonal) Piano project embraces the idea of DIY<sup>62</sup> and the idea of letting manual labour into the project by building cases, carrying equipment, soldering, rigging, packing, driving, promoting, running, selling, accounting. In the live situation I am the first line sound engineer and light technician. In the studio I am the performer, the recording engineer and the mixing assistant. In the garage I am the wood worker and the DIY electronics builder. Now I am trying to be a writer.

The forest worker's load is for real. Try to cut down a tree, and do the labour needed to get a wood stack ready for the winter. The sweat is for real, the wood is for real, the heat from the burning flame... A physical and mental ownership to the firewood is gained. I try to import this feeling of reality into my project.

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62 Do It Yourself



## memory #7

1230: Leave home. Drive to airport. Check in four pieces of luggage, 30kg, 23kg, 16kg and 11 kg. Pay 370 Kroner for excess luggage. Go through security, take out two computers, three midi controllers, OP-1 synthesizer, one contact microphone, two sound cards. Take off watch and belt. Go through scanner. Bomb check on electronics. Pack down into two pieces of far too big hand luggage. Go to gate. Pray that they won't stop me at the gate because of my oversized hand luggage.

1530: Take airplane. Get some sleep. Land one hour later. Get picked up by promoter. Go directly to venue.

1730: Start rigging instrument, first all the data cables, then power supplies and finally midi and audio cables. Rig and connect vocal effects. Check amplifier and pedal board. Rig the Lightning Mountain. Find out that one power supply is broken. Send promoter to get one. Set up grand piano microphones and pickup under the grand piano. Start up computer, check audio and midi signals. Assist the house technician in patching.

1900–1945: Sound check, go through all crucial parts of the compositions with the sound engineer, check all vocal presets.

Go through the states of the Lightning Mountain, check threshold volumes for every state. Save presets.

1945: Go to door with CDs and Vinyl. Make poster with prices. Connect iZettle to iPhone, instruct the local staff.

2000: Dinner

2045: Concentrate for a little while

2100: Showtime, 70 minutes concert with the Personal Piano material.

)) ***A loop of the piano figure, and another loop made by playing in the piano with a bottle neck slide.***

***The piano comes in, a contrast to the harshness of the loop***

***Some small sounds, like they withdraw from a harsh world***

*Playing on the strings with a bottle-neck*

*Turning Returning too late to come around*

*Turning returning too far from holy ground*

*A sample of an omnichord strum plate playing in the background. Still the same elements. Sounds like the piano is whistling.*

*Instrumental part. A clean piano. The other processed pianos in the background. More whistling. Marxophone samples played backwards.*

*The bottleneck hits the strings. A synth-bass comes in on the verse. Turning Returning.*

*Thinner, more artificial voice. Only the vocoder is left. A single note Morse-signal on the piano.*

*Next song. Drum-machine from an Omnichord. Upright piano sound sample from my living room. An ostinato. The strum plate sound from the omnichord again. A wooden toy with hens picking, making sounds on a round board when you move the toy.<sup>63</sup> The stutter effect on the drums are more and more audible. Playing on my daughter's toy owl for the other percussion sounds. The feedback is coming from the piano through a Fender Twinreverb amplifier. The feedback sounds plays a solo. Stop. A chord is emerging. The 'noise' is from the toy owl, it has some cellophane in it.*

63



*Double tempo. The backgrounds are the same as the first part. The owl, the drum-machine and so on. Chords establish. Dm – C/E – F – Am – G/H – C. Pad sounds from OP-1. More drum sounds. I am singing through a heavily distorted AutoTune. The singing is in focus. A melodic line is moving around in the stereo field.*

*Next song. Past. Vocoder saying:*

*Longing for those days now, why can't I see ;*

*that past wasn't doing good to me...*

*The music freezes. Piano being echoed in an abstracted sound. The delay effect pedal making bird sounds. Always makes me think of Messiaen. Heavy reverberated drum sounds. Drums from a Casio Sk-10 keyboard. Sounds of me hitting the strings on the piano with a metal item.*

*A shaken soul in the morning dew.*

*Gone are the colours you see,*

*'cause past wasn't doing good to me...*

*Depression.*

*Chorus. The Morse signal from the first song is reassembled.*

*Next song. The first part is seasick. The singing. A rhythm and a chord structure. A cover version of the Rihanna song 'we found love'. A small piano solo, quite heavily distorted. Rising intensity of the drums. Bass. Nodding towards the 80s. A synth solo nodding even more.*

*I just can't deny.*

*I just got to let it go.*

*Dissolving. Smaller. Breaking down the already un-solid ground made for this song. I remember the intention of making something fragile but still powerful. An opposite to the sense of destruction and dereliction? In the kingdom of kitsch I will be a monster.*

*Next song. Piano chords with long reverb. Prepared piano sounds with even longer reverb. A toy piano sample. A wobbling effect on the same piano, and a pitched representation of the wobbling effect. A digital sound made with a spectral delay, taking out small pieces of the specter and making a new sound representation from it. It wanders around as a sick little dog. A marching drum comes in. The piano is heavily manipulated to take away the sense of a tempered pitch. This piano is again doubled with a tempered piano. Harry*

***Partch. Singing through the same radio as the drum is coming from. Celesta samples dubbing the melody. Mellotron strings dubbing the piano chords.***

***A sub bass comes in, manifesting a simple chord progression, playing on the piano strings. Sounds like an autoharp. The piano is also pitched and delayed, which makes for another lighter rhythmical element.***

***Piano loop, Lo-Fi loop sampler. Same as the first song. Clean piano. E flat A flat. A distorted piano sound coming from a very small amplifier that runs on battery. Voice.***

***A -aaaaaa.***

***Chorus. Piano solo. The loop comes back in.***

***Wild horses come and set the flare.***

***Wild horses see the lights disappear.***

***Wild horses join us way down low.***

***Wild horses see us through until we go.***

***Sound of me leaving the piano chair.***

***Fade out.***

2115: Wipe my face. Go to front door. Sell albums. Talk to many nice people.

2130: Listen to next band

2300: Take down instruments and Lightning Mountain. Coil up all cables and power supplies. Pack everything in cases. Carry to car.

2400: Do album sales settlement. Talk to some people.

0100: Go to hotel. Go out to get some food

0200: Sleep.

## memories of interagency

#1

[Video Examples Playlist – Ex. 10)

A re-presentation of material in a delayed and abstracted sound allows me to see other sides of my original material.

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#2

[Video Examples Playlist – Ex. 11)

The sound of processed material affects register choices and vice versa. This is possible because audio and midi is feeding the processing with information simultaneously.

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#3

[Video Examples Playlist – Ex. 12)

Feedback is generated from within the processing system. These potential sounds arising from the physical/technical attributes of the instrument are difficult to control.

#4

[Video Examples Playlist – Ex. 13)

Computer crash making a temporary stop in the musical development of the pass and a drop in quality.

#5

[Video Examples Playlist – Ex. 14)

The possibility of playing loud makes me want to play loud.

## interconnections

I made this project a messy and complicated one on purpose. All sound signals can be routed to all outputs. The PA system, the guitar amps, the small loudspeakers inside the piano, the sub-woofer under the piano. Different outputs give different sound qualities. Midi signals from the piano keyboard can be routed to all midi devices. Audio from the microphones can go to the digital and the analogue modules at the same time. The processed material goes back into the microphones and are processed once more. Midi messages in the digital system are converted to CV and sent to the analogue section. CV are converted to midi messages and sent to the digital systems.

A broad mantra throughout the technical and musical work has been one of interconnectivity. New and old equipment. Ideas from different musical fields. Sounds that I just found. Sounds that I have kept for years. Unpredictable feedback sounds. Vocals processed through the piano. Inspirations generating sounds. Sounds generating equipment. Equipment generating inspirations generating sounds. Different sonic eras. Intuition and machinery. Serial connections. Parallel connections. Analogue and digital.

Using many standards for control signal transmission. MIDI. CV. USB. OSC. Many choices of sound outputs.

Giving up control over the connections, the sounds, the music, the instrument, oneself.

# V

# TECHNICAL MANUAL



### HyPer(sonal) Piano EXPERIMENTAL SYSTEM DEVICES AND PATCHING

| Modules  | MIDI IN   | Audio in | CHAIN NR.        | Comments                              | Alternative playing techniques |
|--|-----------|----------|------------------|---------------------------------------|--------------------------------|
|  |           |          | Chain A/B/C....  |                                       |                                |
| ANALOGUE STOMPBOXES                              |           |          |                  |                                       |                                |
| Moog Ringmodulator                               |           | Pickups  | A:5              | (ringmodulates pitch)                 |                                |
| Bug Brand PT Delay, CV modulated                 |           | Pickups  | A:7              |                                       |                                |
| TC Bodyrez                                       |           | Pickups  | A:2              | (enhance lows and mids)               |                                |
| Zvex Tremorama                                   |           | Pickups  | A:9              |                                       |                                |
| Mission Engineering Delta III                    |           | Pickups  | A:5              | (distortion)                          |                                |
| Boo Instruments Boost                            |           | Pickups  | B:1              | Boosting levels for dist effect chain |                                |
| Squarewave Parade Pollen                         |           | Pickups  | B:2              | (distortion)                          |                                |
| Hexe Revolver                                    |           | Pickups  | C:1              | (alters spectral brightness)          |                                |
| Squarewave Parade Teaspoon                       |           | Pickups  | C:2              |                                       |                                |
| Earthquaker devices Rainbow machine              |           | Pickups  | A:4              | (detuner)                             |                                |
| Earthquaker devices Arpanoid                     |           | Pickups  | A:8              |                                       |                                |
| Earthquaker devices ToneJob EQ                   |           | Pickups  | A:1              | (alters spectral brightness)          |                                |
| Red Panda Particle                               |           | Pickups  | A:6              |                                       |                                |
| OTO machines Biscuit (analog/digital)            |           | Pickups  | A:3 (split to C) | (alters sound res. in bits)           |                                |
| zVex LoFi Loopsampler                            |           | Pickups  | A:10             | (make lofi rep. of sound)             |                                |
| Strymon Blue Sky Reverb                          |           | Pickups  | A:11             |                                       |                                |
| Copilot Fx Broadcast                             |           | Pickups  | LFO to PT delay  | LFO/CV to PT delay, no int. sound     |                                |
| DIGITAL UTILITIES CPU1, compiled in Ableton Live |           |          |                  |                                       |                                |
| Twin Tremolo guitar fx                           |           | Pickups  |                  | Sent solely to live recorder          |                                |
| Echoboy Crystallizer                             |           | Pickups  | D:1              |                                       |                                |
| Echo Boy Decapitator                             |           | Pickups  | D:2              |                                       |                                |
| 1976 Compressor                                  |           | Pickups  | D:3              |                                       |                                |
| Hadron Particle Synthesizer                      | P.Bar     | Pickups  |                  | Granular morphing device              |                                |
| Valhalla Vintage Reverb                          |           | Pickups  |                  |                                       |                                |
| Buffer Shuffler 2.0, Max for Live                |           | Pickups  |                  | Random volume wobble real time        |                                |
| Audio Samples Playback                           | Kenton K. |          |                  |                                       |                                |
| Native Instruments Kontakt                       | All ins   |          |                  | Dubbing pno. with diverse samples     |                                |
| UVI workstation with Ircam Prep. Pno Bank        | All ins   |          |                  | Dubbing pno with samples              |                                |



### HyPer(sonal) Piano EXPERIMENTAL SYSTEM DEVICES AND PATCHING

| Modules                          | MIDI IN | Audio in    | CHAIN NR.       | Comments                                   | Alternative playing techniques |
|----------------------------------|---------|-------------|-----------------|--|--------------------------------|
|                                  |         |             | Chain A/B/C.... |  |                                |
| Ableton Bassline FM synthesis    | P.Bar   |             |                 | Dubbing pno. with FM synth                 |                                |
| Max for Live Spectral Harmonizer |         | FM synth    |                 |  |                                |
| Ableton Analog                   | P.Bar   |             |                 | Dubbing with sinus bass sound              |                                |
| Loop Shifter, Max for Live       | All ins | Marxuino    |                 | Random granular rep. of marxuino samples   |                                |
| Loop Shifter, Max for Live       | All ins | Casio SK-10 |                 | Random granular rep. of casiopiano samples |                                |

#### OTHER HARDWARE

|                          |       |            |  |                            |                                   |
|--------------------------|-------|------------|--|----------------------------|-----------------------------------|
| MicSlide                 |       | Bottleneck |  |                            | Playing the strings w. bottleneck |
| Contactmic Left          |       | PiezoMic   |  | Panned Left                | Playing the frame/ strings etc.   |
| ContactMic Right         |       |            |  | Panned Right               | Playing the frame/ strings etc.   |
| Teenage Engineering OP-1 | P.Bar |            |  | Dubbing and live recording |                                   |
| BugBrand                 |       |            |  | Noise Generator            |                                   |

INSERTS, can receive and route all audio      All audio

|                             |  |           |  |  |  |
|-----------------------------|--|-----------|--|--|--|
| Valhalla Vintage Reverb     |  |           |  |  |  |
| Electroharmonix 2880 Looper |  | All audio |  | 4 track looper, tempo adj. and reverse |  |
| Stutter, Max for Live       |  | All audio |  | Random based stutter effect. Pan left  |  |
| Stutter, Max for Live       |  | All audio |  | Random based stutter effect. Pan right |  |
| Lightning Mountain          |  | All Audio |  | Transfers Audio to Light patterns      |  |

#### SECOND CPU. STANDALONE MAX PATCHES

Receives digital audio from all of the above

|                           |         |         |  |  |  |
|---------------------------|---------|---------|--|--|--|
| Max 4 track random looper |         | Digital |  |  |  |
| Max Midi random looper    | All ins |         |  |  |  |

#### AUDIO OUT DEVICES

|                          |  |             |  |  |  |
|--------------------------|--|-------------|--|--|--|
| Fender Deluxe 65 Reissue |  | All audio   |  |  |  |
| Marshall Mini-Amp        |  | Chain C     |  |  |  |
| Exciters in Grand Piano  |  | CPU 1 Audio |  |  |  |

### HyPer(sonal) Piano EXPERIMENTAL SYSTEM DEVICES AND PATCHING

| Modules                              | MIDI IN | Audio in    | CHAIN NR.       | Comments                | Alternative playing techniques |
|--------------------------------------|---------|-------------|-----------------|-------------------------|--------------------------------|
|                                      |         |             | Chain A/B/C.... |                         |                                |
| Percussive sounds on separate tracks |         | Percussive  |                 | To PA/Monitors/Exciters |                                |
| UE Boom Bluetooth Loudspeaker        |         | CPU 1 Audio |                 |                         |                                |
| Lightning Mountain out               |         | CPU 1 Audio |                 |                         |                                |
| Electroharmonix Looper out           |         | CPU 1 Audio |                 | To PA/Monitors/Exciters |                                |
| Master out                           |         | CPU 1 Audio |                 | To PA/Monitors/Exciters |                                |

#### MIDI IN DEVICES

|                                  |  |  |  |                                    |  |
|----------------------------------|--|--|--|------------------------------------|--|
| Moog Pianobar with Midisport 2x2 |  |  |  | All midi routed in Ableton Live    |  |
| Novation SL MK2 25               |  |  |  |                                    |  |
| OP-1                             |  |  |  |                                    |  |
| Kenton Killamix                  |  |  |  | For tracks and midilooper on CPU 2 |  |

#### PERIPHERALS

|                                |  |             |  |  |  |
|--------------------------------|--|-------------|--|--|--|
| RME UCX Soundcard on CPU1      |  |             |  |  |  |
| RME BABYFACE Soundcard on CPU2 |  |             |  |  |  |
| PALMER PLI-01(line iso box)    |  | Chain A     |  | Used if there are ground loop problems |  |
| RADIAL JDV DI box              |  | Chain A,B   |  | Yamahiko in, split out to A/B          |  |
| RADIAL JDI                     |  | All digital |  |  |  |

These models and the following technical descriptions describe the instrument as of June 2016. The instrument will continue to evolve after this, and has evolved up to this point. Other devices that have been tested but not included in this setup will also be described in the following texts.

## digital section I, Ableton Live



I don't aim to describe exact technical specs of each device or patch. I rather try to describe what the devices do musically and how they relate to the trails and poetics of my project.

### Workspace and workflow

I started using Ableton Live when I initiated this project. **The choice was based on the need to import software tools from the studio setting into the performing situation.** The option to create my own devices in Max and utilize them in Max for Live (M4L) also influenced my choice. Ableton has a series of stable audio and midi tools that work on a low CPU load, bread-and-butter processes like compression, filtering, delay and transposing. The possibility of having a digital interface that could incorporate third-party plug-ins that I had used in the studio, my own programming for live purposes and the stable Ableton midi and audio architecture, made Ableton seem ideal for the project.

This being said, the introduction of custom made patches through Max4Live, alongside other external programming sources, destabilized the programme a lot. I have been in touch with the Ableton support team with problems frequently, most often related to third party plug-ins. It took about 16 months of work on restructuring and troubleshooting the Ableton setup before I had a solution stable enough to go on stage. The problem with instability is not related to the Ableton architecture, but mostly to faulty plug-ins causing memory leaks or conflicts between different software tasks, complicated by third-party software.

Software choices are important for the workflow. The workflow is essential to how the music turns out. A workflow with too many obstacles in terms of instability, needs for file and software conversion and frequent rounds of troubleshooting and restarting take focus away from the musical process. To accomplish a good workflow, I need a complexity in the setup that can match and

challenge the complexity of my music making. The setup needs to be stable and sturdy, not letting technical problems or a bungled workflow get in the way.

I took an extensive course in Max as a part of my project. This made it important for me to be able to integrate my work on that platform into the DAW (digital audio window) of my project. When I use the two computer setup, I use my programming in full-scale through Max. In the setup with one computer, I am using the same programming ideas, only reduced, through M4L in Ableton. The reduction of Max programming into the M4L environment is forcing me to find the essence of the processing, deciding which functions of the patch I need and which to exclude. This clarification often leads to changes in the original patch too.

Another important concern I had when choosing platforms and building a workflow was the midi routing possibilities. A main aspect of constructing an electronic instrument is the interface, assigning buttons, pots and sliders to different parameters in the software. New music often demands change of these setups quite frequently, and I need to be able to do these changes very swiftly to not obstruct the musical workflow. Other DAW's designed for tracking like Reaper, Pro Tools, Cubase and Logic have a structure making midi-routing a more cumbersome process.

### **Computer bullet points**

- Always have the latest updates of software and all plug-ins. Check compatibility with your operating system.
- Involve the software-manufacturers support team. There is a lot to learn from those who wrote the codes.
- Use the DAW's internal plug-ins when possible to save on CPU-load.
- If crashing, try to remove suspicious tracks one by one, and see if the problem persists.
- Use buses, not inserts if possible.
- Check the CPU-meter when adding a process to see what the process demands regarding data-power.
- Use RAM- and CPU-logging software like the Activity Monitor to see what is going on and reveal memory leaks and other abnormalities.
- Make sure the computer is not too hot.
- Use SSD disks.

### **My computer Specs**

MacBook Pro, 15-inch, Mid 2012

Processor 2.6 GHz Intel Core i7

Memory 8 GB 1600 MHz DDR3

Soundcard: RME UCX, RME BABYFACE

Midi: Novation SL MK2 25 keys with TouchKeys, Midisport 2x2, Kenton Killamix Mini.

## Ableton track setup

This Ableton setup uses about 28 % CPU, and utilize about 1.3 GB RAM when running normally. With this setup, I can play on 128 samples (appr. 5 ms) latency. In my instrument, I've found that anything under 8 ms. latency is acceptable.

### Track 1 Clean Piano

**Type:** Audio track  
**Input:** Pickups  
**Output:** Sends only  
**Sends:** To 2880 looper  
**Inserts:** Ableton Basic Twin Tremolo  
Guitar

This track's function is to process the input piano sound and send it directly to the hardware looper. The sound is not patched out directly.

### Track 2 Cleanreverb

**Type:** Audio track  
**Input:** Pickups  
**Output:** Master 1-2/PA  
**Sends:** None  
**Inserts:** Altiverb 6, wet signal only

A pure reverb track with an emulation of a reverb that I like, the EMT 140 Plate. I make sure to send the wet mix only to outputs (direct signal is muted), avoiding phase and latency issues.

### Track 3 SAMPLES

**Type:** Audio track  
**Input:** None  
**Output:** None  
**Sends:** None  
**Inserts:** Liine Kapture

This track's plug-in is designated to store snapshots of the different settings in Ableton, making it possible to move very fast between different snapshots without having to load new live sets or do transformations manually. A tool with certain limitations towards third party plug-ins. Still, I find it very useful.

### Track 4 Reverb Piano

**Type:** Audio track  
**Input:** Pickups  
**Output:** Master 1-2/PA  
**Sends:** To 2880 looper  
**Inserts:** Ableton EQ 8/  
Valhalla Vintageverb/  
Ableton Compressor

Reverb track with a more artificial and adjustable reverb, opening up for very long reverb and pitch modulation of the reverb. The EQ is there to modify the sound before reverberation. There is a slight compression to make the reverb a little bit more static in level. Direct signal is muted.

### Track 5 Hadron Piano

|                 |   |
|-----------------|---|
| <b>Type:</b>    | Audio track   |
| <b>Input:</b>   | Pickups   |
| <b>Midi in:</b> | Moog PianoBar   |
| <b>Output:</b>  | All outputs can be used, depending on musical setting |
| <b>Sends:</b>   | Reverb, 2880 looper                                   |
| <b>Inserts:</b> | Partikkel Audio Hadron/<br>Ableton EQ /Ableton 1976   |

This track is one of my most used. This plug-in is very versatile coming to create abstractions of musical material and dystonic sounds with more or less dissolved pitches. It also reacts to midi, and this connects the plug-in's response to what I play.

The plug-in is using granular synthesis algorithms, and it can react to audio in real time or use recorded samples. It can run in four states simultaneously, and there are different states taking on different sound processing/generating strategies. A x/y trackpad makes it possible to mix/morph between different states. The plug-in has four parameter controllers which act on parameters in each state.

I am using this tool a lot because it can generate new musical material based on real-time recordings of what I play, from direct to very abstracted regarding pitch, timing, frequency profile etc. This effect makes it a good interplay partner and source. It is also the best granular effect I have tried regarding sound quality and absence of unwanted comb-filtering-like effects.

I also use the plug-in with other samples and sound sources as input.

### Track 6 DIG EF

|                 |   |
|-----------------|---|
| <b>Type:</b>    | Audio track   |
| <b>Input:</b>   | Pickups   |
| <b>Output:</b>  | Master 1-2/PA   |
| <b>Sends:</b>   | Reverb, 2880 looper   |
| <b>Inserts:</b> | Ableton EQ 3,<br>Soundtoys Crystallizer,<br>Soundtoys Decapitator,<br>Ableton 1976 Compressor |

The crystallizer is a pitch shifting granular reverse echo, with tweak-able parameters like pitch, grain size, delay tempo and modulation.

When hidden in the sound output it can contribute to a widening and opening of it. I have added a Decapitator Distortion to make the effect a little less cold and a bit more grainy and gritty.

### Track 7 LFO wob

**Type:** Audio track  
**Input:** Pickup or Piano samples from Kontakt  
**Output:** Master 1-2/PA  
**Sends:** None  
**Inserts:** Ableton Dynamic Tube, M4L Buffer Shuffler 2.0

This track is creating a layer of vacillating movements in the sound surface by constantly recording what I play into a buffer and then playing it back with dynamic alterations. The volume of the playback is varied by a random LFO. This results in a quite hectic and unpredictable dynamic output.

### Track 8 Trommetracks

**Type:** Audio track  
**Input:** None  
**Output:** Ext out 3-4/PA  
**Sends:** Reverb, 2880 looper, stutter L/R, lightning mountain  
**Inserts:** Reverb, 2880 looper, stutter L/R, lightning mountain

A track designated to play back prerecorded material such as drums, noise backgrounds, voices etc.

### Track 9 ALT TR

**Type:** Audio track  
**Input:** None  
**Output:** Ext out 3-4/PA  
**Sends:** Reverb, 2880 looper, stutter L/R, lightning mountain  
**Inserts:** None

A separate track made to be able to play back materials simultaneously as track 8.

### Track 10 ALT TR2

**Type:** Audio track  
**Input:** None  
**Output:** Ext out 3-4/PA  
**Sends:** Reverb, 2880 looper, stutter L/R, lightning mountain  
**Inserts:** None

A third track designated to play back prerecorded material.

### Track 11 KONT

**Type:** Midi track  
**Input:** All midi devices, but mostly Moog Pianobar  
**Output:** Depending on music  
**Sends:** Reverb, 2880 looper  
**Inserts:** Native Instruments Kontakt

A midi track used to dub the piano with different polyphonic samples, often to dissolve pitch or to move the output towards complexity. Sometimes also to unfold, broaden and sustain chord sequences using tonic sounds with longer sustain and decay than the piano sound.

### Track 12 UVIW

**Type:** Midi track  
**Input:** All midi devices, but mostly Moog Pianobar  
**Output:** Depending on music  
**Sends:** Reverb, Stutter L/R, Lightning Mountain  
**Inserts:** UVI workstation

A track dedicated to trigger the IRCAM prepared piano bank samples.

### Track 13 FM synth

**Type:** Midi track  
**Input:** All midi devices  
**Output:** Master 1/2  
**Sends:** Reverb, 2880 looper, Stutter L/R  
**Inserts:** M4L Bassline, M4L Spectral Harm, Ableton Compressor

A track to dub the piano sound with a very straight forward FM synth that can be pitched in an instant hitting one button. activating the Spectral Harmonizer. This plug-in is similar to a frequency shifter and dissolves tonality. When used un-pitched this sound can add a very powerful low end and punch in the higher registers when I want to come through in very loud surroundings.

### Track 14 Bass

**Type:** Midi track  
**Input:** Moog Piano bar  
**Output:** Master 1/2  
**Sends:** Reverb  
**Inserts:** Ableton Pitch, Ableton Analog, Ableton Compressor, M4L Gain

A designated track to add sub-bass to the piano bass notes. Limited to working only below A3.

### Track 15 Marx

**Type:** Midi track  
**Input:** All midi in devices  
**Output:** All, depending on music  
**Sends:** Reverb, 2880 looper, lightning mountain  
**Inserts:** M4L Loop shifter, Ableton Compressor

Samples from the home built Marxuino, mapped out through the Loop shifter plug.



### Track 16 Casio ST

**Type:** Midi track  
**Input:** All midi in devices  
**Output:** All, depending on music  
**Sends:** Reverb, 2880 looper  
**Inserts:** M4L Loop shifter,  
Ableton Compressor

Samples from a Diabolical circuit-bended Casio piano, mapped out through the M4L Loop shifter plug.

### Track 17 Slide

**Type:** Audio track  
**Input:** MicSlide, Ext. in 2  
**Output:** All, depending on music  
**Sends:** Reverb, 2880 looper  
**Inserts:** Ableton EQ 3, Soundtoys  
Echoboy

Track to process and route the MicSlide into the system.

### Track 18 PZO L

**Type:** Audio track  
**Input:** Piezo, Ext. in 3  
**Output:** Master 1 (left)  
**Sends:** Reverb, 2880 looper,  
Stutter L/R  
**Inserts:** Ableton EQ 3

Track to process and route the first contact microphone from the Mic Bundle into the system.

### Track 19 PZO R

**Type:** Audio track  
**Input:** Piezo, Ext. in 4  
**Output:** Master 2(right)  
**Sends:** Reverb, 2880 looper,  
Stutter L/R  
**Inserts:** Soundtoys Echoboy

Track to process and route the second contact microphone from the Mic Bundle into the system.

### Track 20 OP

**Type:** Audio track  
**Input:** Ext in 5/6  
**Output:** Master 1/2  
**Sends:** Reverb, 2880 looper  
**Inserts:** Izotope RX4 Denoiser, due  
to ground loop problems  
using USB power

Track to process and route the OP-1 synth into the system.

### **Track 21 BUG:**

**Type:** Audio track  
**Input:** Ext in 7  
**Output:** Depending on music  
**Sends:** None  
**Inserts:** None

Track to process and route the BugBrand Boardweevil into the system.

### **Track 22 Hadron Midi**

**Type:** Midi track  
**Input:** All midi ins  
**Output:** Track 5 Hadron Piano  
**Sends:** None  
**Inserts:** M4L transpose,  
M4L PksMidiTool

Track to route midi from all devices to the Hadron audio track.

### **Track 23 Midi:**

**Type:** Midi track  
**Input:** All midi ins  
**Output:** Midi to OP-1 synth  
**Sends:** None  
**Inserts:** None

Track to route midi from all devices to the OP-1 synth.

### **Track 24 Midi:**

**Type:** Midi track  
**Input:** All midi ins  
**Output:** Midi to TC Helicon  
**Sends:** None  
**Inserts:** None

Track to route midi from the Moog Pianobar to the TC helicon voice processor.

## **Inserts**

### **Insert 1**

**Type:** Insert track  
**Input:** All sends  
**Output:** Master  
**Inserts:** Valhalla Vintage Verb

## **Insert 2**

**Type:** Insert track  
**Input:** All sends  
**Output:** 2880 looper  
**Inserts:** Valhalla Vintage Verb

## **Inserts 3/4**

**Type:** Insert track  
**Input:** All sends  
**Output:** 2880 looper  
**Inserts:** M4L Stutter

## **Insert 5**

**Type:** Insert track  
**Input:** All sends  
**Output:** Lightning Mountain  
**Inserts:** AU delay (for displacement of sound sent to the lightning mountain) and compressor (for level)

## **Master Track**

**Type:** Master fader track  
**Input:** All routed  
**Output:** Ext out 1/2  
**Inserts:** None

## digital section II, Max

In settings when I am not playing the Personal Piano material, I often use a second computer in my setup. This computer executes two patches in Max. The first tool is a four track recorder and playback machine with modulation and random playback and time stretching possibilities. The second tool is a midi-recorder and playback machine with randomization of playback notes, orders and durations, made in collaboration with research fellow Christian Blom. I send audio to this CPU from the first CPU using Adat optical. The midi is routed from the first CPU to the second CPU using a software called Bome's Midi Translator.

### **4 track recorder/random playback/time stretch**

The device is controlled from the computer keyboard and mouse, but single parameters may be set up to be controlled from a midi-controller if needed. In this case for my setup, the keyboard/mouse setup was the most convenient and compact.

The buffers of each track can record up to 1 minute of stereo audio. The buffer can be larger or smaller by changing arguments to the buffer-object in the program. The waveform windows of the programme are dynamic, and adjust visually to the length of the recorded sound file. Each track can be deleted by pushing CLEAR once. Controller types for editing and playback of the sound file are chosen in the toolbar for each waveform window.

Regular playback, forward/reverse and stop can be chosen with individual keys for each track. The playback speed can be altered with a slider, and fine tuned with a dial connected to the slider. Panning and volume are set individually on each track. In addition, the playback speed on each track may be regulated to create a tape-recorder emulation with smaller or larger variations in tape-speed. The modulation is controlled by a sine wave, where speed and rate are adjustable.

Each track has a random playback function, inspired by granular techniques. The starting points are chosen randomly: Length of playback and speed of the starting point selection can be tweaked. The selection speed can be regular or varied, depending on settings.

If I create something with the patch I want to keep, it's easy do a mix down of this material. The TimeStrech processing is activated with the recorded mix down. Timestretch can be varied in tempo, clip length and clip start. The time stretching affects the length of the recorded clip without affecting its pitch.

The master from the device goes through a 4 track EQ. The Q-value for each band may be altered and the EQ is edited with the mouse.

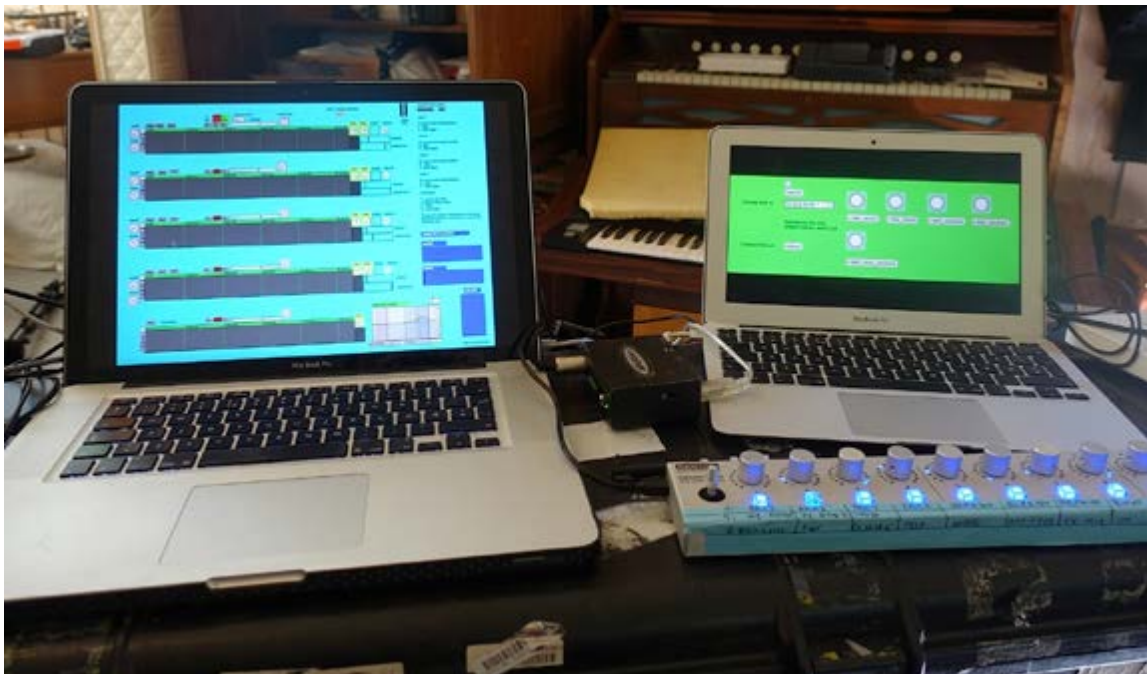
There are clicks when playing back with the random function. This is on purpose. I like the rhythmical random function of the clicking sounds.

The keyboard controls are written in the patch window. Audio must be turned on and interface chosen by clicking the adc-object on startup.

P- code (locked):

[www.mortyq.com/documentation](http://www.mortyq.com/documentation)

The remix I did of a Saskia Lankhoorn concert was done using this device a great deal. This remix is presented under the chapter on "**comfortable - uneasy**" on page 60. I prepared for this remix using her record with the same compositions as she played on the concert. I recorded passes with this device, tweaked them and mixed down materials I was happy with. I created a prerecorded sound bank for use at the 'live' remix.



### **Max Midilooper**

This device records incoming midi signals when hitting the record button, and stops using the stop-record button. All buttons and dials are routed out to a Kenton Killamix midi-controller. There is no length-limit to the recording.

The recorded midi part can be played back as is or it can be played back with a cut-up function, choosing random starting points in the file. The length of the clips are adjustable, and the length and pitch of each tone can be gradually randomized using a slider for each parameter.

This patch have the same functionality when used in Max or Max4Live.

I think of the device as a remix machine. When I record midi of a longer stretch, I can stop playing and work with this device, sending the midi alterations into a sampler with a different sound. What I played on the piano is represented in a new sound. Further, I can alter the tonality and rhythmical aspects of the stretch to a degree that the resemblance to the original stretch disappear. This is creating musical material and a new input to the playing situation which I can use for further improvisation.

P-code (open):

[www.mortyq.com/documentation](http://www.mortyq.com/documentation)

In this pass the midi is being recorded:

[Audio Examples Playlist – Ex. 43] (From jöK & seasicK #10, 19 January 2015, NMH)

In this pass the midi is being used with the midilooper device, sending the processed midi into a sampler with a Casio sk-5 sample.

[Audio Examples Playlist – Ex. 44] (From jöK & seasicK #10, 19 January 2015, NMH)

# pedal poetry

ringmodulator

bug brand PT delay, CV modulated

bodyrez

tremorama

mission delta III

boost

squarewave parade pollen

revolver

squarewave parade teaspoon cream and sugar

rainbow machine

arpanoid

tonejob

red panda particle

biscuit

lofi loopsampler

blue sky

broadcast

echorec

These are the names of the 18 pedals in my setup.

## fx pedal section



[Video Examples Playlist – Ex. 15]

This section consists of three effect chains, based on 18 different pedals. The input is one mono signal from a Yamahiko Piano Pickup or a Helpinstill pickup system. The Yamahiko is placed under the grand piano, and attached firmly to the resonant bottom using pressure from the wooden beams holding the grand piano construction. The Helpinstill is mounted inside the case, with no use of screws or adhesives. This is a gentle way of using contact microphones/humbuckers on a grand piano, because it is not involving any mechanical parts, tape or glue that may harm the lacquer on the wood.

### **Chain A – Multi FX:**

**A:1 Earthquaker Devices ToneJob EQ:** 3 band EQ with 20 db. input boost, useful when working with unpredictable input signals regarding spectrum and dynamics. Each band can boost or cut the actual signal fivefold the input level, which makes this EQ powerful for signal shaping.

I use it before the other effects because I want to control the piano pickup sound before I send it to the other devices. The sound can be very different from instrument to instrument, and is also depending much upon microphone placement. This calls for a frequency control option to ensure a good starting point for the processing. This device alters level and spectrum of the sound, and relates to the trail brightness – darkness.

Other tests: I have tried to route the Yamahiko through my digital section (Ableton Live) before the pedal section. Then I could do a precise digital graphic EQ of the signal before my effects. I turned down this strategy because of latency and more sources of error coming with another link in the signal chain. I often found myself troubleshooting my complex pedal section, while the error was in the patching or routing of the digital section. This was more complex than necessary, so I decided to separate these systems to make the setup more transparent. I still patch the pedal section back into



the digital domain, but now I do it via a DI-box split just before the amplifier. Then I will know if my pedals are working before I involve the digital section. This eases the process of troubleshooting a great deal.

**A:2 TC Bodyrez:** Pedal designed to warm up piezo pickups on acoustic guitar. It also has a circuit that controls feedback to some extent.

I use it because I can get a little more level in the mid and low area before feedback.

Other tests: To my knowledge, there are no other devices with this combination of filtering, subtle compression and feedback-suppression. I have tried using compression devices like the Analogman Compressor and the Xotic XP Compressor. The problem with compression in an instrument like mine is that it will lower the level when I am playing and raise the level while I am not playing, increasing the risk of unwanted feedback when I am not making any sound. Because of this I decided to exclude pure compression processes in my pedal section.

Using a designated feedback-suppressor in combination with a compressor might work even better for the same purpose, but the options available were too big for my setup.

**A:3 OTO Machines Biscuit:** An advanced bit crusher (biscuiting) with some effects and a filter section. It allows for muting and inverting each of the bits in an 8 bit downscaling process. It can add wave shaping, delay, pitch shifting and modulated filter processing to the signal. OTO also has a synth generator and the possibilities of storing presets.

I use it because of its many options on bit crushing the piano signal. I like this effect, but I often find it too bright or too prickling. This device allows for filtering and many nuances on this type of processing, and it also has the capability of creating distortions, tremolo and noise effects with a digital vibe. These sounds have a brightness that make them cut through in complex soundscapes, a feature I find useful. The possibility of saving presets is good when switching rapidly between different sceneries. This versatile device can alter spectrum, granularity, gait, pulse, structure, onset, tail and dynamics of the original sound.

Other tests: I tried to work with bit crushing in the digital section, but this is a process I find quite sensitive to latency, so I moved it to the no-latency pedal section. I also liked the Bugbrand Bugcrusher and the WMD Geiger Counter, but I found the OTO a bit more versatile for my setup.

**A:4 Earthquaker Devices Rainbow Machine:** Can pitch shift the signal into two different pitches, and alter the lag between the original signal and the pitched signal. It also has a 'magic' function, used to make various sound cascades of dystonic material.

I use it because I like the effect when I detune the piano slightly, putting the pitch adjustment knob just a few millimeters off centre. This is my specific use for this box, but used fully it may abstract the

sound completely, alter gait and structure of the sound, besides affecting the pitch and thereby also the spectrum of the sound.

Other tests: The Strymon Blue Sky does something similar, but then as a part of the reverbed signal (wet-signal), making the pitched representation more diffuse. A similar effect can be obtained using a modulated short delay mixed with the dry-signal, but I find this strategy a little less direct. There are lots of pitch shifters on the market doing quite similar alterations to this parameter, yet they react slightly different to setups and inputs and therefore they have to be tried in the specific setting to judge their effectiveness and response.

**A:5 Moog Ringmodulator:** Altering the timbre and pitch of the original sound by modulating that sound with a sine wave, multiplying the waveforms.

I use this device because it is the warmest and least harsh ring modulator I have found for the piano sound. This device can dissolve pitch completely or be used very subtle. It also alters granularity and spectrum of the sound.

When ring modulating, I find that the analogue devices produce a sound closer to my poetics than the digital ones. I think that the digital devices are too correct and too cold. From my point of view, this process benefits from an analogue circuitry.

Other tests: This process is also tested in the digital domain, but I didn't find software that responded satisfactory. With ring modulation and other distortion processes especially I search for devices that respond distinctly and with small changes in details based on my action on the keys. I especially look for the response in the onset phase. Something more than just a predictable response to an input sound. When the sound result from a process feels like an extension of the arm I am onto something. CoPilot Android and Zvex Ringmod are other interesting hardware devices for this use.

**A:6 Red Panda Particle:** A versatile pedal, using granular synthesis processing to chop up the original sound and process the result with various delay or pitch processing styles. The grain size and wet/dry mix are adjustable.

I like this pedal because it is capable of altering sound surfaces, but also the musical material due to its randomness and unpredictability. It can depict a cloud of shattered piano sounds or a drunk copycat. I like the directness of the stomp box interface, which is difficult to obtain in a computer setup. This device works with gait, granularity, pitch, structure, pulse and tail of the sound.

Other tests: Software tools based on granular sound processing like the Granulator by Robert Henke, M4l Granular-to-go, M4L Loop Shifter and the IRCAM IM Mover. All these have been a part of my setup. I have included a random granular playback feature in my own programming of the 4trackLooper in Max. The Hadron device in my setup also works with this technique. All these granular devices have different architecture and by that a very different sound and functionality. This makes it difficult to judge their quality, as they are different tools for different uses. I would

recommend testing a broad variety of devices in a category like this, searching for what music the different units can produce from a particular input sound.

**A:7 Bugbrand PT delay:** A delay with low pass filter and drive on the delay signal, and hi pass filter/boost on the input signal. Can receive CV-in, altering the speed of the delay using LFOs or expression pedals.

I like this delay because it has a dusty, lo-fi delay output that may be filtered, and I like the opportunity to take out the dry signal completely from the mix. The LFO controlled delay speed can create big pitch alterations with different modulation shapes.

Other tests: I have used the MoogerFooger Analog Delay with a Moog VX-351 CV Expander. This setup is doing much of the same as the one I currently use, but takes up a little more space in the pedal board. In the start of the project I used the Boss-RE20 Tape Echo emulation pedal, which I found a little too simple regarding modulation possibilities. Also the Roland 3000 SDD pedal has been in use in my setup, this delay is digital with more modulation options and sounds slicker. I often use this device in the studio, but I find it a bit too heavy to take on the road.

**A:8 Earthquaker devices Arpanoid:** This device arpeggiates the sound sent into it with adjustable scales, range and rate.

I like it because this is a strange effect in my music, usually related to techno and beat-based genres. In my instrument this device creates a strange echo with its pulse based processing of the original sound. It adds an artificial/strange/twin peaky factor to the sound. Alters pitch, pulse, structure, tail and spectrum.

This is the only device I have tested in this category, and I fell for it immediately. I like the simplicity of the pedal. There are pedals like the AdrenaLinn and other sequencer based effects that would be interesting to try out in the future.

**A:9 ZVEX Tremorama:** A tremolo that varies the level on the sound based on eight adjustable steps with a speed control, in which the playback-directions may be randomized and varied.

Makes vacillating dynamic changes on a sound. That is what I particularly like with it.

Other tests: This is the only analogue stomp-box to my knowledge doing randomized tremolo. The M4LBufferShuffler that I use in Ableton is also doing randomized alterations to the dynamics. Other sequencer-based effects might also be useful for these kinds of processes.

**A:10 ZVEX Lo-Fi loop junky:** A 20 second looper cutting off frequencies above 2.6 kHz, with compression and tone-adjustment.

I like it because it sounds dusty and old. The sound reproduction is drifting in pitch and the surface of the recorded sounds are rough in a humane way. Alters structure and surface and is one of the memories of my instrument.

There are many loopers available. This looper is not chosen mainly because of its looping functionality, but for the original sound quality of the looped playback.

Other tests: Nothing like it

**A:11 Strymon Blue Sky Reverb:** A digital reverb that emulates spring, plate or hall reverb. May have an extremely long decay, almost like freezing the sound, and have the opportunity of modulations to the reverb pitch. Also has a feature that generates shimmering reverbs.

I like this reverb because it is not too bright, and it has a good frequency response towards the piano sound. Many reverbs enhance too much low-mid, making the sound output muddy and unclear. In addition, I like that the parameters of decay and modulation can be pushed towards the extreme. Modulates spectrum, grains and tail of the original sound.

Other tests: I have two other reverb processes in the digital section with the Valhalla Vintage reverb, and the Altiverb EMT Plate convolution reverb. With these three options I have covered a range of reverbs ranging from the warm and short to the long and artificial. In addition to this, I have worked with the Ekdahl Moisturizer and the Vermona Retroverb, both mechanical spring reverbs. I like both of them, and especially the Ekdahl where the spring could be played. Yet these two devices had problems with travelling, as the springs are easily destroyed and they tend to pick up fast on local power issues. I had to cut them from my performing setup, but I still use them for studio purposes.

**A:12 Source Audio Programmable EQ:** 7 band graphic EQ to adjust the frequency spectrum precisely.

I use this in the end of the chain to adjust problematic frequency areas after processing. Like the pianos, every amplifier is a little different and also the rooms may contribute to a bigger accumulation in certain frequency areas. This device is a transparent and clean EQ to remove energy from certain bands, and it has the opportunity to store settings.

Other strategies: There are other stomp boxes with multi-band parametric EQ that can work for this purpose, but this is the only graphic EQ in stomp-box version I have found.

## Chain B – Extreme Distortion

**B:1 Boo Instruments Boost:** A regular clean booster needed to produce enough level for the next pedal.

Many boosters would work for the same purpose.

**B:2 Squarewave Parade Pollen:** A signal noise generator and distortion with audio in. When audio in is being used, the internal noise and pitch generator is muted, and the distortion processing circuit is used for the input sound.

This box can create extreme distortion and it has a gate function when there is no audio in. The result is that I can play extremely loud without any feedback, which is unusual when distorting acoustic sound. Artificial and still grainy and human. I use it with a volume pedal to be able to control the onsets of the sound.

Other tests: None like this. It sounds like a blend between a fuzz and a wave-shaper, and it is in my opinion a unique device due to its headroom before feedback.

## Chain C – Stutter

**C:1 HEXE Revolver:** A device that in different ways creates stuttering effects to the sound input. May be controlled in real time but is also working on its own in auto mode.

I like this device because it generates unpredictable responses to what I play. I also like stuttering and uncertainty in music, the effect is creating a friction, questioning what is being said.

Other tests: It is in the same family as the Teaspoon, but much more unpredictable in terms of sound output. I haven't tested anything else like it.

**C:2 Squarewave Parade Teaspoon cream and sugar:** An instant looper or window sampler, able to hold small parts of audio before a hold-button is activated. The hold function can be locked. When it is pushed, the pedal plays back the last bit of audio, depending on the adjustable sample size. The speed can also be adjusted. It works like a real-time stutter pedal, and the sampling function may be activated by a dedicated foot-pedal. A very rare pedal on the market.

I like that it can freeze a moment, take out a small incident in the music and loop it. Because the looping time is very short (around one second) it is not working like a normal looper but more like a freeze-effect. It is useful to create stuttering decays on a tone, or to comment melodic phrases or chords. It has a distinct lo-fi sound quality.

A combination with the HEXE Revolver can create an illogical and random output that I find useful, feeding my music with random inputs in real time.

## other hardware

**RME UCX Soundcard:** A sound card with 8 analog in/out, and digital I/O. Good sounding converters and stability. The right sized sound card for my setup.

I have also tested and used MOTU Ultralite Mk3 and Metric Halo ULN-2 for a longer period with good stability. I chose the RME card due to its architecture of inputs and outputs, and the fact that it can send CV out through the Phones output (unofficially).

**RME BabyFace Soundcard:** 2 analog in, 4 analog out, with ADAT or SPDIF I/O.

I use this second sound card when I use a 2 computer setup with my custom made recorders.

**Electroharmonix 2880 4 track looper:** A hardware looper with SD-card storage for larger chunks of audio. Can store four tracks mono or two stereo. Can trim audio playback speed ungraded, pitching audio down or up one octave. Easy to control in a live situation.

I use this hardware box mainly because it solved lots of computer problems. I used to have a similarly featured four track looper in Ableton Live, but this was a third party plug-in, and it caused major memory leaks making Ableton request up to 112 Gb of virtual RAM when I let it run overnight. They had never seen anything like it at Ableton Support.

Storing large audio chunks in computer RAM may cause problems and slow other processes, so I decided to prioritize stability before function and weight, moving this process to this hardware. All audio that I produce may be routed to this looper via Ableton.

Other options: Digitech JamMan, Boss RC-30 or 3000, Electro-Harmonix 22500 or 45000.

**OP-1 Synthesizer:** A small synth with many features. Roughly, it is divided into a recording section for recording internal or external audio, a synth section and a drum section. There are also several sequencer functions.

I generate midi from my piano using the Moog Pianobar. These midi-signals can be routed to the OP-1, and I often use these signals to dub the piano sound with more noise-related material from this synth. I like its sound quality which is not slick. It is easy to work with dystonic materials on this device. I also generate midi from the 'tombola-sequencer', a feature playing back a pool of the latest input notes in random order and with irregular timings.

**Bugbrand Boardweevil 2012:** Two oscillator PCB design noise box/synthesizer with circuit bend copper panels and distance-sensors.

This device is quite difficult to control, yet I like its ability to create irregular clicking pulses and sounds resembling a bird reservoir. It also has a small loudspeaker, so it can work as a little 'acoustic' synthesizer inside the piano case.

**TC Helicon Voicelive 2:** Voice processor/vocoder/harmonizer. Fully programmable with preset storage. Receives midi from Moog Pianobar.

This device solved lots of problems with the vocal solutions when performing live. I tried to process vocal in Ableton, but it was never good enough regarding stability and headroom before feedback.

**Other hardware devices** that has been tested in the setup are: **DaveSmith Mopho** (for bass used live with sPacemoNkey), **Subtle noise maker & Weird sound generator Noisebox** (solo), **Eowave ribbon 2 synth** (used with sPacemoNkey), **BugBrand CubeWeevil noise box** (used occasionally), **Elektron Sid Station** (used with sPacemoNkey), **Moog Voyager** (used for bass on The Karman Line), **Folktek sound field 1** (used for studio processing on The Karman Line and Personal Piano), **Folktek Insectan** (used in studio) **Casio SK-5 sampling keyboard** (used for sample recording and playback in Ableton), **Waldorf Blofeld** (used in an early stage of the project).

## Mic Bundle



**Mic Slide:** A brass slide with an AKG 411 condenser microphone attached. Produces a very direct sound when rubbed against the strings or held on a string while hitting the corresponding key.



**Contact microphones left and right:** 2 slightly different piezo pickups plugged into Ableton and panned left/right. Used to play on the strings or the metal board to make rhythmical patterns, often through the stutter plug-in. Sometimes held against the body of the instrument while playing, or used with external sound sources like the Marxuino ([See "marxuino" on page 149](#)) or the Bugbrand Boardweevil.

**Radial DI boxes:** For the computer output I use the **Radial JDI stereo DI**. It is a big gain to have a designated DI box for a complex setup like mine, and this box is dealing with high inputs and ground loops humming.

For the pickup distribution, I am using the **Radial JDV DI**. It has steep-less ohmi-adjustment on the input, tailor made for piezo pickups. It also has several options on signal splitting, a lowpass filter and input selection. This box allows me to switch between the Yamahiko and the Helpinstill system.

Bringing my own DI boxes is one of the most important factors to ensure stability and an instrument sounding as good as possible.

**Palmer PLI-01 line isolation box:** Small device used to remove occasional hum from ground loops in the pedal section. Local circumstances on the venues regarding current, grounding and power distribution often create problems. This box deals with that in most cases.

Other tests: For a period I used the Radial ToneBone for pickups: It is a heavier box that can blend two piezos and also do filtering of the signal. I found that for my use, the blend function was not necessary, so I started using the JDV instead. This being said, the ToneBone is a solid problem solver when working with piezo microphones.





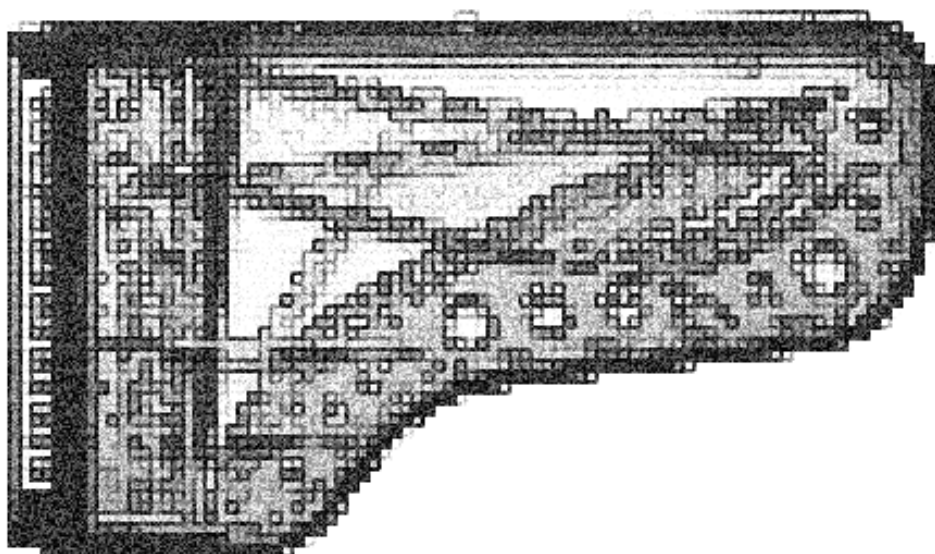
[Video Examples Playlist – Ex. 16] (from a solo concert at Kongsberg Jazz Festival, 4 July 2015)

**Moog Pianobar:** A stave that is resting on the wooden board on each side of the piano keyboard, having infrared sensors watching each key. Hooked up with a USB cable to a hardware box. Picks up note and velocity information and sends out midi messages based on this information

Other tests: There are no other similar devices that can be transported and mounted as fast as the Pianobar. You have pianos with fixed midi systems, and there are systems like the TouchKeys by Andrew McPherson, but they are permanent systems and not suited for travelling.



## microphones, processing and amplification



Taking in this view of the piano, as a surface that can be divided into a limitless amount of small spots, a different approach to recording and amplifying arises. This approach originates from working with Norwegian sound engineer Asle Karstad, and has continued evolving through working with the engineers Daniel Wold and Ingar Hunskaar.

Every spot has a slightly different sound profile beaming out of it. Spots far away from each other may differ more than close ones. Further away from the keyboard we might find more mid- and low-end. Closer to the keys the sound is brighter, and spots near metal parts may have more body. This varies a lot from instrument to instrument, depending on the construction. One method to find your spot is to listen closely under and above the instrument, knock it lightly with a knuckle to check the resonance spectrum at different spots. Another method is to get someone to play the piano and move the microphone around while listening to it in a headset.

## Microphone philosophy

**A turning point for me in my project was when I realized that the use of microphone wasn't a tool to amplify the sound that I heard from the grand piano directly, and then colouring it. The search for a hi-fi piano sound caused lots of problems with unwanted and uncontrollable feedback. The solution to these problems was the method of spot-amplifying and reconstructing sound.**

The piano is a big resonance case, and all the sounds recorded by a microphone and played out in the room is being recorded again by the same microphone when the sound from the loudspeakers are coming back to the resonance case. In all amplification there are sound loops occurring, and they create difficulties. If the bounce back from the room is too large we are amplifying the room, not the direct sound.

The attitude of reconstructing sound and not reproducing it 1:1 was a revelation, and it gives a flexibility on what processes I can do in the instrument. This strategy also makes it easier to control and use feedback for musical purposes.

I experience that these strategies work very well for lo-fi processing, a strategy where I move the processed material away from the original sound. I work with reductions of the total sound, giving it different characteristics with the use of processing. For processing that needs access to the full-bodied piano sound, I sometimes use samples from Kontakt triggered by the Moog Pianobar. This strategy keeps the piano sound intact while avoiding feedback.

## Distance

The normal way of amplifying and recording grand piano is to place a pair of microphones about 0.5 to 1.5 meters from the instrument arch. The model for this approach is our ears: we try to recreate what we hear as a total output coming from the instrument, using two good microphones. They capture even more of the spectrum than our ears are capable of. To me, this method does not work when the sound is amplified, because the amplified sound feeds back to the microphone and creates a sonic round-dance.

Our approach in this project is to move in closer, letting the amplified sound consist of a reconstruction where the sound from two to four smaller spots of the piano is equalized and mixed. The further we move the microphone away from the piano, the bigger area of spots we will capture, often resulting in a broader spectrum with more overtones. Yet when we move away, we capture more of the room's characteristics and the other sounds in the room. If we work with other performers playing on higher volumes, this might be a problem. The balance between distance and sound quality must be found depending on the performance-setting and the way we are going to use the sound.

When amplifying the 'acoustic' piano sound alone through a PA-system or on a recording, we might live with a higher degree of sound leakage from the surroundings and room attributes coloring the sound. That means we can work with more distance between microphones and instrument, and more open microphone characteristics (omni or 8-figure).

## Pickups



Helpinstill Pickup System

The amplification of the piano sound has been a main task, problem and issue in this project. The piano is a grand resonance case, and the attempt to amplify and process it loudly often results in grandiose feedback problems before getting a desired level. To solve this issue I had to find microphones that deliver high output without feedback. I tested a lot of varieties and ended up with the **Yamahiko Piano Pickup and the Helpinstill system as the best solutions**<sup>64</sup>. The sound from these pickups are fairly natural, and have lots of low end without creating problems. The Yamahiko, a contact microphone, has more 'wood' in the sound. The Helpinstill, which is a Humbucker has fewer overtones and a more 'electric' sound, almost like a Yamaha CP-70. The isolation in the Helpinstill system is very good, and bleeding from other instruments is never a problem. This makes it ideal for settings with high volumes. The Yamahiko is a bit more exposed to leaks from other instruments, so I use this in solo or low-volume settings. The Radial JDV DI has an option of choosing between these two pickup systems when both are mounted.

If the microphone signal I use for processing captures the sound of other performers on stage or studio, I will end up processing the whole group through my system. This can easily become a chaotic sonic situation, adding unwanted processing to sound sources other than mine. **My aim when I process a signal is to capture it as isolated as possible.**

<sup>64</sup> They had bought a Helpinstill system at a venue in Oslo and I also heard that Christian Wallumrød used it for prepared piano amplification, so I decided to check it out. The Yamahiko was found by trawling the internet. The internet and the jungle telegraph are my main methods to discover new equipment.

I also have to work on manipulating the sound to reduce feedback issues. I have an EQ right after the microphone preamp to take away unwanted frequencies before processing, and I have another one before the amp-stage to adjust the frequency spectre of the processed sound. The last EQ should have more bands and be more precise than the first to be able to remove narrow problem areas. In addition I use a TC Electronics BodyRez box to enhance low mid without getting feedback. There is a built in feedback destroyer in this device which make the output slightly fatter and louder. This is for the pedal section... I split the microphone setup into the digital section and uses digital parametric EQs before the digital processing. The equalizing must often be tweaked when I move between rooms, due to different acoustics. One important aspect to remember: if the house sound engineer uses the same pickup to get the unprocessed sound out in the PA, you will work on the same problem frequencies. It is best to use separate microphone setups for the piano sound in the PA and the processed sound system.

As I said, these microphones do not deliver what you hear when standing next to a piano, but as raw-material for further processing lots of character and personality can be added without having to battle audio-physical limitations. I have tested cheap acoustic guitar piezos, Gold Contact mics, Gold suction cup piezos, Scherkler and C-Ducer. I ended up with the Yamahiko/Helpinstill combo. Note that **piezo devices often need a good preamp and DI-box with high-ohmi input** like for example the Radial ToneBone to deliver a proper signal.



Yamahiko Pickup System

## Isolation and microphones

At one point in the project I started to think of the microphone as a gate. The gate width is decided by the microphone type and the placement of it. The gate can be wide open, or it can just have a very narrow opening that lets just a narrow spectre of the sound through. The decision on what parts of the sound this imaginary gate let through depends on what we are using the sound for. Is it for drastic processing or just a slight level increment? How do we want the finished output to sound like? How does the processing setup react to this particular microphone configuration? What does this configuration do to the playing?

A piezo microphone, depending on quality and signal path, will gate out much sound info with a high amount of isolation. A humbucker even more. A condenser will have a richer sound representation, but larger leaks from other sound sources and more feedback issues. **For every new musical setting and room, we work on finding this balance between isolation, levels and sound quality.** There are different microphone types that cater different perspectives. The 'analytic' and correct cardioid condenser microphones like some distance, but we use them very close to the instrument. In that case they are actually boosting lows and mids of the sound due to the proximity effect. The dynamic microphones (as a middle course) need to be close and the piezo microphones need to be firmly attached to the surface of the instrument in order to capture the physical vibrations of the instrument.

There is great potential in starting at the first link in the signal chain (the microphone) when we aim for an artificially processed but still warm sound output in the end. Every microphone has a different frequency response and behaviour. Change of microphone and placement can yield subtle or powerful impacts on processing and playing. Also, when moving the microphone around, we might find the perfect spot that has the sound characteristics we need for our use.

## Ingar's method

In a concert situation, the piano sound needs to be amplified and reconstructed to the audience through a PA system, and then blended with my processings and other sounds. Ingar Hunskaar has through his work on my ensembles and other piano players developed a method that maximizes the piano sound and minimizes the leaks and feedback potentials. He moves in close, using a pair of high quality cigar shaped cardioid condenser microphones. The mics are placed in the area with holes on the metal section of the grand piano, mounting the microphone's head 1–3 mm from the soundboard. The proximity effect may boost up to 16 db. in the low- and mid-range of the sound depending on the microphone, areas which are often the most difficult to bring out in a live situation. The output coming from this setup must undergo a thorough equalizing to become uniform. With this strategy, there won't be any big issues with other sound sources leaking into the microphones. In this configuration, the microphones are hard panned, one to each side.



(Photos by Ingar Hunskaar)

Microphones we use: Shure KSM137, Neumann KM184, DPA 4011 and Sennheiser MKH50. Other small diaphragm cigar shaped condensers with cardioid pattern may also work for this purpose. The AKG C411 is also suitable. The microphones are securely attached to the piano with two K&M clamps. The small distance between microphones and sound-board demands a steady and sturdy attachment.



## sound distribution

The acoustic sound comes from every nook of the piano. Wherever you place an ear on the instrument it will sound different. The sound of all these spots is what you hear when striking the keyboard.

**A sideway to the traditional way of amplifying electronics and piano is to use exciter loudspeakers on the resonant bottom of the piano, and in this way blend the electronic sound and the acoustic sound inside the instrument.** This makes the electronic sounds inhabit the same spots as the acoustic sound. This idea worked well in solo and low-volume settings, but not so well when the surroundings got louder. The exciters do not work well with high volumes. This resulted in two main setups for my instrument: The PA-version and the 'electroacoustic' version.

The PA-version is used in bigger rooms, and in ensemble performances. The 'acoustic' version is used in rooms designed for acoustic chamber music in solo and duet settings that are not too loud. My main aim in that regard is that the audience shall have a warm and detailed listening experience, and I choose the version mainly based on the size and acoustic attributes of the room, and the nature of the music that is being performed.

## the electroacoustic version

My idea with this version was to have an instrument with acoustic attributes even though the sounds are electronic. This makes the instrument usable in rooms designed for acoustic music, and the audience will hear the details without amplification, meaning that all sounds, electronic and acoustic, come from inside the instrument. The setup with exciters on the resonant bottom, a portable speaker inside the piano and a sub-woofer under the piano came from this idea. The electronic sounds take on acoustic attributes from residing in that resonance case, and the blend of acoustic and electronic sounds is easily obtained. In addition to this I use the same amplifier setup that I use in the PA-version, placed at my left side pointing towards the audience.

This version turns the piano into a feedback instrument. By placing the microphone and the exciter towards the same surface, the microphone signal is feeding at very low volumes. By tweaking the frequencies on the microphone signal using EQ, ring modulation, filters or frequency modulation, I can use this feedback option to make music, creating dynamic shapes and sweeps between different feedback frequencies. This option can also be used in the PA version, but then I need a much higher volume before the feedback occurs, due to the loudspeaker and microphone not being pointed towards the same surface.

## **Loudspeakers as instrument**

Volume panning and routing through the use of sound cards and mixers, gives me possibilities of sending sound to multiple outputs simultaneously or separated.

The different channels might have different volume and frequency characteristics. In a normal stereo listening situation we are listening to the left and right channel. Furthermore, if we don't stick to the traditional stereo setup, we can design listening situations for an audience or ourselves with one or more sound outputs that has a specific spatial placement and/or a special sound characteristic. From that point on we have to be aware how this affects the listening situation.

The HyPer(sonal) Piano can send sounds to several outputs. The combination of these outputs creates a different spatial setup than a stereo system, and the fact that these outputs sound very different feature choices on sound quality. The original Ondes Martenot loudspeaker setup and the GRM Acousmonium has been an inspiration for sending the same sound to different outputs with different sound and spatial characteristics.<sup>65</sup>

I use this strategy both when playing concerts and recording in the studio. The loudspeakers act as processing instruments, and they impose impacts on the musical result.

## **Separation of sound categories**

In both versions I like to use separate outputs for the prerecorded material and the other processing. With this setup both the technician and I have more control over levels and EQs on the different sound categories. It is especially important to divide percussive sounds and more continuous sound material.

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<sup>65</sup> <http://www.inagram.com/accueil/concerts/lacousmonium>



(From a rehearsal with Al Khowarizmis Mekaniske Orkester, July 2016)

The electroacoustic version in duet with *Al Khowarizmis Mekaniske Orkester*. The UE boom speaker is placed in the resonance case and the genelec-sub is under the instrument.

### **Patching**

|                           |  |
|---------------------------|--|
| Mic setup:                | Yamahiko/Helpinstill for processing only, mic Bundle for FX. |
| CPU 1 stereo:             | Sent to exciters/UE Boom/Genelec Sub.                        |
| Prerecorded tracks CPU 1: | Sent to exciters/UE Boom/Genelec Sub.                        |
| 2880 looper/CPU 2:        | Sent to exciters/UE Boom/Genelec Sub.                        |
| FX pedal section:         | Two amplifiers pointing towards the audience.                |

## the PA-version

The PA-version utilizes the PA-system in the concert hall, its mixing console, amplifiers, monitor system and wiring. All my local outputs like amplifiers, computers, noise boxes and voice are sent through that system. I see to that my outputs are mostly finished, leaving it up to the sound engineer to do the final adjustments and levelling. If there are problems sound-wise with some outputs, I will work with the engineer to solve them at my end. (See "sound control" on page 97)

### Tuning

When using a PA and monitoring system, it is very important that the systems are tuned with a graphic EQ before the sound is set. If there are frequency areas that are too loud in the monitors or PA, these areas may accumulate and create an overload of energy in parts of the spectrum.

### Mic setup

The considerations on isolation, reduction and lo-fi/hi-fi processing has resulted in the following setup for piano processing and amplification.

- 1/2: Condenser stereo pair, *Ingars Method* for PA.
- 3: Yamahiko/Helpinstill, for processing.
- 4: Yamahiko/Helpinstill, for PA.

Note: If I use one Yamahiko only and split it to processing and PA, I will have more accumulation in some frequency areas, because the technician and I are working with the same starting point.

- 5/6: Cheap acoustic guitar piezos for sound effects (L/R).
- 7: AKG C411 attached to brass slide to play on strings.

### Patching

- Piano microphones stereo: Sent to PA and monitor fold-back.
- CPU 1 stereo: Sent to PA and monitor fold-back.
- Prerecorded tracks CPU 1: To PA on separate outs and monitor.
- 2880 Looper/CPU 2: Sent to PA and monitor fold-back.
- Fx pedal section: Two amplifiers locally, microphone to PA.

## Amplifiers

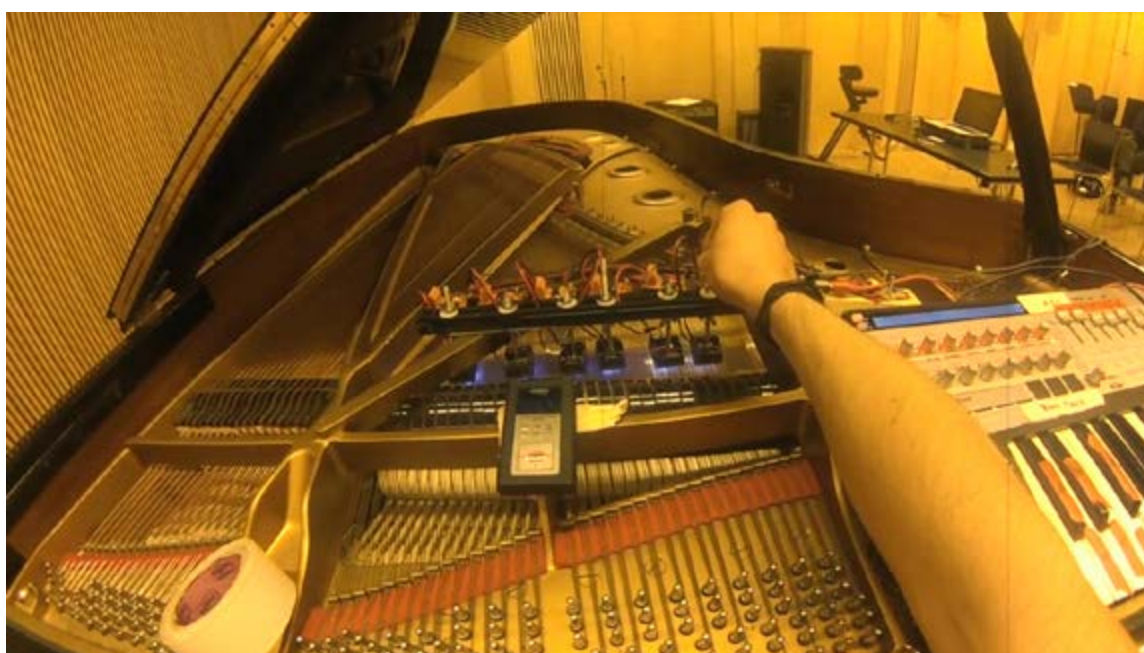
I use two amplifiers to distribute sound from the pedal section. For the A and B chain, I prefer to use a Fender Deluxe 65 Reissue. I have played several of the most common guitar amplifiers with this setup, like the VOX AC30, Fender Twin, Fender HotRod Deluxe, Roland Jazzchorus, Hiwatt custom 50 and Peavey Classic 30. My preference is based on this amp having the largest headroom before feedback, and an even sound output throughout the spectrum. With this setup I need four inputs on two different sections, and the deluxe has this feature. It is also a common amp which is easy for the venues to provide.

For the C chain, I use a Marshall mini amp. This amp is taking away lots of the tone in the low and high area, effectively reducing feedback in the low end and creating a sonic signature that I like for the stuttering-effect chain. **I prefer using small amps because they produce sound that are easier to place in a busy music than a full bodied sound from a bigger amplifier.**



## marxuino

The Marxuino. It consists of a Marxophone, a zither-like US-built instrument with steel hammers on a mechanism giving the string a 'ping pong ball hits the string and gravity works' kind of sound. On this instrument, I've attached six eBows. Originally I wanted to attach eBows to the grand piano, but there were too many obstacles getting this device work the way I wanted, so I chose to attach the device to the Marxophone and see what happened. The strings are far easier than the Grand to set in motion, and it's easy to modify the sound with steel pins and other preparation methods on the Marxophone. It can also be amplified and processed with the same modules as the rest of the piano. I also liked the resemblance and the difference between this instrument and a grand piano, they match each other well sonically. Here is a video of the attempt to use ebows on the grand piano: (from jöK & seasick #5, 30 May 2013, NMH)



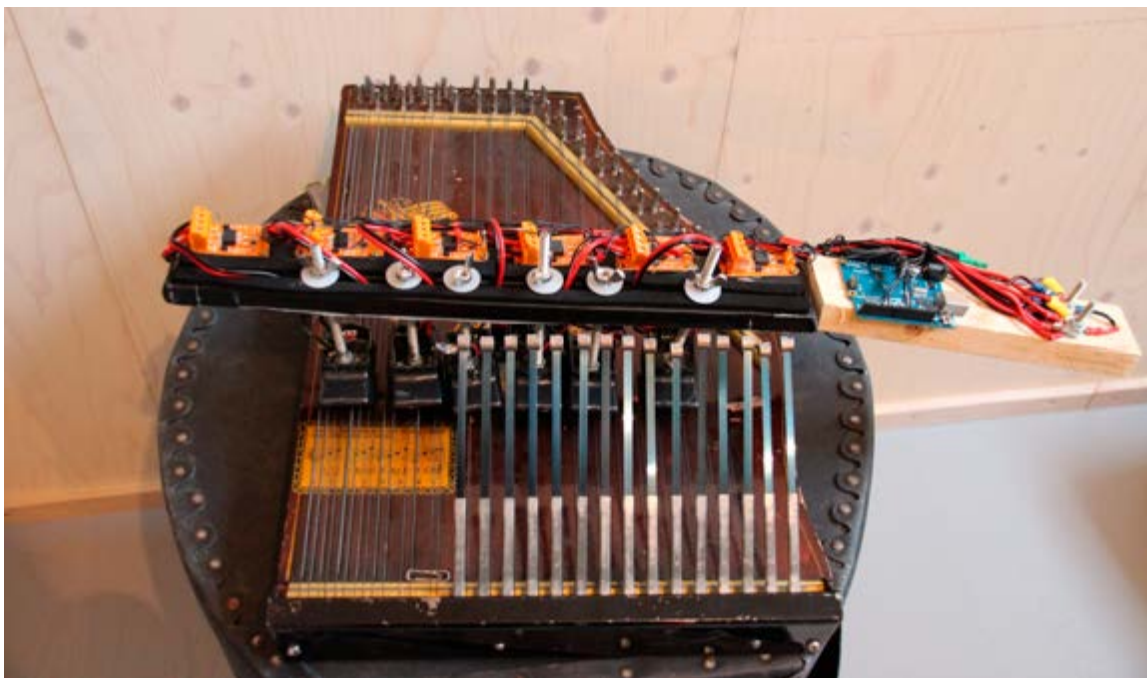
[Video Examples Playlist – Ex. 17]

When I started the process of attaching the eBows to the grand piano, I discovered another fantastic project by Andrew McPherson, called the Magnetic Resonator Piano. He has attached electromagnets to every string on a grand piano. These can be controlled from the grand piano keyboard, and adjusts automatically to the tuning on the piano.<sup>66</sup> Unfortunately, this system is not for sale...

66 <http://music.ece.drexel.edu/research/mrp>  
[https://www.youtube.com/watch?v=f79d\\_oVqv4Y](https://www.youtube.com/watch?v=f79d_oVqv4Y)

My device is made using a Marxophone, an Arduino UNO card, MosFet micro controllers and modified eBow electro magnets. A Max patch is used to control the voltage on the eBows. In this version, the instrument is not sturdy enough, and broke down as a result of travelling. This instrument will be developed further in upcoming projects.

[Audio Examples Playlist – Ex. 45] (from jöK & seasicK #6, 16 September 2013, NMH)



(Marxuino under construction)

## lightning mountain



[Video Examples Playlist – Ex. 18] (from a solo concert at Kongsberg Jazz Festival, 4 July 2015)

Reflecting on the visual side of my project initiated a search for interagency between music and visuals. I started a process of making visual elements that was a part of my technical setup and that would respond to audio input in various ways. I wanted to take the focus away from me handling *buttons, keys and lights and a sea of cables*, which is the first visual impression of my instrument. I wanted something darker, I wanted to hide the electronics and mystify the scenery a little. I wanted to show my interaction with the music, not the interface. I also wanted to show my body movements rather than what my hands were doing. This made me start using a headlamp and later a light installation on my head when I play the Personal Piano material. Now, I hope that there is a discrepancy between music and scenery in my solo concerts. The Hyper- and Personal-contradiction is shining through, giving away more options of readings. This contradiction reminds me of the HAL 9000.

The project ‘emotion organ’ by Amanda Stegell inspired me in this search. A ‘machine where players can explore the sensational interplay of feeling, seeing, hearing, smelling and motion’.<sup>67</sup> I was looking for a link between sound and lights primarily, and I was open for letting the visual aspects interact with my playing. It was important to me that the object(s) could be transported, and that I could mount and control the setup without any help from extra technical personnel or light designers. I want to be able to present my project full-scale in various rooms, not being too dependent on technical conditions and personnel. The more I can do myself, the better. The visual device *Lightning Mountain* became an integrated part of the HyPer(sonal) Piano, as if a sound making device could move into the visual domain. It is made in collaboration with the design collective Drap&Design,<sup>68</sup> who had made an interactive jacket that I liked, taking on colours from the objects that were touched

<sup>67</sup> [www.testingtesting.org/synaesthesia/EMO/index.html](http://www.testingtesting.org/synaesthesia/EMO/index.html)

<sup>68</sup> In English: Murder & Design. A design company/collective specializing in interaction design, with Sven Håkon Voldum, Anders Ekroll, Simon Søgne Tveit and Per-Johan Sandlund.



when wearing it. I thought that their approach to interaction design would be right to investigate a dialogue between music and visuals. Sven Håkon Voldum from Drap&Design writes the following about their approach to designing the 'Lightning Mountain':

*When we started working with Morten Qvenild to develop a new light installation for his stage appearances, our initial idea was to create a wearable piece that would light up based on his musical input. However, as we analyzed his behaviour on stage to find the correct approach for this, it quickly became apparent that a lump of wearable electronics might inhibit his performance more than it would complement it. Therefore we decided to focus on his grand piano instead, modeling a piece that would allow light to flow from it alongside the music he creates with it.*

*Morten did not simply want a 'visualizer' that would light up in a specific manner based on a specific sound input. What he wanted was something that could communicate with as well as play on the highly digitized format of his music. In some ways we considered his requests in the line of a visual sparring partner for his audible input, something that he could 'duel' with while on stage.*

*As the modelling process began, we had a few guidelines to keep in mind; it had to be flexible enough to both complement and comment Morten's music, it had to be shaped so that it would fit any stage setup, and it had to be limited in physical size so that Morten could actually bring it along for his gigs.*

*Lightning Mountain is a black, faceted, shapeable scenery with an inner glow of endless colour variations, that can be draped around Morten's grand piano. It shows blobs of light in different colours passing across the scenery, with their speed and size depending on what Morten plays or sings. From a little control panel next to him, Qvenild can adjust both responsivity and presets of the light, from relatively calm three-colour-presets making their way comfortably down the length of the installation, through more staccato, fragmented neon-like appearances, or simply a number of white sparks sweeping randomly over the Lightning Mountain.*

*To achieve this effect, we use RGB LED-strips from Adafruit which are programmed in sequence and controlled with an Arduino Mega. This hardware allows for almost unlimited appearances, since each single LED can be given a specific colour and brightness. Fading them in and out using a unique string of code makes the light appear to flow across the scenery.*

## modules and patching

People often ask me how much of the equipment I build myself and how much of the computer programming I do.

Every module is patched with the other modules in the system, either directly via audio cables, control signal cables (Midi and USB) or indirectly via recording devices, loudspeakers, audio bled into microphones or on a more metaphysical level that relates to how I am working with multiple devices simultaneously in the music making process (patched up in my head). Where the module is placed physically and the haptic layout is also important. **The connection of equipment regarding audio signals and control signals, along with the physical placement of the modules in the instrument and the way the modules are played and layered in the music using different outputs; this is essential aspects making the HyPersonal Piano my instrument.**

I am not an engineer in electronics nor music technology, so all of the hardware I have to either obtain ready made, programme myself or collaborate with someone that customizes solutions. A large part of my work is to stay updated on what gear is made in small garages or big music tech assembly lines. The Lightning Mountain and the Marxuino are made from scratch with collaborators. I have learned to programme in Max MSP, and I have done some patches alone and some in collaboration with composer Christian Blom. The programming for the Lightning Mountain is done in C+ by the Drap&Design team. I have also used some programming by my second supervisor Øyvind Brandtsegg. These are done in C+ and adapted to VST-format using Csound and Cabbage.

I regard any device or software as a module of the system which constitutes my instrument. All devices and software have a sound of their own and can be altered to a greater or smaller extent. When I test a module for a possible integration in the instrument, I look for what it does sonically, the possibilities of alteration and how this device interacts with the rest of the instrument. This is very important to me. It is often in the complexity of the way these modules work together sonically that the new sounds occur.

Modules with certain attributes can be connected in several ways, and tweaked to get the desired outputs. I see it as a valuable part of working with equipment that others have made to adapt these to my sound and playing, as well as making devices from scratch. Sometimes, with open source software, one can also adapt devices that others have made to own needs. The combination of these strategies and the poetic reflections involved in combining the different modules is making sure that there will be a HyPer(sonal) Piano music.

VI  
OUTRO

## satellite projects and recordings

These projects have played a more peripheral role in the project development. I have used the instrument in these settings and this has contributed to the project's body of knowledge, but they have not been examined or used fully in the public or individual reflection process.



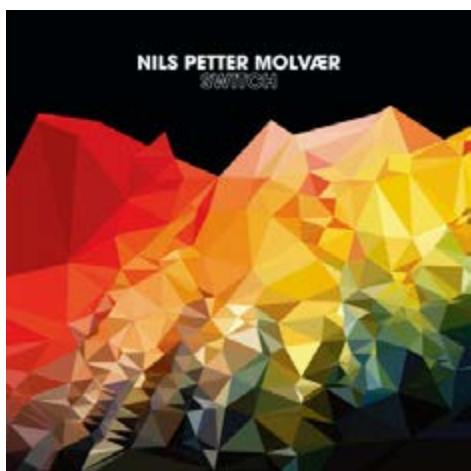
### **In the country with Frida Annevik, *Skogenes sang.***

My compositions on poems by Hans Børli (1918–1989). With my trio In the Country and singer/songwriter Frida Annevik. The recording was done before the project started, but the music has developed when playing live, including modules from the HyPer(sonal) Pianosystem.



### **Thomas Dybdahl / In the Country, O.**

An EP recorded live in my studio April 2014, using the HyPer(sonal) Piano for initial recording, reamping and overdubs. The music has developed further through a few radio and TV-performances and some concerts.



### **Nils Petter Molvær, *Switch.***

Overdubs using HyPer(sonal) Piano and synthesizers spring 2014. 2 concerts.



**Solveig Slettahjell / Knut Reiersrud with In the Country, *Trail of Souls*.**

Recorded at Rainbow Studios April 2015, using the HyPer(sonal) Piano. 26 concerts during the project period.



**Solveig Slettahjell / Knut Reiersrud / Bugge Wesseltoft with In the Country, *Jazz at Berlin Philharmonic II*.**

Recorded live 11 March 2014 in the Berlin Philharmonic chamber hall, using the HyPer(sonal) Piano.

## concerts

- *In the Country* in different constellations: 45 concerts in Norway, Germany, Austria, Korea and Japan.
- *sPacemoNkey*: 14 concerts in Norway, Germany and Austria.
- 15 solo concerts in Norway with the Personal Piano material.
- 10 concerts with *Per Jørgensen and friends* (Terje Isungset, Sigbjørn Apeland and Morten Skage).
- 2 concerts with *More & More & More & The Instant Gratification*, Ole Morten Vaagan, Sofia Jernberg, Fredrik Ljungkvist, Eivind Lønning, Espen Reinertsen.
- 19 February 2013, concert at Copenhagen Improv with Torben Snekkestad and Per Zanussi.
- 1 November 2013: Arve Henriksen and Sigbjørn Apeland, Stadshuset, Stockholm.
- 30 October 2014, duo concert with *Al Khowarizmis Mekaniske Orkester* at the NMH.
- 5 March 2015, duo concert with Thomas Strønen at the Serendip Festival, NMH, Oslo
- 2 April 2016, duo with Sigbjørn Apeland at Orgelkraft Festival Stavanger.
- *jök & seasick*, 12 LAB concerts (2013–2015) at the NMH in collaboration with research fellow Ivar Grydeland.

A selection of concerts and presentations are presented in a vimeo album accessed through [www.mortyq.com/documentation](http://www.mortyq.com/documentation)

## key reads

- Katherine Hayles. *How We Became Posthuman*. The University of Chicago Press, 1999.
- Hans Børli. *Tankestreif*. Aschehoug, 2001.
- Hans Børli. *Med Øks Og Lyre*. Aschehoug, 1988.
- Gillian H. Siddall and Ellen Waterman, eds. *Negotiated Moments*. Duke University Press, 2016.
- Lasse Thoresen and Andreas Hedman. 'Spectromorphological Analysis of Sound Objects'. Norwegian Academy of Music, 2001/2004. <http://www.ems-network.org/IMG/EMS06-LThoresen.pdf>
- Roland Barthes. *A lover's discourse: Fragments*. Hill & Wang, 2010.
- Haruki Murakami and Philip Gabriel. *Kafka On The Shore*. Alfred A. Knopf, 2005.
- Christoph Cox and Daniel Warner, eds. *Audio Culture*. Continuum, 2004.
- Andy Clark, 'Natural born cyborgs'. <http://www.edge.org/conversation/natural-born-cyborgs>.
- Jan Svenungsson, *An Artist's Text Book*. The Finnish Academy of Fine Arts, 2007.
- John Zorn, ed. *Arcana II*. Hips Road, 2007.
- Øyvind Rimbereid. *Orgelsjøen*. Gyldendal, 2013.
- David Foster Wallace. *A Supposedly Fun Thing I'll Never Do Again*, Back Bay Books, 1997.
- Stig Sæterbakken. *Der jeg tenker er det alltid mørkt*. Flamme Forlag, 2012.
- Igor Stravinsky. *Poetics Of Music In The Form Of Six Lessons*. Harvard University Press, 1970.
- Morton Feldman and B.H. Friedman. *Give My Regards To Eighth Street*. Exact Change, 2000.
- Henk Borgdorff. *The Conflict Of The Faculties*. Leiden University Press, 2012.
- David Shields and Caleb Powell. *I Think You're Totally Wrong*. Knopf Publishing Group, 2015.
- Neil Young. *Waging Heavy Peace*. Blue Rider Press, 2012.
- Barbara Bolt. *Heidegger Reframed*. London: I. B. Tauris, 2010.
- Merete Morken Andersen. *Skriveboka*. Aschehoug Forlag, 2008.
- Anders Johansen. *Skriv*. Spartacus, 2009.
- Mitchell Whitelaw. *Metacreation*. MIT Press, 2004.
- Ableton Live manual and tutorials
- MaxMsp manual and tutorials
- Teenage Engineering OP-1 manual
- Teenage Engineering Op-Lab Manual
- Arduino manual
- Hadron manual
- Oto Machine Biscuit manual
- Red Panda Particle manual
- Touch Keys manual and installation guide
- Helpinstill manual
- Yamahiko manual
- TC Helicon manual
- Bome Midi Translator manual

## key artists and artistic research projects

- Harry Partch
- Tod Machover – Hyperpiano
- The Yo-Yo Ma / MIT – Hypercello
- Amanda Stegell – The Emotion Organ
- Matthew Burtner – The Metasaxophone Project
- Victoria Johnson – Electric Violin In Digital Space
- Hilde Marie Holsen’s trumpet and electronics works
- Andrew McPherson – TouchKeys and The Magnetic Resonator Piano
- Palle Dahlstedt – The Augmented Hybrid Piano
- Maja Ratkje’s work with voice and electronics
- Håkon Thelin – A New World Of Sounds – recent advancements in contemporary double bass techniques
- Stefan Östersjö- SHUT UP’N’PLAY!
- Ivar Grydeland – Ensemble & Ensemble of Me, What I think about when I think about improvisation
- Torben Snekkestad – The Poetics of a Multiphonic Landscape
- Annie Dorsen’s Algorithmic Theatre Projects
- Sten Sandell – På Insidan Av Tystnaden
- Ellen Ugelvik – The Soloist in Contemporary Piano Concerti
- Christian Blom – Organized Time, Strategies for Transmedial Composition
- Ingfrid Breie Nyhus – A Play with Traditions
- Darla Crispin’s presentations at the symposium ‘Unfolding the Process’ at NMH, Oslo.
- Daniel Buer Formo – Orchestra of Speech
- Øyvind Brandtsegg’s rich portfolio of music, sound installations, art, artistic research and technological developments
- George Lewis – the Voyager Interactive Computer System.
- Ståle Storløkken, Helge Sten and John Paul Jones’ Kyma works



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(Photo by Paal Audestad)