

What We Do (Differently) Together

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1 Program Notes

In this performance-lecture, the pianist performs and improvises on (or with) five different interactive algorithms, and simultaneously discusses how it feels playing with them, how their different interactive qualities affect the musical outcome, and what the human-machine situation does to us. It is a statement about the essence of process, the nature of agency, and what different types of algorithms bring to human creative process, told from a situation of being entangled with the algorithms, while trying to make music.

Duration: ca 15 minutes.

2 Project Description

In this performance lecture, I improvise on or with five different interactive musical algorithms, and at the same time discuss how it feels playing them, how they affect the sense of agency, and what the entangled interactive situation does to us. Where does the emerging complexity really come from? The thoughts presented have emerged during more than 15 years of composing systems of this kind, and performing with them, while gradually learning and realizing what the nature of these improvisation systems are.

The text of the work (see appendix) is scripted, and deeply integrated with what happens musically, and the nature of the underlying musical algorithms. But the music is improvised and greatly affected by the behavior of the different algorithms, presented in a sequence of increased complexity. Some of them are extremely simple, yet with complex emerging results. For example, what does a delay longer than my working memory do to my playing – is this the simplest “minimal” algorithm, still exhibiting a sense of “somebody else there”?

Some algorithms are based on the audio from the piano, while others use the keyboard MIDI data as a source of interaction. Some of them give rise to chaotic behavior due to nonlinear information feedback between player and algorithm, while others are based on simple machine learning.

All of these algorithms are borrowed from separate concert works that have been previously performed, some of them many times all around the world, forming the basis for the shared experiences and the observed qualities of interaction. Three of them have both been performed as concert works and presented in papers at previous NIMEs, but are here included in a completely different context, paired with reflection and analysis of how it feels to play them, where the agency lies, and what the interaction design does to musicianship.

All the algorithms provide conditions for what I call entangled musicianship. This describes a situation where each of my musical actions has multiple meanings, and binding implications both now and in the immediate future. Every reaction to what the algorithm plays alters the future behavior of the algorithm. I cannot act without affecting the state of the algorithm, i.e., destroying the situation I react to. Through the interaction design in the algorithms, musical expression is merged with control mapping, and sometimes also with audio material. Navigating this entangled state is both cognitively

and musically challenging, while also providing a situation that feels more like a duet than a solo, through the agency and complexity mirrored through the algorithmic response, in spite of the simplicity of the algorithms.

The work is really about how and why we can integrate algorithms in our creative processes, while retaining human agency. The main conclusion (spoiler warning!) is that it is not about what I play or what the algorithm plays, but about what our entangled situation makes us do (differently) together.

3 Technical Notes

If possible, this work should be performed on a Yamaha Disklavier grand piano, as the algorithm and the pianist then both play on the same instrument, and the interaction becomes really intimate, and also more visible. But it is perfectly ok to perform with a normal grand piano, with two (active fullrange) loudspeakers placed just behind the piano, for the algorithmically generated parts.

I will bring:

- Pianist (myself)
- Moog Piano Bar MIDI sensor, designed for concert grands (if you don't have one)
- 2 x condenser mics with holders
- Processing electronics (laptop, Nord Modular G2 dsp engine)
- Small personal mixer, with sound output on 2ch unbalanced ¼" jacks

From NIME I need the following:

- a tuned grand piano, 88 keys (optional: or a Yamaha Disklavier grand piano if available)
- 2 active fullrange speakers, to be placed just behind the piano
- 2 mic stands (for recording piano audio)
- 2 XLR cables (at least 3m) from piano mics to my mixer
- A small table, to be placed on the pianist's left side
- amplification of the grand piano (if needed to achieve a good balance with the generated piano part, depending on the acoustics)

4 Media Link(s)

Video link: https://youtu.be/4Z6bO1s3Mu8?si=EbchJ8rl_Yx0MqO4

5 Acknowledgments

This work, including the development of the quoted set of algorithms, was supported by a series of research grants from the Swedish Research Council, primarily the currently running grant *Entangled Musicianship and Minimal Algorithms - An Investigation of Agency in (and through) Algorithmic Interaction*.

6 Ethical Standards

This work involves no other humans than the author, and the artistic research funding behind it was obtained under standard ethical regulations of the Swedish Research Council. The AI/ML algorithms used are too small to be sentient, and no algorithms were harmed in the process.