

CONTRACTION POINT



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Electroacoustic game-performance for instrumentalist and computer music system (2015)

"Contraction point" integrates a human agent, a musical instrument, a performance space and a feedback delay network system. Two interconnected feedback processes take place in the "here and now". The live sound of the instrument is recorded and play-backed by 12 spatialized variable delay lines. Each delay line delay, with a maximum of 50 seconds, and transpose the incoming signal with the classic rotating-tape-head style pitch shifter. The transpositions are spread symmetrically in equidistant intervals. The sound of the delay lines is physically mixed in the acoustic space, recorded by the microphone and play-backed again in a continuous flow. The resulted fractal sound textures are unpredictable and unrepeatable and can be interpreted as emergent phenomena of this non-linear complex feedback process. The composed or free improvised gestures of the performer are extended in time, space and frequency, which are naturally interconnected by the feedback delay network. The process can be theoretically interpreted as the multidimensional scattering of sound inside a 10 kilometer long room, with its faces moving in variable constant speeds creating transpositions through Doppler effects.

In a parallel process, the performer attempts 12 listening walks in order to locate the speaker with the highest transposed delay line. When he / she returns to his / her instrument, he / she plays the estimated note (notes and speakers are predefined in a fixed relationship, speaker 1 \rightarrow C, speaker 2 \rightarrow C#, speaker 3 \rightarrow D, etc). The system evaluates the input note and contracts the transposition range of the delay lines accordingly. The delay lines are then redistributed randomly in space with the only constrain that the delay line with the highest transposition will appear in all 12 loudspeakers.

The interesting side effect of this process, is that with every contraction it gets more difficult for the performer to localize the loudspeaker with the highest transposition. Sound is as the only interface that interconnects the human agent, the acoustic hall and the digital system.

After the 12th evaluation the system freezes the range contraction and reduces the window time of the delay lines. The resulting effect is the loss of space perception which is gradually transformed into timbre perception. Theoretically, the 10 kilometer long room contracts to the tiny space of a resonant body of a musical instrument. The achieved game score describes the final speeds of the faces of the multidimensional resonant body, which is heard as harmonized resonance. In every performance a different game score will be achieved, leading to different resonant timbres. If the performer achieve a perfect score (never achieved so far in any rehearsal or concert), the transposition of all delay lines will be zero and we will get just amplification of the input signal.

Fig. 1

Outline of the performance space, computer music system and their interconnection.

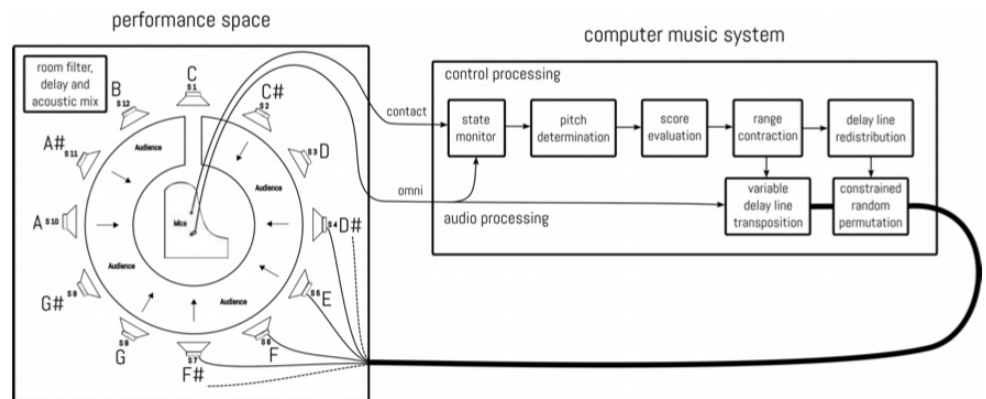
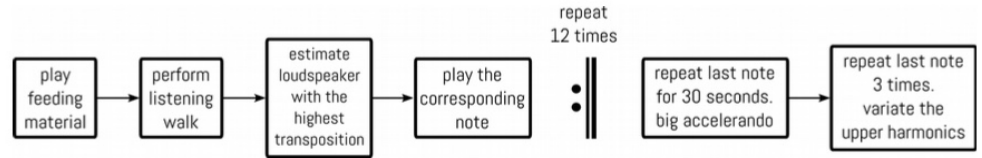


Fig. 2

Performing a listening walk at the "klingt gut!" Symposium on Sound in Hamburg.



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Instruction rules for
the performer.



The audience is situated literally inside the performative and sound transformative process. Their physical presence influence the filtering characteristics of the room, which affects the recursive circulation of sound. The piece, which is informed by open form experiments, algorithmic composition, live-electronic and ecosystemic practices, touches also a meta-level realm. Its stated definitions enable a performance to come about, which let music arise as emergent phenomenon. The feeding material, as well as the musical instrument and playing techniques are variable and subject to the creative responsibility of the performer. Compositional elements can be prepared in advance or /and left to impulsive improvisatory actions. Very diverse performances can be composed, while all of them can be identified by the same performative and sound transformative process. Idiosyncratic and adventurous musical personalities can unprecedentedly exploit their creative potential and are invited to contribute with their original interpretations-compositions.

Fig. 4
Performing at the "klingt gut!" Symposium on Sound in Hamburg.

