

KOSMAS GIANNOUTAKIS

composer / sound artist

DYNAMIC SOUND ARTWORKS 2015-17

ARTIST STATEMENT

Inspired by the cybernetic vision, my artistic practice is focused on the meta-level of music creation. With the term "neuromorphic music", I describe the formalization and integration of five music agencies (digital, analog, installative, performative, architectural) under a connectionist paradigm. In this framework, various computing units (digital neurons, analogue mixers, loudspeakers, microphones, performers, audience, rooms) are considered as musical neurons, which perform a basic integration function, activate their dynamic response and affect all levels of the interconnected units. The multiple recurrent topologies are experienced as physical embodied extensions mediated by the physical ↔ analog ↔ digital conversion between air pressure, analog electronic and audio rate digital signals. Such self-organizing music meta-systems are capable of irreducible complexity, adaptability and dynamicity, and can spontaneously catalyze emergent musical structures. Conventional symbolic music-making strategies became ineffectual while the performance of listening attains a fateful role. My ultimate goal is to achieve a living status for my sound artworks which can potentially reveal highly emergent properties, like subjectivity and sonic consciousness.



ATTRACTIVE CORRELATIONS

Concert installation for variable number of instrumentalists, microphonists, audience and computer music system (2017)

Documentation: [Photos](#)

“Attractive Correlations” explores a connectionist paradigm for music creation through a hybrid presentation form combining concert and installation. The concert hall is transformed into an acoustic arena by a multi-loudspeaker setup, in which instrumentalists, microphonists and audience may move about and interact through the medium of sound. The computer music system dynamically generates unpredictable sonic streams and diffuses the sound of the instrumentalists by means of digital networks inspired by neuronal processing. The microphonists react to the sonic activities of the instrumentalists and the audience by approaching them and pointing their microphones towards the sound sources of interest. Sounds from audience members perturb the fragile and delicate equilibria in the generative local sub-networks, while the sounds of the instrumentalists modulate some plasticity parameters of these networks, modifying their generative character. The music emerges from the improvisatory interactions of all human agents, with the instrumentalists and adventurous audience members trying to win the favor of the microphonists and thus gain influence over the sound generation and diffusion by the computer music system.



Photos by Lucija Novak



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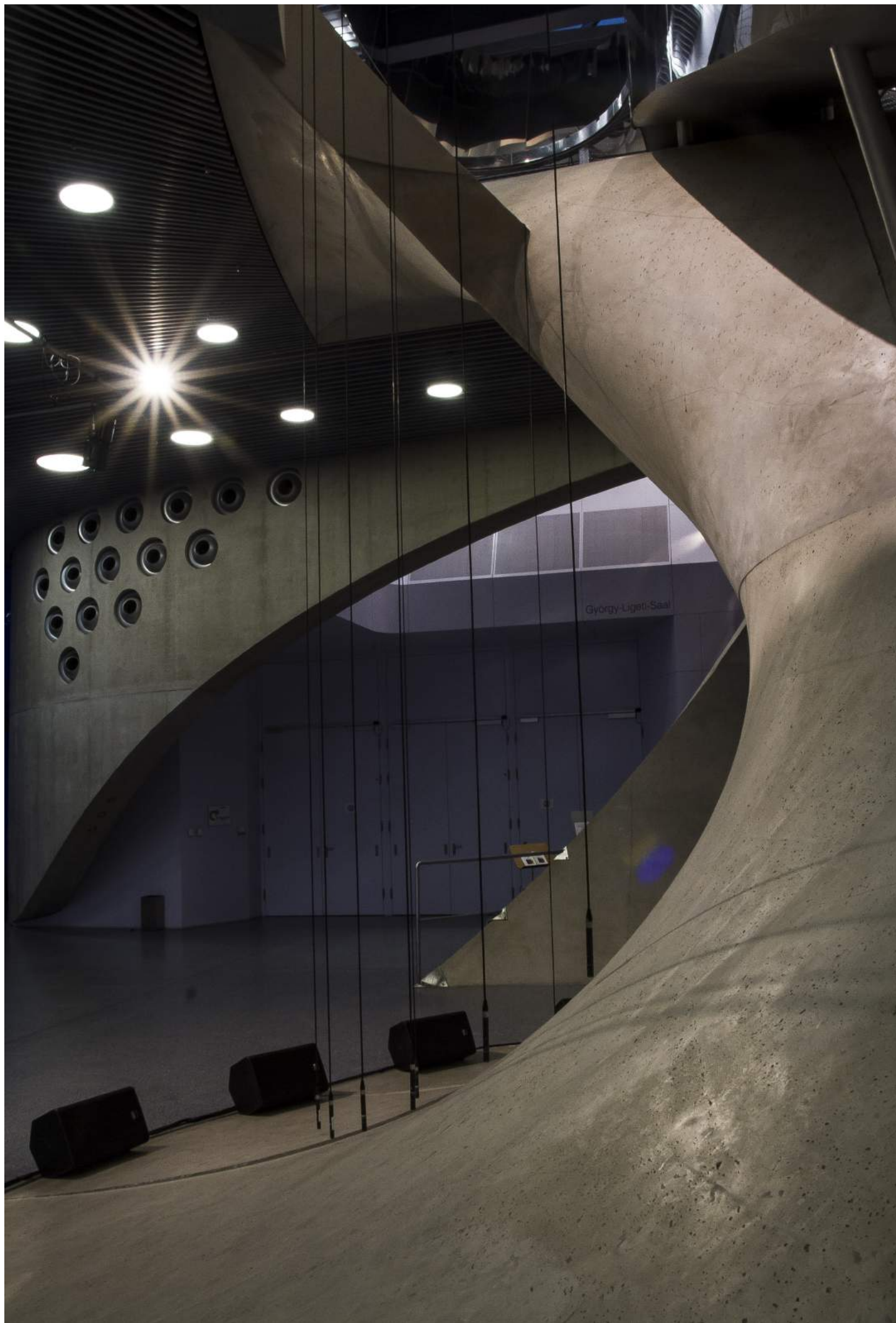
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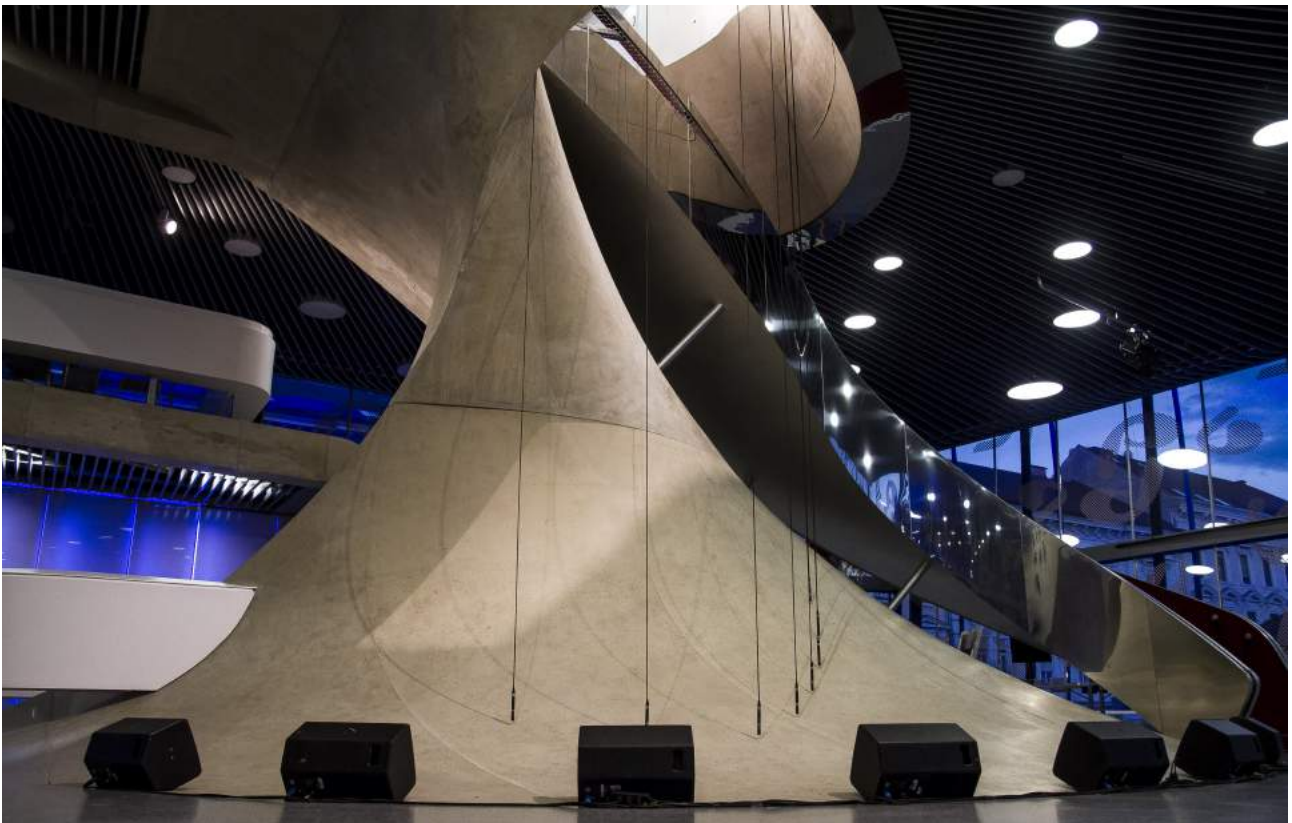


SONIC CURRENT ON A TWISTED SURFACE

Sound installation (2016)

Documentation: [Photos](#) [Audio](#) [Video](#)

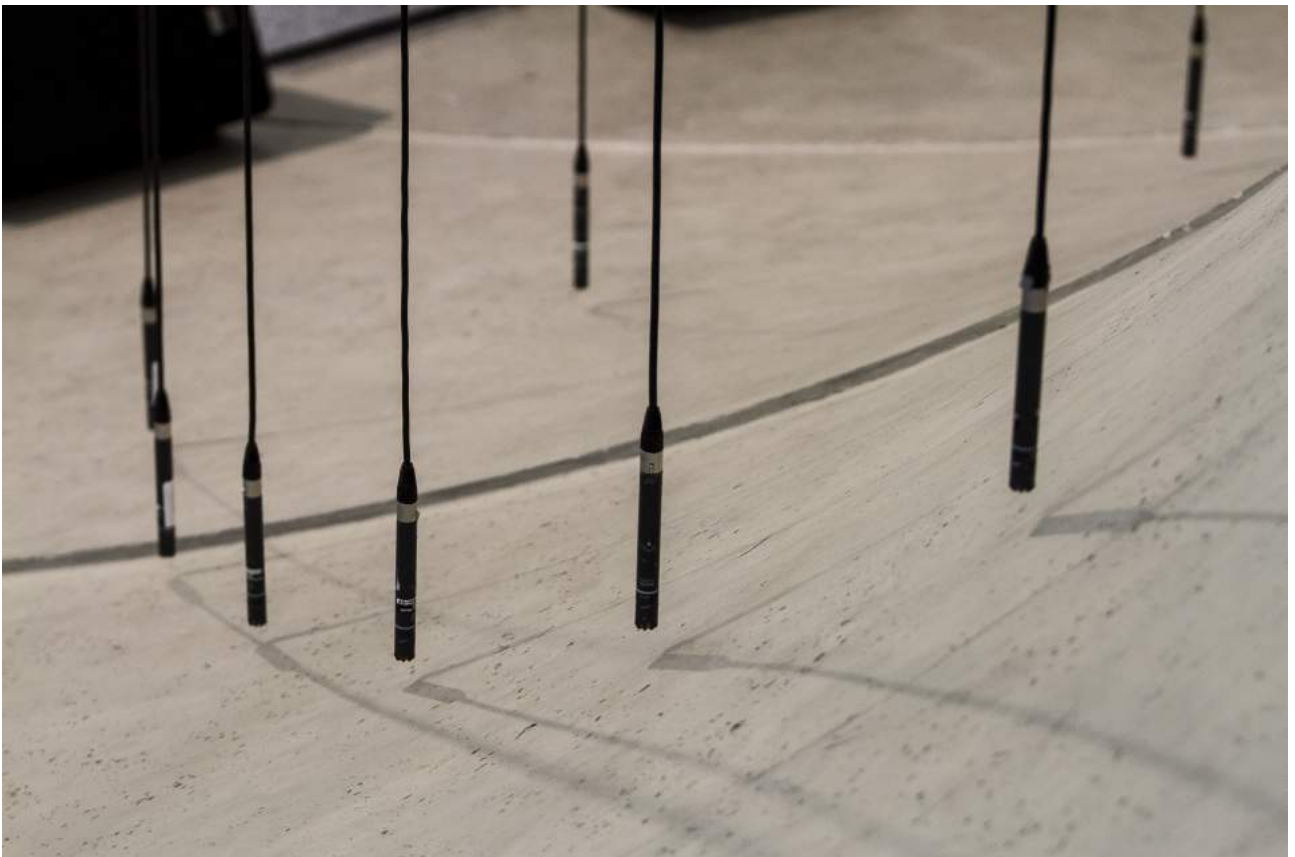
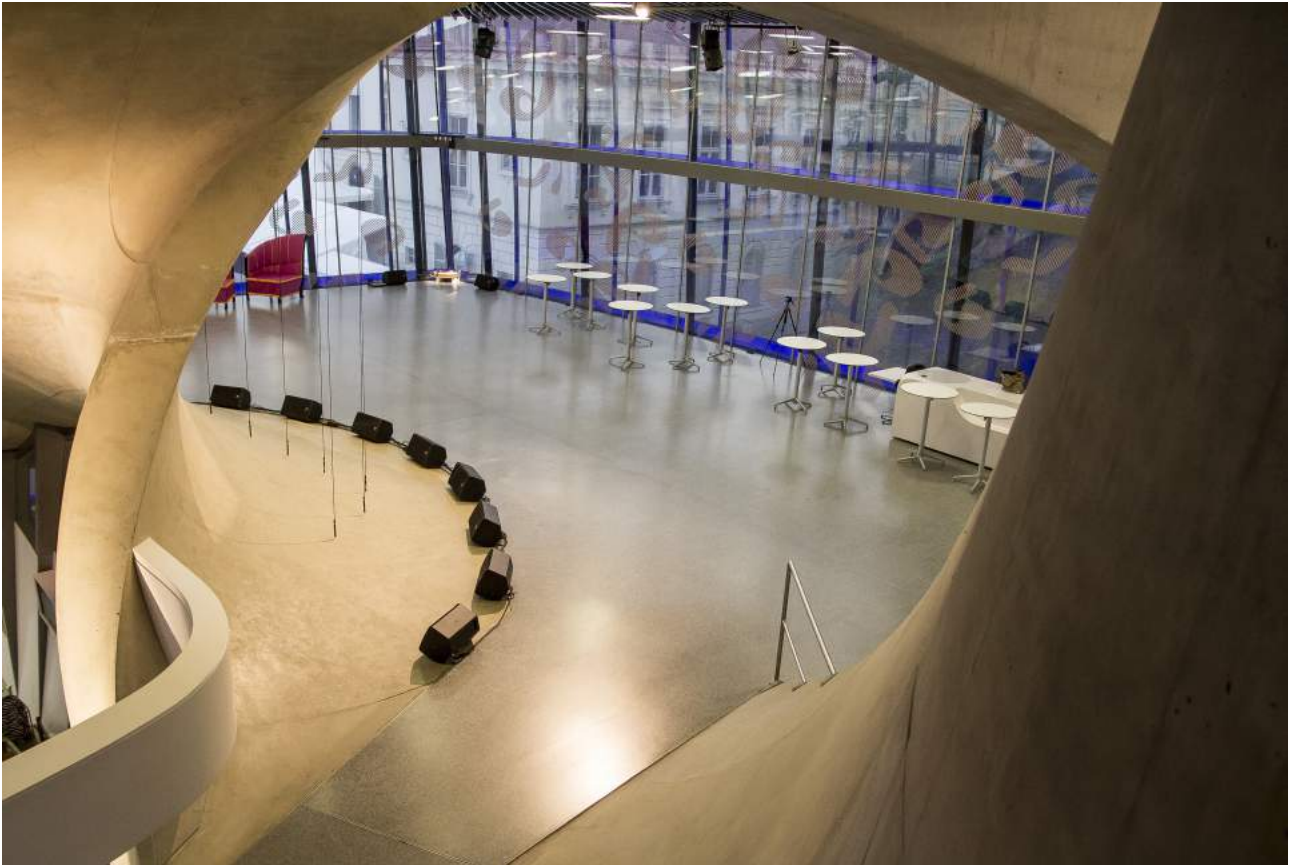
Loudspeakers and microphones, installed according to the specific twisted geometry of the site, transform the Twist in MUMUTH into a sculptural "sonic conscious" agent. Sounds from visitors, environment or other exhibited installations, captured as external sonic stimuli by the microphonic "ears", are distributed over a digital, audio rate artificial neural network. Inside the high-dimensionally dynamic, self-regulating network, sound circulates recursively in multiple recurrent layers, resulting to diversely fragile resonant frequencies. The network output is assigned to the loudspeakers, which radiate the neuronally processed resonances back to the Twist. The emitted sound flows tangentially on the twisted surface and re-enters the network, while is reflected simultaneously in a peculiar twisty manner to the surrounding space. Sound, as information, electric current or organic fluids, is the precious vital substance that sustains artificial "sonic life" on the Twist.



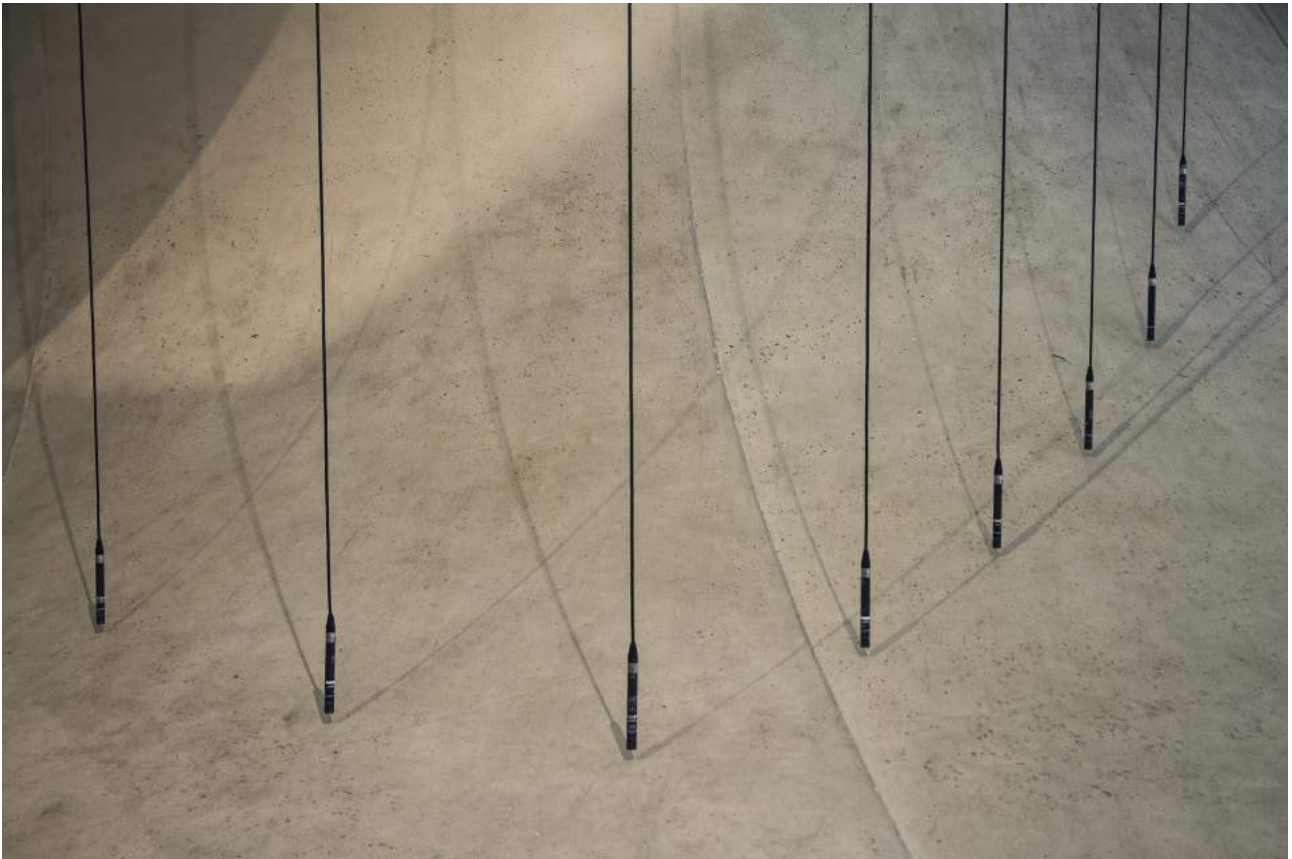
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VERSCHRÄNKTE SPIELRÄUME

Concert installation for variable number of rooms, musicians, audience and computer music system (2016)

Duration: 60-80 Minutes

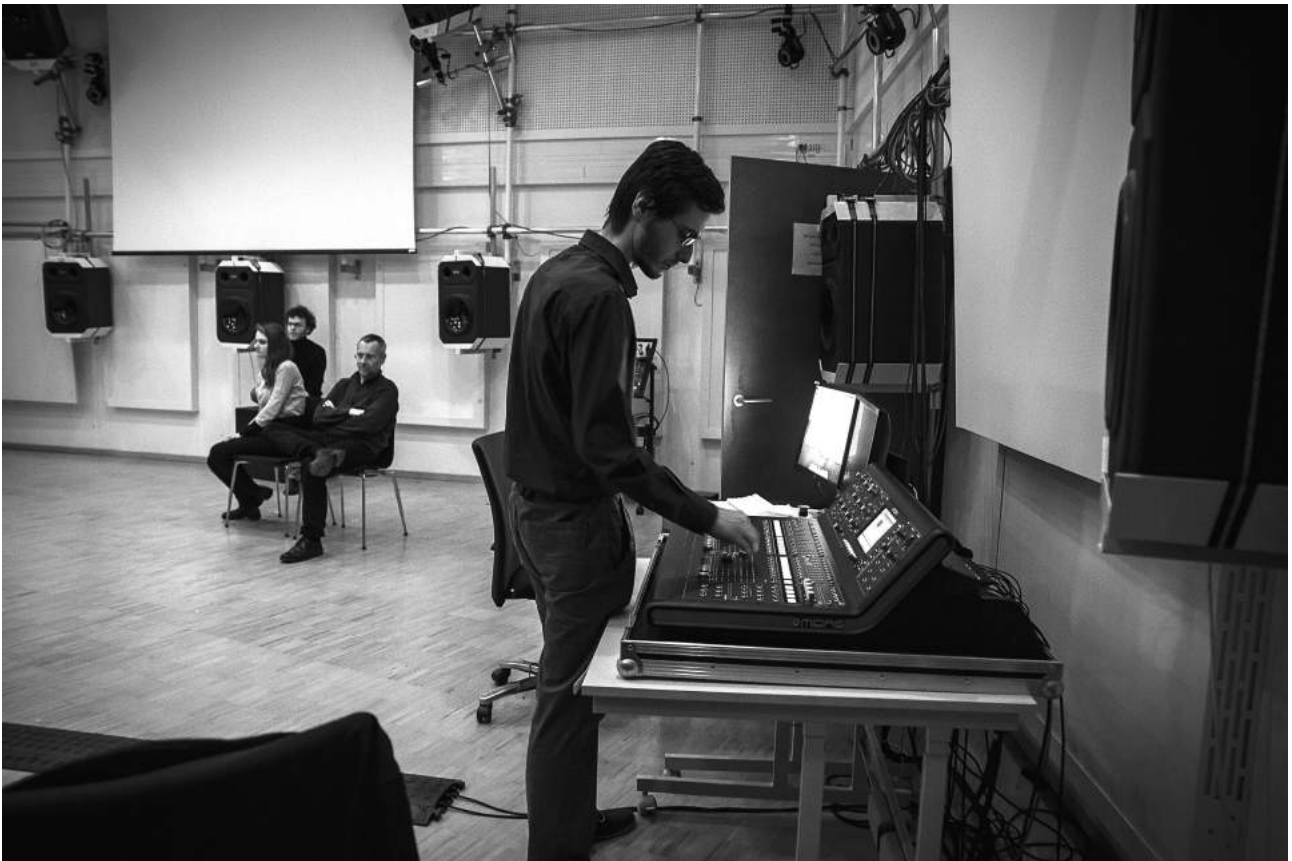
Documentation: [Concert1](#) [Installation](#) [Concert2](#)

"Verschränkte Spielräume" – "Entangled Spaces" interconnects a variable number of musicians and rooms. Through the acoustic connections between the rooms and a feedback-delay network system, the musicians try to hear each other and play music. Every sounds in the rooms are recorded and played back by spatialized variable delay lines. The sound of the delay lines is physically mixed in the acoustic space, recorded by the microphones and played back again in a continuous flow. The resulted sound textures are unexpected and unrepeatable and can be interpreted as emergent phenomena of this non-linear complex feedback process. The gestures of the performers are extended in time, space and frequency, which are naturally interconnected by the feedback-delay network. The process can be theoretically interpreted as the scattering of sound inside a 10 kilometer wide multidimensional room, with its faces moving at variable speeds and creating transpositions through Doppler effects. Every sound inserted in the network will develop in a truly unique way into noise. Local networks are installed in every room but the central system distributes the delay lines randomly in all rooms, merging the acoustics of the various rooms, and creating an acoustic hyper-room. The audience is invited to move freely around the space and explore individually the dynamic process. The form of the piece is a hybrid between a concert and an installation. In the "concert mode" only expert musicians insert sounds in the network. In the "installation mode" the audience is free to interact with the network by producing sounds with their bodies, sounding objects or available musical instruments.





Photos by Lucija Novak



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CONTRACTION POINT

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

Duration: 15 Minutes

Documentation: [Audio Video](#)

"Excellence in Art, Design and the Production of Sound" - "klingt gut!" Symposium on Sound 2016, Hamburg, Germany.

"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. 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 sound textures are unexpected and unrepeatable and can be interpreted as emergent phenomena of this non-linear complex feedback process. The 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 scattering of sound inside a 10 kilometer long multidimensional room, with its faces moving in variable constant speeds creating transpositions through Doppler effects.

In the parallel process the performer makes 12 listening walkthroughs in order to locate the speaker with the higher 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 → C, speaker 2 → C#, speaker 3 → D, etc). The system evaluates the input note and contracts the transposition range of the delay lines accordingly. Sound is the only interface that interconnects the human agent with the digital system. Essential interaction is achieved, since the performer listens to the output of the system and acts accordingly while the system tracks the performer's replies and change the parameters of its internal states.

After the 12th evaluation the system freezes the range contraction and reduces the window time of the delay lines. The emergent effect is the loss of space perception which is gradually transformed into timbre perception. Theoretically, the 10 kilometer long room contracts to a 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 pitch shifted resonance. In every performance a different game score will be achieved, leading to different resonant timbres. If the performer achieve a perfect score (never reached so far in any rehearsal or concert), the transposition of all delay lines will be zero and we will get the normal amplification resonance.



Photos by Stephanie Haack



Photos by Stephanie Haack

TIMELIFE / ZEITLEBEN

Game-piece for double bass and audiovisual computer system. (2015)

Duration: 14 Minutes

Documentation: [Video Score](#)

Soundislands Festival 2015 Best Student Submission Award, Singapore.

"How much do we violate the nature of time when we represent the time with spatial properties? Left is the past, center is the now and right is the future. Can a movement in the space provoke a disposition in time?"

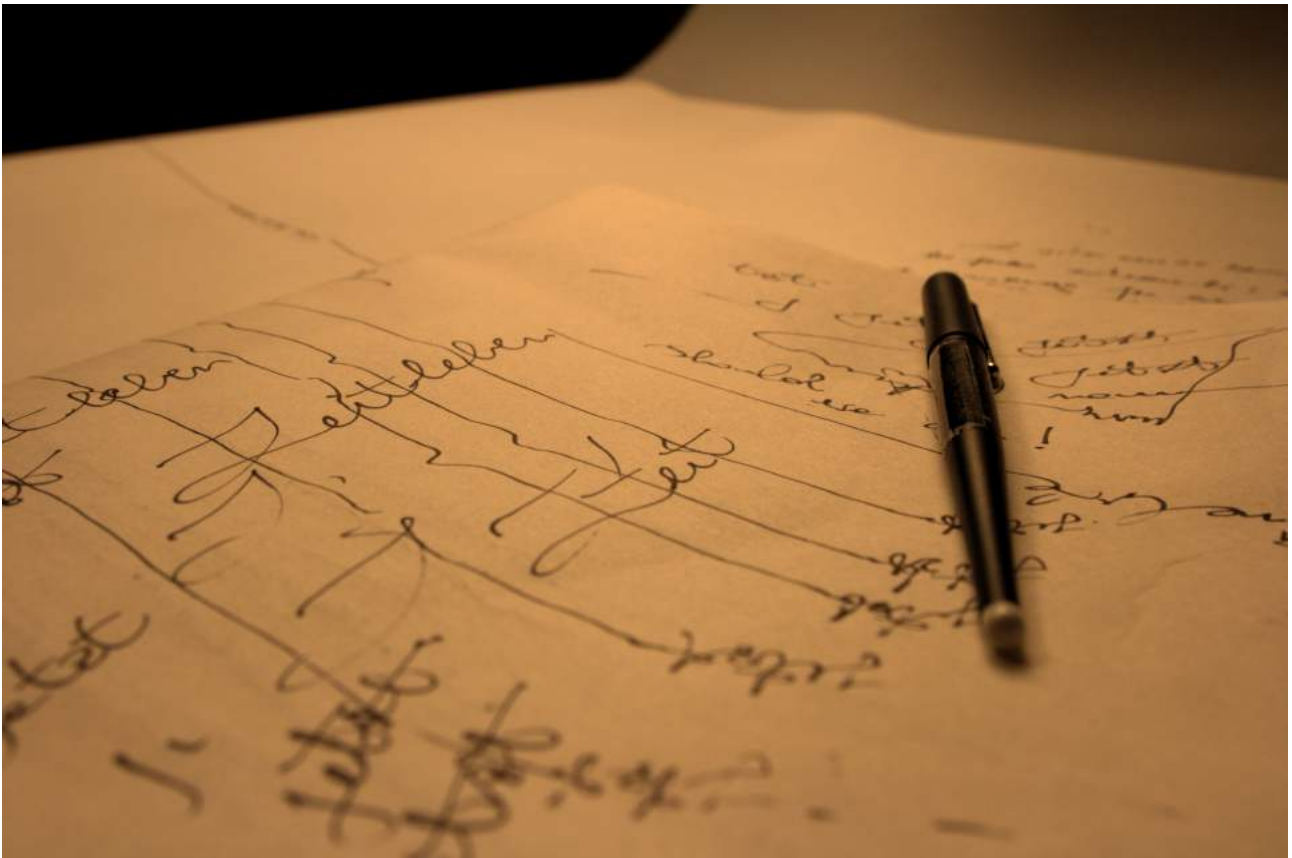
The piece explores the notion of Time in a staged, live audiovisual performance. It is based on the idea of representation of Time (past-present-future) with spatial properties (left-center-right). The bassist stands and plays under the projection screen. His sound/image (referred as "shadow") is recorded/captured by a microphone/camera and reproduced/projected by speakers/projector at the acoustic field of the concert hall/projection screen. His "shadow", which is technically a synchronized audiovisual delay line, starts above him with zero delay time and moves to the left ("Past") with a constant speed. As the "shadow" moves to the left, the delay time increases. A background video is projected showing a hand drawing a wavy line, pointing the "Now".

Five "shadows" appear in the piece successively. With the insertion of a new, the old one(s) remain(s), creating a multi-layered audiovisual texture. The bassist plays the piece in two modes. In the "shadow" mode he just plays freely the notated score, without trying to be synchronized with his "shadows". In the game mode he plays initially some percussive sounds preceded by some glissandi, which work as indicators. After a while, the "shadows" repeat the percussive sounds, while the bassist tries to match exactly new percussive sounds with the delayed ones. When he succeeds in matching, the corresponding "shadows" "jump" (move quickly and a bit to the right). With this game the bassist tries to bring back his "shadows" to the present and prevent them from being disappeared in the past (like a struggle to keep alive a valuable memory). At the end, the bassist stands up and exit to the right ("Future"). When his "shadows" also disappears, a new background video is projected, showing the hand coming in the middle of the screen and writing some words. The sound of the five delay lines remain while being live feedbacked, resonating through the acoustic field of the concert hall, creating an "I am sitting in the room" effect.





Photos by Nick Acorne



Photos by Nick Acorne