Ni MEXICO

Wednesday, May 31, 13:00
CONCERT 1

The Sabotaging Piano
by Teodoro Dannemann

Survival Kit
by Eugene Markin

SPLT/SCRN
by Christos Michalakos

The Sabotaging Piano

by Teodoro Dannemann

In this concert, we want to explore the edge between composition and improvisation. We will invite piano performer Sebastian Löbbers to perform a half-improvised, half-composed piece written by Teodoro Dannemann , a piece that was specifically written for the Sabotaging Piano.

The Sabotaging Piano is an electronic prepared piano that challenges performers through the remapping of keys to unexpected pitches. For every new performance, a new remapping pattern is given, so performers face a continuously surprising new element. The performer is provided with an expression pedal (a "sabotaging pedal") to modulate the amount of keys that will we remapped, going from none to all of them.

When the pedal is not pressed, the pianist can easily follow the notes of the score. However, the use of the pedal will inevitably bring notes that the pianist can't predict. This uncertain piano, at this point, forces the pianist to improvise by using the in-the-moment remapping pattern. In this way, the performance turns into an hybrid of score-following and improvisation, going back and forth depending on the level of pedal pressing. As the pressing level of the sabotaging pedal is annotated by the composer, the improvisations moments are quite planned in regards of when will they happen. Still, what specific keys to press in these parts is often left to the performer. The score in these moments is more open in regards to the notes to play, and the composer can go from specify only the rhythmic patterns of the notes to annotate very general sound ideas like "play quick loud glissandos with no much importance on which specific keys". The piece lasts approximately ten minutes.

Survival Kit

by Eugene Markin

Survival Kit is a live electroacoustic piece that explores the connection between textual and musical meanings. It is a revised take on choral music in the digital era. The author experiments with ways to interpret natural language in computer music and suggests a novel approach to performing text/sound compositions. The foundation of the piece is a poetic text that lists all things that may come to mind amidst a futile preparation for a global disaster. The piece is performed by a single performer in the live coding manner. The author enters the text in his original computer music software, which triggers sections of pre-recorded music and corresponding processing algorithms. All vocals were performed by a collaborator vocalist (tenor) using a recording score for individual lines, and then edited and programmed into the software by the author.

SPLT/SCRN

by Christos Michalakos

SPLT/SCRN is a game-piece where two improvisers play against each-other using their instruments as game controllers. The piece consists of multiple randomized mini-challenges where the performers need to improvise in order to understand what musical gestures are required from them through positive feedback from the screen. The mini-games cover a range of musical affordances, giving the advantage to both instrumentalists at different times. The instrument signal is analysed in real-time using machine learning techniques through Max/MSP, and used as control data for both the progress within the game, as well as the control of the live electronics. These parameters are then sent through OSC to the game engine Unity3D and control the game. In addition, the hybrid system makes use of DMX-controlled lights, which are also mapped to control data and game levels. On-screen events are accentuated through lights within the physical space, merging the physical and the digital.

Laser Phase Synthesis [XXI VII III I]

by Derek Holzer and Luka Aron

Laser Phase Synthesis [XXI VII III I] is a light and sound performance by audiovisual artist Derek Holzer and electroacoustic composer Luka Aron. It is informed by the historical Audio/Video/Laser system developed by Lowell Cross and Carson Jeffries for use by David Tudor and Experiments in Arts and Technology (E.A.T.) at the 1970 Japan World Exposition in Osaka, Japan. Our current project employs digital audio synthesis, modern laser display technology, and a close collaboration between sound and image composition to illustrate the harmonic progression of a musical work.

A laser display functions by deflecting the beam of a laser with a pair of mirrors mounted on galvanometers to create repeating patterns from two input signals, X and Y, at a given frequency in Hz. In our work, these deflection signals are sent from a digital audio interface controlled by the Pure Data application. Composing sounds for the laser display requires careful control of the frequency, amplitude, and phase relationships between two or more channels of audio, since interesting sounds do not always produce interesting laser visuals. These concerns can add quite an additional burden to the creative process of a musical composer, instrumentalist, or vocalist, particularly if they are not familiar with techniques for creating XY vector graphics. The Laser Phase Synthesis instrument, written in Pure Data and used in our performance, simplifies these requirements to the simple harmonic relationship of a monophonic audio channel to the laser's deflection frequency. This direct relationship between sound and image in a single electronic instrument creates a feedback loop in the interaction process, within which sounds are crafted specifically for their visual effect alongside their musical expressiveness.

The musical composition used in the piece is based on extended just intonation. Just intonation is based on the harmonic series and subharmonic series, where the harmonic series consists of integer multiples of the fundamental frequency (1/1, 2/1, 3/1, 4/1, 5/1. . . .) and the subharmonic series comprises integer submultiples of the fundamental frequency (1/1, 1/2, 1/3, 1/4, 1/5....). It is a system derived from the observation of certain auditory and acoustic phenomena, such as difference tones and (non)-beating, as well as the periodicity of composite sound waves.

During the performance of the piece, the drawing frequency of the laser remains matched to the 1/1 fundamental frequency of the partials, even as this fundamental changes through the musical composition. This allows for a wide range of movement, both visually and audibly, while maintaining a close harmonic alignment. The primary timbres used as sonic material for *Laser Phase Synthesis [XXI VII III I]* are sine waves, along with samples of several gongs and bells. While the sine waves were tuned to precision in the Pure Data environment, they interact with the inharmonic spectra of the percussion instruments, resulting in rich interference patterns apparent in both sound and image.