

## Tempo Transversal – Flauta Expandida

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### 1. PROJECT DESCRIPTION

“Tempo Transversal – Flauta Expandida” aims to establish a computer-controlled catalyzer, which simultaneously combines and extends the flutist body actions, electronic sounds and the performative physical space.

Some flute performance fragments, captured in real time by video cameras, besides pre-recorded images, built the visual projection.

The flute player develops two pieces of experimental music for flute and electronic. All these heterogeneous elements are interrelated with each other in a network mediated by the computer. The result is a continuously unfolded interactive performance, which intends to manipulate settings of space-time perception. Brazilian contemporary repertoire for amplified bass flute and electronic sounds establishes the proposal.

*Khorwa-Myalwa (Samsara – the Hells)* for bass flute and electronic sounds by Mikhail Malt 8'44". The work is written for amplified bass flute with expanded techniques. Its structured is given by the resulted sonority of reading out a fragment of *Longchen Nyingtik Ngöndro*, which does reference to the *Eighteen Hells of Tibetan Buddhism*.

Both composer as flutist have a collaborative work regarding expanded techniques and bass flute amplification. This recording was done at IRCAM (Studio 8, December 2016), with two cardio microphones (DPA4099). One microphone is positioned on the head joint flute and another one goes inside the tube, besides the two microphones there is an Omni, Neumann MK 184 one. The composer has mixed and worked out with the recorded material in order to use it in the electroacoustic part of the piece.

The electroacoustic *Khorwa-Myalwa* material has also several instrumental samples like as flute sounds, bell sounds, Chinese bowls, concrete samples of knife sounds, hammer sounds, sword sounds, synthesized sounds (OM > Csound) and transformed sounds (Max, SuperVp, Factoring, etc.).

The second work is an improvisation with fixed electroacoustic support (tape) on the research material based on the project called: “Development of recorded samples bank based on extended techniques for transversal flute”, in partnership with LaFauta - Flute laboratory at Music Department, FFCLRP-USP. Recording samples of double bass flute and bass flute, as well as composition in fixed support was carried out in collaboration with Danilo Rossetti, composer who currently develops a postdoctoral research at NICS-Unicamp (with FAPESP support) regarding music sound spatialization, besides creation and analysis of this repertoire. Fixed electroacoustic support was created as a fabric of noises and sounds of flutes (double bass and bass flute) which were processed with a spatial designed for eight channels. The improvisation is settled on a

sound texture that configures a game which is created from pre-recorded material like a tape and images, as well images and sounds in real time.

A profusion of expanded and amplified techniques allows the expansion of sounds, including some almost inaudible ones in an acoustic setting. As in the musical discourse, the images seek to give visibly details, often invisible in the performance itself. Slap-tongues, multiphonics and very fast fingerings are enlarged, processed and digitally transformed in order to become the primary source of the visual work.



Fig. 1. Photography of the performance's scenic space

## 2. TECHNICAL NOTES

The stage device developed for this purpose consists in the use of a projection screen and translucent fabrics hanging, on which performer's images are projected, captured and processed in real-time (Fig.2). Throughout two webcams arranged at the two opposite sides of the performer, the performer's actions are multiplied and extended throughout visual delay lines (Fig. 3). These images are flutist details, which intend to spatialize and to fragment her corporeal presence during the performance.

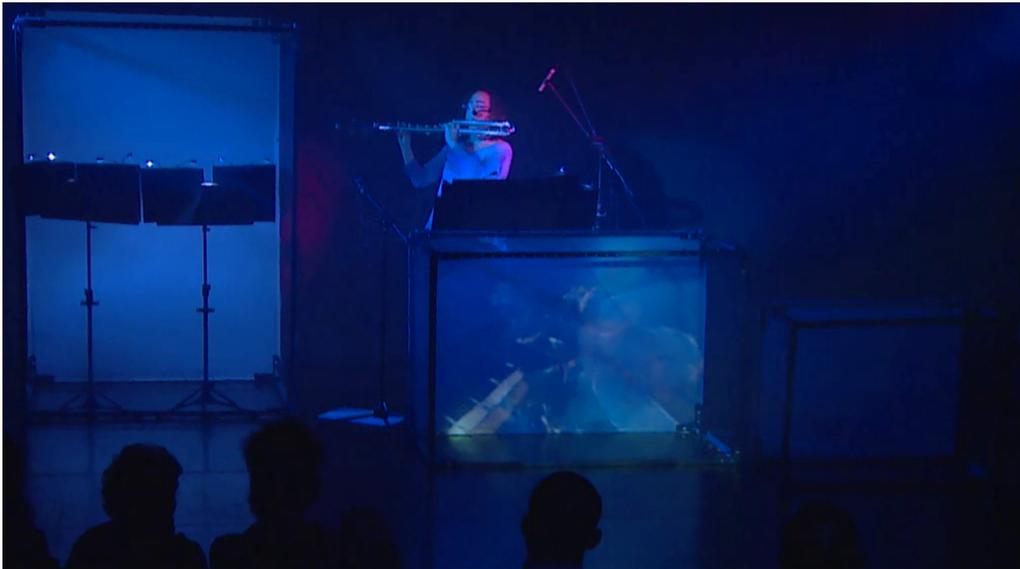


Fig. 2 Representation of the visual delay lines

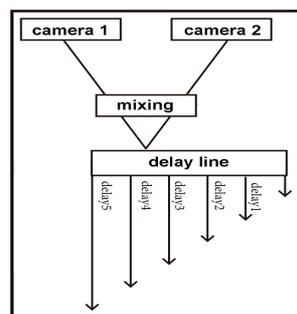


Fig. 3. Photography of the performance

A software designed for this performance identifies instrumental dynamic variations and uses this information in order to control and manipulate the audio-visual settings. The primary image sources are textures of different fabrics, which pass again throughout an overlapping process by delaying lines. In its totality, there are five image layers that are gradually superposed. The intensity of the flute sound is mapped, and when it touches a series of predetermined thresholds, new delayed layers of the primary image are gradually mixed (Fig.4). Reaching the highest level of the musical pieces, the four layers are all overlapping.

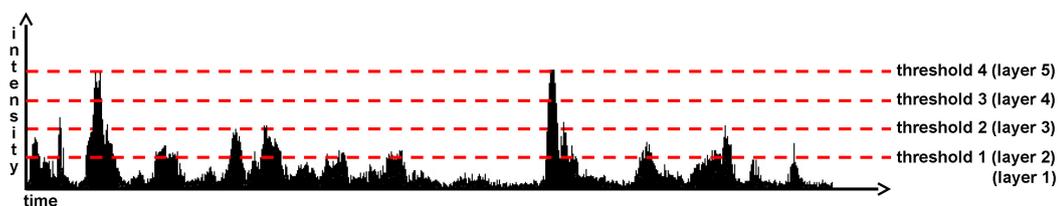


Fig. 4. Representation of the mapping process

The use of these devices is highlighted by the relationships between many heterogeneous elements that compose the performance: the instrumental and

electroacoustic discourse; the physical presence of the flutist and her enlarged images which are fragmented and projected on the stage area; sound spaces created by each one of the pieces and the physical space in which the performance takes place. The network, where these elements interact with each other, forms a performance that unfolds continuously different space-time settings.

### 3. PROGRAM NOTES

Tempo Transversal – Flauta Expandida (Transversal Time – Expanded Flute) consists of a CD with Cassia Carrascoza in charge of artistic direction and interpretation. It is based on works written for flute (some with electronics) by Brazilian contemporary composers and recorded in 2016 in São Paulo and Paris, at IRCAM. It was released by SESC label. The Bravo magazine has nominated it among the ten best classical music recordings of the year.

The proposal presented for NIME2019 establishes a computer-controlled catalyser that simultaneously combines and extends the flutist body actions, electronic sounds and the performative physical space. The scenic device developed by Felipe Merker Castellani enhances the relationship between the heterogeneous elements that compose the performance: the instrumental discourse, the physical presence of the flutist and her images, captured by cameras, fragmented and projected on the expanded stage area, following a script for improvisation created by the two artists.

During the performance of *Khorwa-Myalwa* by Mikhail Malt, a software developed for the project identifies the variation of instrumental dynamics and uses this information to control and manipulate the audio-visual settings. The result is a continuous change of configurations that unfolds with the interactive performance and aims to manipulate the settings of our space-time perception. The second work is an improvisation on a fixed support electroacoustic (tape) composed on the flutist research material in collaboration with the composer Danilo Rossetti, which establishes an improvisation game settled on a sound texture created from the sound material manipulated from the game of pre-recorded images and propagate in real time simultaneously.

### 4. MEDIA LINK(S)

- Video: <https://www.youtube.com/watch?v=sy6uPIbZz4o>
- Audio: <https://www.youtube.com/watch?v=Y2FsVPMagew>