

U.S.O. - Unidentified Sound Object

Technical rider

Co-creators and performers

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Year of production: 2006

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U.S.O. is a live show. It builds on cinematic scale to create an abstract theatrical experience in which electronic floes replace the traditional performer.

U.S.O. features surround sound and substantial sub-bass.

Abstract

U.S.O. project develops through exploration of elementary particles arranged and organized in clouds of discrete and punctiform events, until they compose structures of extensive polymorphic and spatial complexity.

Starting from a definition in terms of “primitive”, as an object which describes a pure mathematic condition, the explorative course “renders” the following steps in sensitive and organic shapes, until arranging more complex levels of definition and meso-structural interaction.

Sound spaces surface from coalescence and dispersive evaporation, thus describing phenomena and entities of different sizes and inner complexities.

The “Aural Streaming” of the Performance defines a bi-directional vector where space and time become elastic variables subjected to generative and structural contingencies of every single “Event”, where every phenomenon re-arranges itself through a form of algorithmic interdependence “ab originem”.

“By exploring U.S.O, listeners will have the chance to submerge themselves in a real-time generative course, where the contingency of the experience will dynamically vary from infinitesimal to immense.

Travelling through the reference “Vector”, they will observe both simple and complex phenomena, which consequently define wider portions of known and unknown perceptible universe.

U.S.O. is undergoing a continuous evolution.”

Running Time

The show runs for 45 minutes with no intermission.

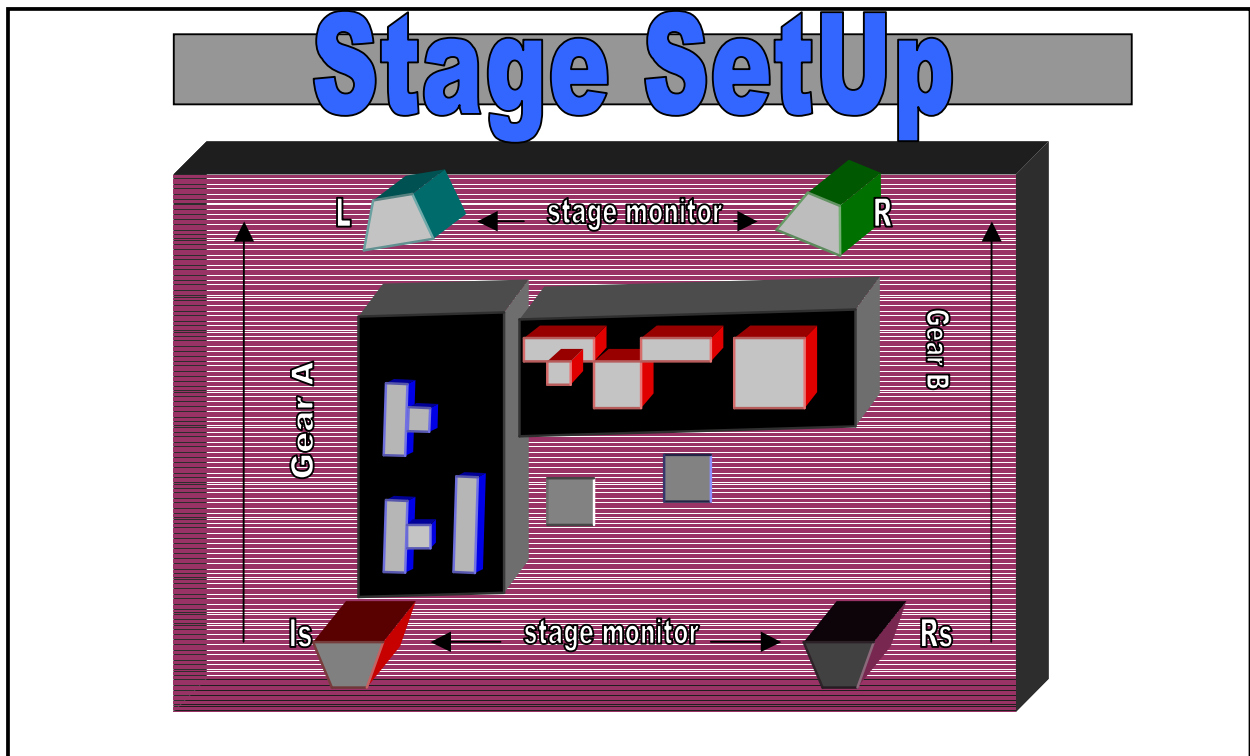
QUANTUM DRIPPING

- 1) Quantization A
- 2) Inflation
- 3) Quantization B

REBIRTH

- 4) Time Vector 1 : Elemental
- 5) Time Vector 2: Mutation
- 6) Time Vector 3: Modular Lexicon

System configuration



Cockpit/control/mixing station workspace

Two performers operate listed equipment from a dedicated space facing the audience. They need a table/desk to comfortably arrange all machinery. All audio cables to P.A. components start from this place.

Sound Equipment touring with U.S.O.

Nr.2 **Apple MacMini**, each driving a SSC Kyma DSP accelerated workstation (4 channel output L, R, Ls, Rs);

nr. 1 **HP laptop WinXP**, running a Digidesign Pro Tools LE and Cycling74 Max/MSP with a 002 rack audio interface (4 channel output L, R, Ls, Rs).

Both Kyma workstations are controlled via MIDI with:

- nr. 2 Wacom Tablet
- nr. 2 M-Audio Oxygen 8 keyboard controller
- nr. 1 Korg microKONTROL keyboard controller
- nr. 2 Eowave Eobody analog sensors converter

MIDI, USB, Firewire and power cables are provided by the artists.

Flat LCD vga monitors are required to connect to Apple computers.

The various signal sources have symmetric signals with TRS and XLR outputs, but be prepared for the need of all kinds of adaptors, DI-boxes and voltage converter.

Stage monitors requirements

- nr. 4 industry standard wedges (for example Martin Audio LE400C), quad monitoring (L, R, Ls, Rs)
- recommended amplifier 500-700W into 4 ohms

Mixing desk input:

at least 16 input channels with 4 band parametric EQ
direct out on 8 input channels or 8 subgroups (to FOH console)
4 AUX sends (to be used as monitor sends and stage routing)

Mixing desk output:

stereo to FOH
stereo to REAR speakers (this is a different signal)

Sub-bass spectrum is bass-managed from both stereo output into any X-over in the PA-system: it is not a discrete .1 (LFE) channel. The amount of sub-bass is not for high decibel sound, but for extremely low sound. For such sounds and the typical body encounter it is important to provide the right amount of speakers and power. However this will not violate possible restrictions in terms of decibel in some countries.

FOH requirements

Stacks/Amplifiers:

(to provide 105db of audio throughout the venue)

- a discreet 4 channel playback system (left, right, left surround, right surround) with a minimum of 2 subwoofers
- 8 x Top speaker cabinets - 2 cabinets per corner of venue
- 2 x subwoofer cabinets - placed with front speakers
- all necessary power amplifiers and cabling
- preferably Meyer Sound, Martin, EAW, Crest Audio, Crown, Carver

Full project description

Pierre Schaeffer, pioneer of musique concrete – “The organization is conditioned by the material”.

The exploratory journey of U.S.O, even if based on different sections identifiable by their qualities, tends to a homogenization of the materials – from both a structural and formal point of view.

Although different manufacture procedures have been identified as first cause of every “aural epiphany”, signal processing and operating methodologies vary during the composition, alternating an improvisational approach with one based on more traditional composition.

The “sound matter” we analyze, morphs unceasingly through natural or “techno-mediate” gestures, always prefiguring a modulation path – self-referred but also unpredictable and explicitly “cultured”.

In various sections, the “transient drawing” for example, takes a functional role different from that of basic entity, and becomes a real articulate and vectorial structure.

The studio work is essentially based around the paradigm of creating particles from scratch (transient drawing) or editing small selection of waveform (transformational). These sound elements feed Kyma Sounds to be played in real-time controlled by human interfaces (tablet, midi controller and keyboard, Continuum Fingerboard).

We used at least two kinds of generators: custom designed samples, as well as Kyma objects, processed through customized signal flow for an “exotic” result.

Another computationally intensive technique used in our work is called Convolution, an extension of the classic auralization process based on the linear convolution of the “dry” original signal with the impulse response of the system. This method is usually employed for adding to dry music or speech recordings a set of information related to an acoustic space such as reverberation and frequency response.

This pilgrimage from the infinitely small, to the real “sound object”, has its accomplished and significant maturity in the “Modular Lexicon” section, where voice and “sound strips” act as actual elements of a rediscovered grammar, in order to cause hyperbolic mutations in both tone and time domains, two spaces finally unified and pacified in the ironic “Farewell for Solo Violin” by Massimo Coen.

Techniques used: Sonographic synthesis (Metasynth), Transient Drawings (Synthetic/Transformational), Particle Cloning, Custom Pulsar Synthesis, Trainlet, Glisson Synthesis, Granulation, Micromontage in d.a.w., Convolution. Spazialization.

The techniques employed have had a fundamentally important role in the signal processing work. They have been selected on the basis of their functionality and effectiveness as to the musical and poetical needs of any specific moment.

The “micromontage” allowed us to create elementary structures which could grow and evolve following precise criteria of composition based on the nature of the material itself (Quantum Dripping to Mutation), whereas additive and sonographic synthesis assured a visual and gestural control on the spectral evolution of various strata, filaments and resonances in the closing section of the work.

The improvisatory aspect of the composition deserves to be addressed separately. Thanks to the use of a Graphic Tablet, it has been possible to use a gestural expressiveness – well-considered through a selected and attentive use of improvisation – and to take it back to control parameters peculiar for sound transformation, using the physical space and the various dimensions (X and Y axis, pen pressure or tilting on the tablet) as instruments to access groups of parameters, or even complex configurations linearly interpolated using the digital signal processor Kyma of the Symbolic Sound.

In the conclusive part of the work, for instance, the prosody of the text has been controlled using a resynthesis algorithm called TAU, mapping time and pitch on the Graphic Tablet, in order to create “impossible” inflexions with the non-reciting voice – the vocal part has been intentionally recorded without expression.

In this, Kyma is a straightforward improvisation partner, allowing us to create our own sound identity, without any preconception or definition, and without hiding the recombinant world of sound computation.