

carpet tapete

HOW TO QUOTE THIS TEXT: GROßMANN, R; OTTO, A. Systemic aspects of auditory interactive art in the public sphere. In V!RUS. N. 3. São Carlos: Nomads.usp, 2010. Available at: URL. Accessed: MM/DD/YYYY

Systemic aspects of auditory interactive art in the public sphere

Rolf Großmann

Rolf Grossmann is Musician, Doctor of 'Music as Communication', researcher on tangible auditory interfaces and professor at the Leuphana Universität Lüneburg, Germany.

Andreas Otto

Andreas Otto is composer, media artist, PhD candidate at the Leuphana Universität, Lüneburg, Germany, Teacher for Media Theory in Bern, Switzerland.

The complex relationship between sound, auditory interfaces, individual action and the public urban sphere can be modeled in many different ways. Generally speaking, any interaction with musical technology should rather embrace a vision of the interference of multiple complex systems than remain in a widespread notion of control between man or environment and machine. Compared to hierarchic and linear models, which are more static and tied with causal structures of 'behaviour', the concept of dynamic 'systems' holds an advantage in describing complex interactions and multi-dimensional processes of communication.

This essay introduces the interplay of various aesthetic strategies and their backgrounds in musical interfacing concepts, in performance and urban public space. It gives an impression of changing aesthetic visions of auditory interfaces in the public sphere, from industrial society to contemporary information- and knowledge-based culture.

The open relationship between a machine and its environment shows up paradigmatically in the early works of Nicolas Schoeffer. In "CYSP 1" (1956) Schoeffer animates space with moving sculptures which are able to react to sound, light and even colour changes. The cybernetic mind which in the 1950s was still dominated by industrial and military technological innovation finds an

artistic manifestation in these early spatio-dynamic objects.^[1] In his later work Schoeffer takes this idea to the vision of a whole cybernetic city in which kinetic architecture, light and sound would relate to interaction with citizens and environment. While his “CYSP 1” objects would also appear in exhibition spaces, Schoeffer’s moving tower sculptures were explicitly dedicated to an urban environment. The essential artistic strategy is the use of sensoric technology such as photo-electric cells and microphones, used as interfaces between object and environment. Sound is used as input here, while the output of Schoeffer’s early objects is movement.

In musical interfaces this connection is reversed. It focuses upon the man/machine relationship: a kinetic impulse of the performer is communicated to a sound generator through the interface, just as it is with any traditional musical instrument. In musical interface design, similar sensor-based technologies to those described above are employed for physical interaction with electronic music. Switches, (air) pressure sensors, distance measuring devices, photocells, microphones, and more can be used for sound manipulation once their output is mapped accordingly. The models of traditional instruments carry a common ideal of extensive control even into these electronic instruments: e.g. if a key is pressed harder, a tone sounds louder. This notion of sound control is viable in a mechanical relationship between performer and instrument, but questionable in a cybernetic setting, gradually freed from physical constraints, in which the interface can be seen as an active part of the aesthetic construction process.

“The problematic relationship between humans and machines stems from the abject remnants of the modernist idea that we can control our fates, perfect ourselves and our surroundings, postpone or eventually eradicate death.”^[2]

The view on technology as an equivalent dialog partner, not a subordinate one as criticized by Tom Jenkinson in the above citation, is also promoted by STEIM in Amsterdam since 1969. Bred in the 1960’s music theatre and jazz scene the “Studio for Electro Instrumental Music” looks into research and development for performance and immediate interaction with sound technology. In 1981, long-term artistic director Michel Waisvisz creates the opera “The Slungels” at STEIM for the Holland Festival, the only protagonists of which are kinetic sculptures. Reminiscent of Schoeffer’s spatio-dynamic objects, sensor-based technology makes the “Slungels” puppets reactive to their environment. The essential artistic difference is that the machines are no longer exposed in public space, as prototypes of urban visionary cybernetic architecture, but that they play on stage – simultaneously embodying and negating the role of classical performers.

Sensor technology has found its way from industrial cybernetic art into the performing arts.^[3] Consequently, Waisvisz later attaches a whole set of sensors to his hands in 1984 and connects their data output to a device which can translate it into digital MIDI code. Thus he plays a synthesizer with distance, acceleration, pressure and tilt data. The control paradigm of the piano keyboards gives way to the touch of finger and arm gestures whose musical functions lack a precedent model. This pioneering example of a gestural controller called “The Hands” remains Waisvisz’ performance instrument until his early death in 2008. STEIM subsumes his and many comparable instrument developments^[4] under the so-called “Touch-Philosophy”^[5], a view on technology that emphasizes the mutuality of interaction in which it is unclear who actually claims the active and the passive part, man or technology. The metaphor of “Touch” implies this multi-dimensionality.

Accordingly, cooperating with machines does not mean command and response, but rather communication within systemic processes. In cybernetics, the concept of feedback loops implies a non-linearity which in system theory is captured with the model of a re-entry of an outside into an inside of a form, or an unmarked space into a marked space.^[6] In digital media the difference

between marked and unmarked is crucial, as binary on-off states display and construct the world without transitions. In artistic artifacts of our time – call it network, mobile or information society - these non-hierarchical concepts are vital. Auditory interfaces must employ features like programmable sound generation and automatic sequencing in ways that are aware of the interplay of multiple systems. Only then can they avoid achieving what Squarepusher calls artistic violence, resembling Wiener's admonition of a fascist society through omnipresent hierarchical control:

“Unfortunately, working with any material in a violent and dictatorial way simply produces artifacts of human stupidity, not art. Inevitably, the violence committed by the artist returns to its source.”^[7]

The complex systems touched ideally in the field of digital music interfaces stretch between urban space exploration, kinetic architecture and sculpture, between individual performance strategies and instrument design, and between media or technology shifts and sound design. Instead of a control paradigm the interference of such systems promotes an awareness of mutual sensitivity.

In David Rokeby's "Very Nervous System" (1986-1990) for instance, space can be commonly experienced. In this prime example of an interactive sound installation,^[8] a camera scans the room, which can be a stage or a public space, and maps the visual input through software to a sound output. Environment or performers can incite or play sound. The work's title is cleverly chosen as it puts the finger on both the media setup and the player of the system. Who is actually nervous, the machine that once more has to bear an anthropomorphic metaphor, or the player who feels all too observed? The dialectics of interactivity are the issue here, in between artistic exploration of space on the one hand and supervision to the point of paralysis on the other.

While virtualisation is the keyword for the nonphysical, other realities merging into our everyday experience, there are important artistic strategies to make the unsubstantial material of digital media a subject of perception. An example of omnipresent code - essential for orientation yet invisible - is GPS data. Sound artists such as Iain Mott, Marc Raszewski and Jim Sosnin (Soundmapping, 1998), Teri Rueb (Drift, 2004; Core Sample, 2008) and Yolande Harris (Satellite Sounders, 2009) use audio technology to make the transmissions of GPS data audible while walking through urban space. Other examples are telematic sound installations, which connect sound generation and interaction via internet and symbolic instruments in the 'real' public space, such as Global String (2000) by Atau Tanaka and Kasper Toeplitz.

The 'real' location gets a new quality as a marked point of auditory communication; it makes virtualisation and information streams aesthetically perceivable in a vision of new urbanism. The architecture of networks and data-flows - which in Vilém Flusser's writings is not merely a metaphor but a concrete vision of future surroundings and living conditions - is thus rendered part of our immediate perception and communication when we move through civilized space.

References

More Links:

CYSP: www.cyberneticzoo.com/?p=815

Michel Waisvisz performing with The Hands: www.vimeo.com/1204085

David Rokeby "Very Nervous System": www.homepage.mac.com/davidrokeby/vns.html

GPS Projects:

Soundmapping: <http://www.reverberant.com/sm>

Core Sample: www.terirueb.net/core_sample/index.html

Satellite Sounders: www.yolandeharris.net/?p=177

[1] CYSP stands for “Cybernetic Spatiodynamics” and is claimed to be „the first cybernetic sculpture of art's history“, see: Habasque, Guy; Nicolas Schöffer. Neuchatel 1963. www.olats.org/schoffer/cyspdesc.htm

[2] Jenkinson, Tom (aka Squarepusher): Collaborating with Machines. Flux Magazine, March 2004. www.tylerestes.com/tomessay.html

[3] A milestone in this direction marks John Cage's 'Variations V' (1965) in which dancers' movements are detected by photocells to affect sound. www.medienkunstnetz.de/works/variations-v

[4] For other 'gestural controller' developments see STEIM project blog: www.steim.org/projectblog and STEIM video-channel: www.vimeo.com/steim

[5] Norman, Sally Jane/ Ryan, Joel/ Waisvisz, Michel: Touchstone. Catalogue for the STEIM Touch-Exhibition. STEIM, Amsterdam 1998 S. 39-42. www.steim.org/steim/texts.php?id=2

[6] As in Luhmann's adaptation of Spencer Brown's “Laws of Form“. See: Luhmann, Niklas: Die Gesellschaft der Gesellschaft, Frankfurt a.M. 1997, p. 1148.

[7] Jenkinson, Tom: ibd.

[8] Dinkla, Söke: Pioniere Interaktiver Kunst. Von 1970 bis heute. Karlsruhe 1997.