Wireplex, an Extended Flow of Data as Distributed Sound Sculpture

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ABSTRACT

This article presents a networked sound sculpture made using web technologies. The intervention described explores the generation of content in large numbers of distributed interfaces with potentially large distances across the globe. Using Akson audio-visual (AV) environment, a distributed connection is maintained to all machines that remain publicly linked. We explore and present *Wireplex* as an artistic use of the Internet creating an irregular platform to reproduce the artwork.

1. SOUND AND SCULPTURE

Referring to Marshall McLuhan's (1964) quote that the human being has already extended his senses and nerves by the various media [7], we present *Wireplex*.

This artwork explores an automatic and pre-structured version of Akson AV environment, in order to generate and collect constant streams of data over the internet. Exploring detailed information related to the geolocation of the machine connected, it aims to create a complex structure of both resonant devices linked by the cloud. This text also reflects on digital networked systems as means of sound diffusion, reiterating some common practices in sound sculpture using contemporary technology.

Using the practice present in the twentieth century as a base reference for the development of this project, we start by mentioning the great change that existed in the practice of sculpture as art [2, 3, 5, 9]. As said by Rosalind E. Krauss (1979), surprising artworks have come to be called sculpture. *"narrow corridors with TV monitors at the ends; large photographs documenting country hikes; mirrors placed at strange angles in ordinary rooms; temporary lines cut into the floor of the desert"*. As she says, nothing can be an empirical motive that allows anyone to call sculpture to anything. Unless, that is, the category can be made to become almost infinitely malleable [9].

When the practice includes sound as material for artistic expression, we underline two different positions that the author can take in the development of the artwork. The materialisation of sound into a three-dimensional physical object as a sculpture derived from the analysis of the acoustic phenomenon, and the development of three-dimensional objects as sound producers in space [4, 6].

We have built this system in a way that respects both practices by creating analogies in the technical development of the platform and its reproduction between various devices. We acquire data from each connection and use it to produce sound, treating those devices as objects of sound reproduction in space.

2. REMOTE INTERACTION

Referring to the development and historical importance of networked collaboration using digital connections in the artistic practice [1], we start to define the system that supports the proposed artwork, *Wireplex*.

During the installation it will be possible to access the *http://www.akson.xyz* domain from anywhere in the world as long as it is done by a device with Internet. If the device allows, and can participate in the intended website will then be one of the public links that define the sound sculpture. This volatile feature regarding the change of shape of the artwork, allowing its existence in a distributed way will be a lever for the exploration of different playback setups.

As said before, this system is a generative exploration of the Akson AV environment. It has a purpose-built graphical system populated with geometries that allow interaction via click on the screen and an audio system that includes both a synthesizer and a low background. The way the audience interacts with their device is through the touchscreen, this way notes will be played on all connected devices.

The way both the notes that are played and the attributes of the two systems that make *Wireplex* are defined is by the geolocation of the device [8]. A two-dimensional matrix has been created that divides the position of the connections into predefined areas using latitudinal and longitudinal degrees. Static characteristics are thus assigned to the various points on the planet, making a machine in Japan have different sound and visual properties from California.
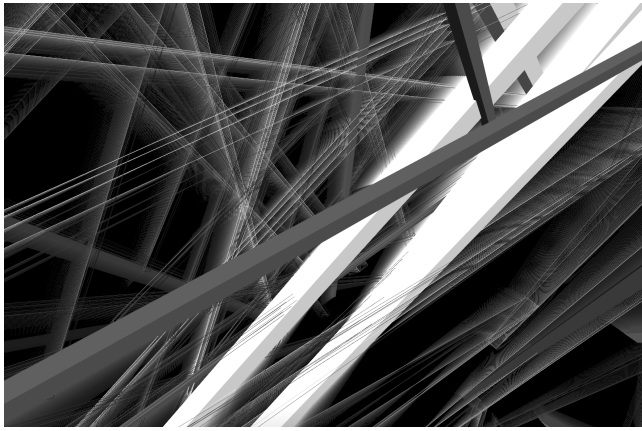
The development of this project is directly related to the aesthetic AV result and the intrinsic indeterminism present in the means of reproduction. In this way, a metaphor is made to the artistic phenomenon, as an event that exists only from the relationship established by the public or the author, in this case with a digital interface.

3. ACKNOWLEDGMENTS

The artwork *Wireplex* reflects and exposes part of an investigation conducted under Braga Media Arts[1] on collaborative AV environments and web technologies. All related contributions are in it's context, part of UNESCO's[2] Creative Cities Network (UCCN)[3].

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5. BIOGRAPHIES

Luis Arandas

Media artist, and sound designer based in Porto. Currently a researcher at Braga Media Arts, Luis holds both an M.S. in Sound Design and Interactive Music by University of Porto and a B.A. in Sound and Image by Catholic University. He focuses his work on artistic performance, new media in art and musical technology. Luis has installed and/or performed in venues such as eNTERFACE, xCoAx, Orbits festival and Semibreve festival. More info at http://www.luisarandas.org/

José Alberto Gomes

José Alberto Gomes is a musician, sound artist and curator from Porto, Portugal. Graduate in Music Composition, he created strong bonds with new technological possibilities and in the role of music in theatre, film, installations and electronic improvisation, taking particular interest in seeking new ways and new musical 'places'. Has completed his PhD in Computer Music and he is a professor at Aberta University and School of Arts - UCP, teaching Digital Art, Sound and Computer Music. Since 2018, he is the educational project director of Braga Media Arts (UNESCO's UCCN). He performs regularly in public projects both in solo and group (BlacKoyote, Digitópia Collective, Srosh Ensemble, Hans-Joachim Roedelius, Jon Rose). He is creator in music and sound design for theater plays and videos (From Peter Handke's Essay about the Successful Day - FITEI/Rivoli, City Domingo - Oficina Theater, Prometeu - Theater of Animated Forms, Ínsua - Silent Rupture); creation and programming interactive sound installations; and composing for electronic and instrumental ensembles (Remix Ensemble, Drumming, João Dias, Henrique Portovedo, FactorE, Studio Orchestra). More info at http://jasg.net

Rui Penha

Composer, media artist, and performer of electroacoustic music, Rui Penha was born in Porto in 1981. He completed his PhD in Music (Composition) at the University of Aveiro. His music is regularly recorded and played in festivals and concert halls around Europe and North America, by musicians such as Arditti Quartet, Peter Evans, Remix Ensemble, or the Gulbenkian Orchestra. He was a founder and curator of Digitópia (Casa da Música, Porto) and has a deep interest on the relationship between music and its technology. His recent production includes interfaces for musical expression, sound spatialisation software, interactive installations, musical robots, autonomous improvisers, and educational software. More recently, Rui has focused his attention on the problems of defining and guiding artistic research. He taught at several Portuguese institutions, in both music, art and engineering faculties, and is currently an assistant professor at ESMAE and researcher at INESC TEC. More info at http://ruipenha.pt