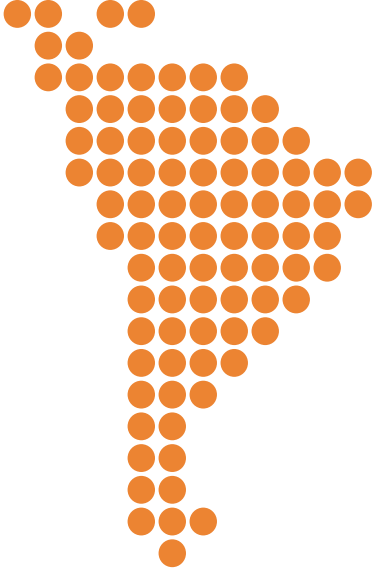

CAN A TELEMATIC SYSTEM PROVIDE AN EXPERIENCE IN ART?

Art, Science and Technology in artistic experimentation at NANO LAB[1]

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Abstract

Can a telematic system provide an experience in art? The question is not new to artists involved with telematics, but it emerged again during the last four years, resulting from research on computer art, science, and telematic systems developed by artists Guto Nóbrega and Malu Fragoso at NANO Lab (UFRJ-Brazil). The idea of a "Telematic Embrace" was introduced by artist Roy Ascott (2003) and is constantly reviewed with technological development through artistic projects that explore processes of creating artificial interfaces which in some way are connected with natural and organic elements, experimenting on possible hybridization, interaction, presence and context in telematic environments. In this paper, the presentation of practical, experimental and technological procedures is in focus, but also an approach to the subject relating artistic practices and science research in collaboration with other research groups and laboratories. We will be discussing on research strategies between artistic and scientific methodologies towards transdisciplinary knowledge.

Keywords:

Keywords: telematic, hybridism, performance, trans-disciplinary

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Introduction

The NANO Lab (Nucleus of Art and New Organisms) was created in 2010, at the Graduate Program in Visual Arts (PPGAV) at the Federal University of Rio de Janeiro (UFRJ), by Guto Nóbrega and is coordinated together with Maria Luiza Fragoso (Malu). Both artists have been developing their artistic projects on the processes of creating artificial interfaces which in some way are connected with natural and organic elements, experimenting on possible hybridization, interaction, presence and context in telematic environments. In 2011, NANO was invited to collaborate in two research projects: *Laboratorium Mapa D2*, proposed by Ivani Santana, from Federal University of Bahia (UFBA); and, ***Ecotelemedia***, proposed by Kjell Yngve Petersen, from IT University of Copenhagen, Denmarc. Both had in common the development of collaborative process based on telematic systems to create artistic performances.

Laboratorium Mapa D2 – brief description

The project *Laboratorium Mapa D2* gathered different research groups from artistic centers at brazilian universities such as NANO (at Federal University of Rio de Janeiro), Telemedia (at Catholic University of Rio de Janeiro), GP Poética (at Federal University of Bahia), Computação (at Federal University of Bahia), LPCA & Grupo de Pesquisa Computacional (at Federal University of Ceará), and LAVID (at Federal University of Paraíba). All groups were organized into audio-visual connectivity in real time based on Arthron[2], platform developed by LAVID (Federal University of Paraíba). The main objective of *Laboratorium Mapa D2*'s lab consortium was to experiment and explore the potential of such technologies for the creation of artistic projects. During the year, twenty virtual meetings were attended by the groups, four Open Labs were organized with the participation of the public (on line and of line), three workshops on telematic structure and creative processes were offered, one preliminary exhibit was held. A final exhibit by the title *Frágil* was held December first at the Museum of Modern Art in Rio de Janeiro, during the event "Desafios da Arte em Rede" (Net Art Challenges), a preview of Digital Culture International Festival of Rio de Janeiro, organized by Brazilian Ministry of Culture.

HA. Hiperorganismo Antropofágico

NANO worked on a robotic interface named as H.A. with local and remote interaction with performers and public proposed as interface between all agents of the project. H.A. standing for Antropofagic "Hyperorganism" (Nóbrega, 2009), is not only a robot, but a mechanism that captures images, movements, actions as data, devours this information and reproduces it inside it's body as images and sounds. It may also expand this output to anywhere once connected to the net. H.A. is composed of a head with monocular artificial vision, a neck that moves in four directions, a body built of translucent material that expands and contracts like a breathing lung actionable by external and internal stimulus. The interface is also built with movement sensors in mapping environments and interactions, internet protocol for connectivity and video streaming input and output devices (Fig.1 and Fig.2). An Arduino with frequency radio transmitter received the transmission of sound variations through the web and sent it to a wearable interface, which would output the data through four micro-motors that vibrated and stimulated the dancer at four different points on his body.

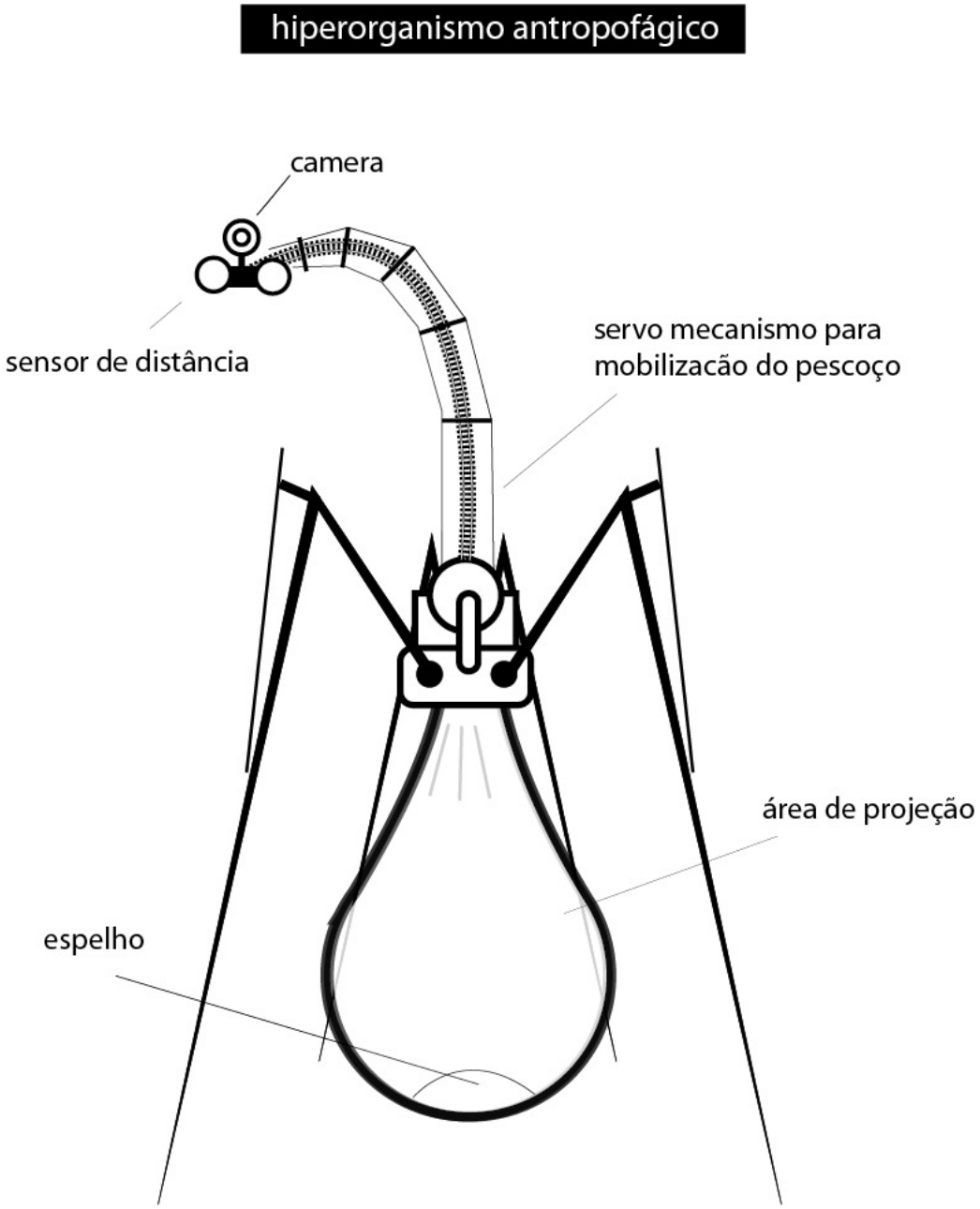

Figure 1. HA, original scheme.
Drawing: Guto Nóbrega.

Figure 2. Final Conception presented at *Frágil*-RJ, 2011.
Photo: Guto Nóbrega

This complex connection allowed dancers to feel the sound intensity of the environment directly over their bodies creating a synergetic experience. Data was flowing between dancers, public, internet, robot in a constant feedback system (Fig.3).

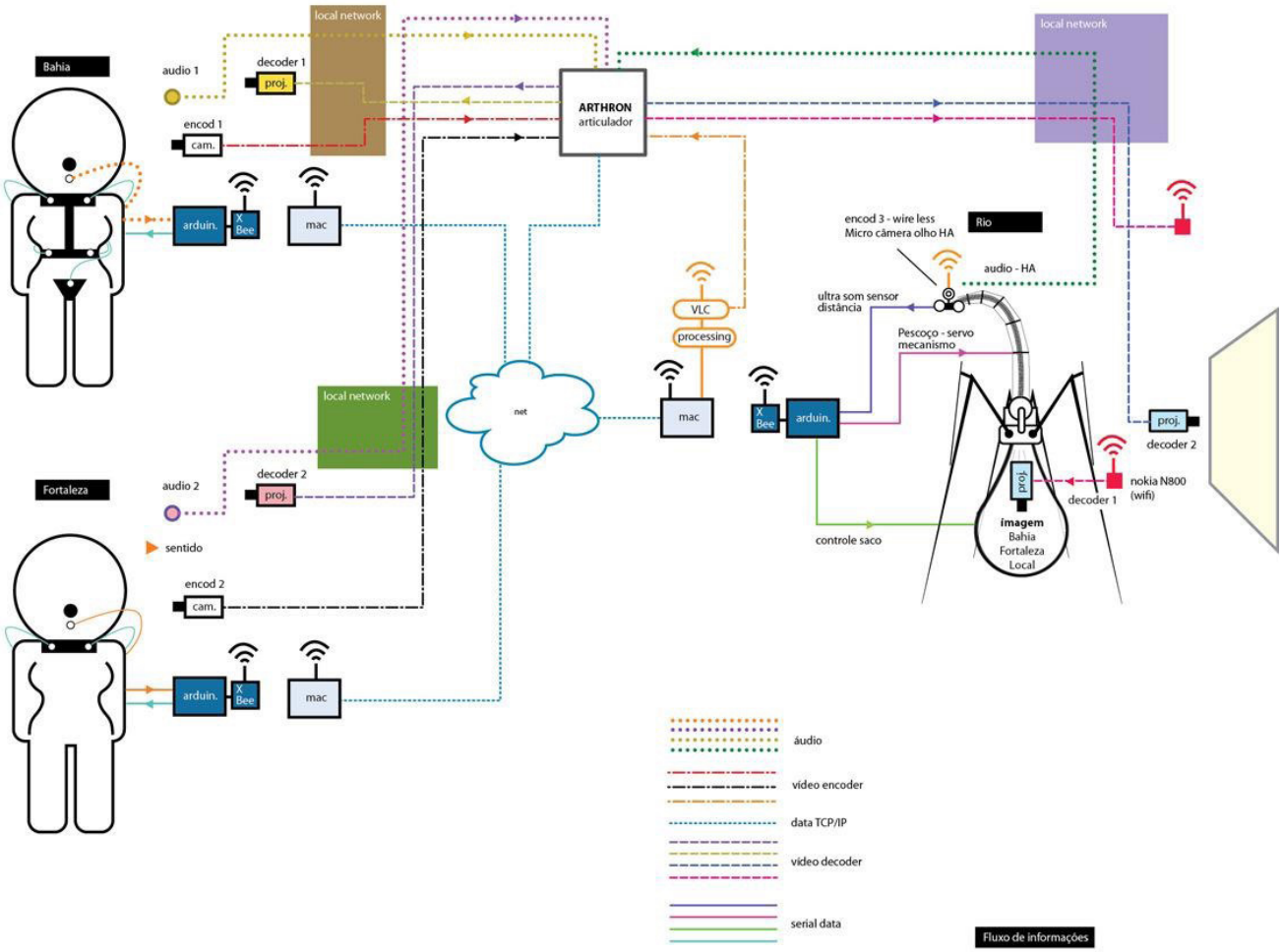

Figure 3. Telematic environment at *Frágil* performance

During *Frágil*'s performance, H.A. became as important as the dancers in action, attracting the attention to it's body movements connected to the images projected on a screen. It gave the sensation that it would start moving around, as the others were. The telematic environment involved all dancers and, in many ways, connected the overall actions in Rio, and from Rio to Ceará(BR). The public would be looking at images projected without the certainty from where they were originated. There was no direct participation of the public in the telematic system, although it absorbed the public's presence and was perceived by all.

Ecotelemedia

Ecotelemedia was an international endeavour of a collaborative research net called *The aesthetics of global connectivity: exploring design strategies and networked technologies of distributed sites through artistic processes* proposed by Kjell Yngve Petersen from IT University of Copenhagen. It lasted the whole year of 2011 and was coordinated by Petersen, Guto Nóbrega, from NANO (Brazil), and Kenneth Fields, from Central Conservatory of Music in Beijing (China). In April, each of the coordinators invited other collaborators from their research institutions to attend a meeting held at NANO lab in Brazil. A symposium on Telemediations: exploring aesthetic paradigms in hybrid ecology was held, together with workshops on methodological approaches and open labs. The main objective of Ecotelemedia was to establish some methodology for artistic research, focusing on an aesthetic paradigms resultant from telematic environments. Emphasis was on experimentation with natural and artificial systems based on collaborative experience through visual and acoustic performances aiming an emerging ecology.

Process

An optimized telematic system was planned in order to connect multiple actors (humans, plants, machines) in a relatively coherent way during a specific time period for the performance. NANO's proposal was to create sounds from a hybrid organism, composed of a plant and a computer system programed to read the variation of electric conductivity on plant leafs. An interface was developed in which three plants worked as organic sensors creating three different channels of data used on the process of creating sound. The connection occurred between Brasil (NANO-RJ and Ivani Santana from Bahia), Annika B. Lewis (Washington – USA), and our partners in Copenhagen and Beijing. We can affirm that one of the main coherence factor was the sound feedback created by the digital arrangement of multiple data sources sent to computer stations using Pure Data. Other data was shared through OSC[3] protocols, and audio connection between Brazil, China and Denmark was done by *Jack*

Trip[4]. Data sources were: accelerometers from iPads and iPods used by two performers; two hybrid systems with plant and GSR - galvanic skin response (Brazil and Denmark), each of them with three plants; and a Cilia digital controller[5]. Between 5th and 9th of September an intensive laboratory workshop was held at IT University of Copenhagen that resulted on the first public *Ecotelemedia* event, in which all participants were sharing the same location. On October 25th the performance occurred through remotely via telematic environment (Fig.4).

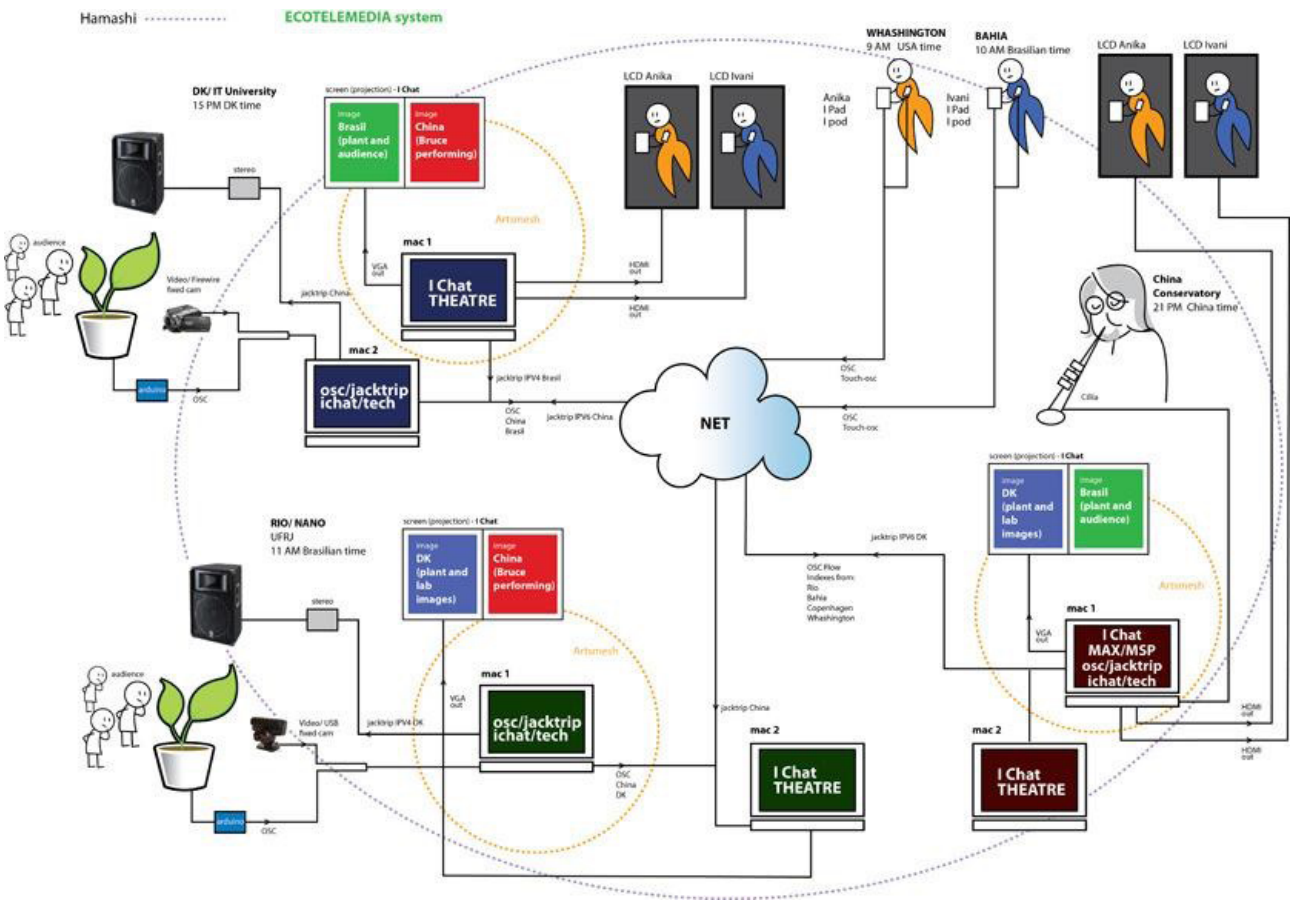

Figure 4. Ecotelemedia telematics environment.

Ecotelemedia, First Stage feedback

One of the most impressive sensations observed from the artistic telematic performances was the state of incomprehension of the presented complexity. Maybe our limited consciousness regarding the complexity of the system and it's operations is a condition to experimenting the performing act. The experience is sensed very differently from different points of view such as: the artists engaged on the actions, the director of the actions, technicians commanding the software, and of course the public. There were rehearsed plots being performed but the telematic environment tends to constantly propose an opening to the unpredictable.

An immediate impulse from the directive base of the spetacle is to avoid this "unpredictability", stablishing a minimum of control over the general performance. However, if we believe that telematic situation enhances the vitality of an aesthetic experience, then, this experience must allow the telematic environment to infiltrate the work of art. Only then, the mediated embrace will be able to begin to modify our perception. Maybe this is an aspect of what Roy Ascott refers to as "cyberception" (2003)

Notes

1 This article is a revised version of the original presented at #11ART.
2 "A Arthron is a tool that facilitates artistic performances that apply multimedia representations combining virtual and real spaces in real time" (2005).
3 Open Sound Control is a communication protocol between computers and other sources of digital data for networks (Cf. http://opensoundcontrol.org/introduction-osc).
4 High quality system for audio streaming without compression for networks (Cf. http://code.google.com/p/jacktrip/).
5 Flute like Tele-instrument developed by the musician, researcher and collaborator of *Ecotelemedia* project, Bruce Gremo.

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Carlos (Guto) Nóbrega is Doctor of Philosophy by The Planetary Collegium programme (formely CAiiA-STAR) at University of Plymouth – UK (2009), where he developed full time research funded by CAPES – Brasil, under the supervision of Prof. Roy Ascott. He has a MA in Communication, Technology and Aesthetics by ECO-UFRJ – Brazil (2003) and is Bachelor in Engraving by the Escola de Belas Artes – UFRJ – Brazil (1998). Since 1995 he lectures at the UFRJ-Brazil where currently he holds a position as Adjunct Professor. He funded and coordinates the lab NANO – Nucleous of Art and New Organisms, and currently he coordinates de Post-Grad Programme in Visual Arts – PPGAV-UFRJ.

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