TELEMATIC INTERACTION IN CREATIVE COLLABORATIVE ENVIRONMENTS

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ABSTRACT

Through this paper, which gives advances on the doctoral research "Configuring Active Tele Spaces – Performative distributive Interaction Environments of Audio & Visual Creation –" it is intended to clarify some of the questions and understand turning points that occur to crosslink art, design and technology, with elements (media) visual, acoustic, sound, spatial and object-based, mixed in the same space-time frame supported by compatible technologies and telematics telepresence based on the perspective of interaction design.

It is proposed how the interaction model changes or consolidates, according to relationship processes and interaction between intelligent agents supported by the "Active Spaces" generated by telematics networks and how they are reconfigured as media and space allowing the design of new metaphors like the assembly or group that enhance the possibility of collective creation and ubiquitous presence, proposing communication structures base don based on gesture, presence and body language. [1]

BASED APPROACHES

In the last decade different paradigms attempt to explain the relationship between humans and machines, in this analysis there are studies that relate men and computer interfaces in HCI (Human Computer Interaction). This way there is set an analysis that focus on: technological developments, as models like GRID or Streaming in the design or the natural interaction and emotional design and art such as net art or collective art, to mention only some of the proposed positions from different areas or disciplines. While technological advances influence the way we interact with it, they also depend on how we take them and how we understand and use its features. The aim of this paper is to address some of these questions and understand turning points that occur to crosslink the creative and design fields with the technology and those with visual, acoustic, sound, spatial and object-based elements mixed in one space-frame supported by a temporary-space and telematics and telepresence technologies. All of this from the perspective of interaction design. This can be achieved thanks to the opportunities provided by telematics networking.

Thus analyzed from technological and multimodal interfaces from interaction design telematics looking to find elements that link the relations given in HCI type models in networks that pose forms of communication and creation, also, varying models for collaborative work, such as the ubiquitous computing posed by Poslad Stefan who introduced the concept of the invisible, where technology such as computer and other technological devices are incorporated as part of the environment that are perceived and naturally moving the space and the concept of telepresence. [2] Also proposals as multimodal interfaces, which seek interaction with systems that do not require specific skills and become more effective and natural as the voice, gestures and other human expressions. [3]

TELEMATICS CREATION

When we approach characteristics such as latency, certain questions arise. One of which is, how to achieve a threshold of 20 minutes delay in distributed performance over Internet networks? Actually, a question of this nature is obviously framed in the space of engineering and technology, but its importance in the field of design and art is far from irrelevant. Achievements and performance of distributed events have already been implemented in different types of creative fields (dance, theater, music), but what exactly has been done? Are they merely technological experiments? Are expressions of design and art with its own aesthetic and / or creative constitution? What is the future and possible new proposals in this field? What contributes to other fields of digital development? These are very important questions in the approach of the analysis process design and implementation of a distributed collaborative activity type, because there is considerable difference between an experiment for purely scientific purposes to a creative order experience or activity in the workplace by mention just a few areas in which these types of activities can occur.

The reconfiguration of the roles of users and creators (performers and audience) in this class of models suggests that, perhaps, experience and emotion are elements that must be considered, even surpassing the communication model (such as cognitive models or user-centric, for example) or the structure of the interface itself. This is perhaps natural when we face a new type of format, which generates expectations and challenges from a creative standpoint and design, such as new forms and expressions has occurred in the past have emerged. There is no doubt that people who work with performance distributed (especially from the creative side and why not say, artistic) must hold as their ultimate goal that these formats are accepted as valid in the creative field and academia, not just a curiosity or a simple technology demonstration, as within films. This can be done when the technology is appropriate enough in the fields and contexts of creation itself and it is understood that some of the technological knowledge must be active, compositional and structural part in the creative process; also that technological developments are required and must be seen beyond a simple step, but without forgetting that they express the desire to create and communicate; which is the final and ultimate purpose in this type of process.

One element of great importance and that should be considered is that of preexisting forms of expression versus creative ways, created specifically for this format. One of the main topics (from a creative point of view and experience) refers to the attempt to

use the traditional formats using new technologies, such as the creation of distributed performance in classical music (in context strict) technology being used here only as a means of transport, compared to experiences of creating experimental music composition on models involving distribution and latency as one of the elements in the score, composition and creation itself. This paper seeks to clarify some of the questions and submit questions and propose some elements that relate the topic of collaborative creation of shared spaces – summarized in the term of telematics creation-, this way the beginnings and creative context led to the development of distributed performance, from a perspective of audiovisual creation and collaborative design. Some of the terms that are used in this field in order to understand their meaning, are defined, at least from a creative point of view. Once these concepts are understood, a definition of distributed performance and active spaces arises. This is understood as a disciplinary field and construction of telematics creations. Finally, some elements are formulated in order to structure a new telematics proposal, based on concepts such as presence, motion and hearing, framed in the discipline of interaction design.

DISTRIBUTED PERFORMANCE & ACTIVE SPACES
Trying to understand the performance in terms of distributed performance multisite network may be, at first, confusing to understand; however, it is not so confusing. This could be summarized as two or more performers in separate locations performing work together simultaneously. The concept is very simple. Furthermore distribution and networks are familiar terms to most people, performance is too or at least should be clarified through the reading of this document. There would be problems if they were to combine these terms in the same concept. The concept can be integrated by saying that the performance networking is a synchronous communication approach, ie, a shared activity between two or more people who are working at the same time.

These partners may be located in the same place or in different places, using remote communication systems such as video conference; allowing people in different locations can see and hear each other simultaneously. This is achieved technologically speaking with a multipoint communication method. The basic system consists of computer, monitor, video camera, microphone and speakers in every room. What have to do distributed networks with creation and design? Is that about talking about tours where artists travel and repeat the "same" performance in different places? Does it speak of events as the "Met Live" where opera productions are broadcast around the world, live and concentrated audiences in theaters? As mentioned above, the definition for distributed performance is not very hard to give. The concept of two or more interpreters who are in two or more places. However, this is possible, thanks to high-speed Internet and advanced software (and hardware) that allows the implementation and proposal, where creators, performers and participants (public) are geographically distant but connected electronically.

Basically, a network performance serves to expand global environment creating an "active space" made by the artists and the venue for the participants and the audience. Active space is Initiated by the computer video artist John Crawford, who refers to the computer environment as "a space where interaction and collaboration between people and machines." [4] Crawford develops and participates in a series of workshops and performances where dancers, actors and musicians interact with machines to explore their creative uses in live and interactive performance to analyze the direct participation in an environment of active space facilities. Crawford presents a structure where individuals have opportunities to collaborate and take responsibility for their own work within a performance while connected to a larger environment where other stakeholders are working on the same project, thus are created text and images that are developed parallel from a generally structured improvisation or choreography. This makes it possible to structure a media that reflect the aesthetic sensibilities of creators and artists. In an article entitled, "Aesthetics of Telecommunications" Eduardo Kac suggests that technologies and applications for online collaborative performance (on line) can be characterized as: Employing computers, video modems and others devices-using visuals as part of a much larger interactive, bi-directional communication context. Images and graphics are created not simply to be transmitted by an artist from one point to another, but to spark multidirectional visual dialogue with other artists and participants in remote locations. This visual dialogue assumes that images will be changed and transformed throughout the process as much as speech gets interrupted, complemented, altered and reconfigured in a spontaneous face-to-face conversation. Once an event is over, images and graphics stand not as the "result," but as documentation of the process of visual dialogue promoted by the participants. [5]

Kac's comment implies a kind of structured improvisation, which is seen as an interactive process between man and machine. Kac also exposed how more and more people worldwide are interested in sharing visual images and information, this thanks to technologically equipped video conferencing systems that are becoming more common as well thus allowing the creation of more and more environments of active space, of course not forgetting the improved models of telecommunications.

Internet 2 is the next generation Internet, the network provides advanced capabilities for high-speed transmission of moving images and sound. This new version of the Internet is beginning to accelerate research and creative activity of associations of creators, artists and groups of researchers. The hardware components required for a performance on Internet 2, are communications equipment, such as audio processing hardware and video routers and access points. In some of the earliest examples of performance using Internet 2 where visual and sound elements (such as music, theater and dance) is "technophobe and the Madman" where artists and researchers from New York University and Rensselaer Polytechnic Institute collaborated

through 160 miles between Troy and Manhattan in New York. the project culminated in a performance on February 20, 2001. [6] In the same year, on November 29th, a historic performance of Internet 2 was conducted by the University of California, Irvine and New York University. Its name was *Songs of Sorrow, Songs of Hope.* This multimedia show was created by John Crawford in response to the terrorist attacks of September 11 and subsequent events. [7] "Telematic Music: Six Perspectives" covers the history, context, technical description and artistic network that the authors (Pauline Oliveros, Sarah Weaver, Mark Dresser, Jefferson Pitcher, Jonas Braasch and Chris Chafe) performed together on 16 November 2007. [8] The authors participated in the concert simultaneously and interactively, with high quality features of audio and video and low latency using Internet 2 and JackTrip software developed by Chris Chafe and ICHATv Apple. In this performance distributed, Rensselaer Polytechnic Institute in Troy, New York, Stanford University in Palo Alto, California and the University of California, San Diego in La Jolla, were together.

A LITTLE HISTORY

The network performance has a history that is probably more extensive than most people can imagine. Both creators like musicians and filmmakers and videographers in general have always been fascinated by the creative collaboration across distances. That may probably be the first performance distributed event that took place in the US in 1891. The Boston Evening Record. "The operator at Providence plays banjo, Worcester operator harmonica and others sing softly. Anyone can tune to initialize the music and singing. To see the effect, you must have a transmitter close to your ear. The music sounds as clear as if you were in the same room." The "others" were telephone operators in Fall River, Boston, Springfield and New York. [9]

Long before the dawn of the Internet, the composer John Cage created what is considered one of the first performance distributed in "Imaginary Landscape No. 4 for twelve spokes." (1951) Where used as instruments transistor radio. These were interconnected and influencing each other. Although levels of interactivity were limited to dial the radio station, the gain and tone (EQ) and the desire to investigate the possibilities of cross-influence in networked instruments is evident in the work. This of course is far from the current distributed performances, but it illustrates the creative drive to explore the potential of the "new" technology and new possible formats for audio visual creative expression. It was not until the development of computers, a more direct, thanks to the Internet and data networks, interaction became more affordable as possible because you can easily transport data from one point to another. "One of the first groups in the practice of experience in network computer equipment was the League of Automatic Music Composers in the late seventies." This group (later renamed The Hub) experimented with remote collaboration between the East and West coasts of the US Due to the limited bandwidth available at the time, the group exchanged messages and no audio or video signals. [10]

APPROACH TO THE ACTIVE SPACES

Since the beginning of the twenty-first century, specifically in the second decade, we are living and with widespread institutional access to high-speed networks (Internet 2), artists and researchers have begun to explore the concepts about creative telematics much more frequently. This has led to a lot of examples that include all disciplines related to the visual and sound creations, which develop various types of performance that extend the possibilities of concepts related to distributed networking spaces. The work and performance established in the domain of distributed networks can be, according to Alvaro Barbosa, categorized into two different approaches: one focusing on computers and network topologies, trying to use them as tools for sound and visual creation and the other focuses on communication aspects and the ability that the networks have to unite people through great physical and temporal distances. [11], [12] Of course, as with all categorizations, in many cases some examples cover both aspects, such as the work of Weinberg and The Hub, as discussed above. [13] However, the application of computers as tools and work generators opposed to the use of technologies as elements that facilitate communication, are the two tracks that are clearly distinguished in the development of distributed performance.

Fig. 1. Tele-active spaces.

From the relations and inflections found, doctoral research has proposed the development of telematic performances that and explores the concepts raised in order to assess and validate the various models of collaborative structures and creation of real-time network, allowing not only new approach types of interfaces and interaction, but also exploring our own approaches or the application thereof to our Colombian and Latin American context. For this, we intend the implementation of applications on networks, proposed such as streaming services and the development of physical computing contemplating the use of sensors, computer vision characteristics, synthesis sound and environments including three-dimensional representation. The project has raised the development of models based on analysis of telematics type and

their evaluation, thus strengthening expertise in telematics development, collective sound and visual creation and design of interfaces and interaction works, allowing to define how to configure telematics based works and propose work structures of collaborative creation as means to make easier the work and build bridges between the various creative and technology disciplines that can also structure the design of performative network environments making use of audio-visual-haptic collaborative network elements, defined here under the term tele-active spaces (Fig. 1).

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