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## **Remote Encounters:**

**Connecting bodies, collapsing  
spaces and temporal ubiquity in  
networked performance**

<http://remote-encounters.tumblr.com/>

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## **Networked Dance Performance: a new temporality**

**Ivani Santana**

ivani@ufba.br

Professor at the Institute of Humanities, Arts and Sciences Prof. Milton Santos and the Graduate Program in Dance and Theater (University of Bahia).

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### **Abstract**

This paper analyses the relationship between the body and networked technology and proposes a new dance configuration that emerges from this interaction: the Networked Dance Performance or Telematic Dance. According to the features of this configuration, the experience of the environment brings different notions of temporality to our perceptual system. This extends to the different aspects of latency and time zone, and different notions of space. It is assumed that there is a *real* convergence of time (different times from each node), while space is a simulacrum for each. My research is grounded in the Embodiment Perspective, and the epistemology is derived from concepts of "Embodiment" by George Lakoff and Mark Johnson; "Extended Mind" and "Cognitive Artefact" by Andy Clark, and a new approach to Alva Nöe's concept of "Enaction". The paper re-examines basic concepts of mind and body through these theories, diverging from traditional dualisms within the Western philosophical tradition, and offers a strong theoretical approach to re-think a dancer's performance in the arena of technological media. The article illustrates these ideas through the analyses of selected telematic dance pieces created by Technological Poetics Research Group (Brazil) from 2005, including collaborations between different Brazilian cities and also with international partners (such as, Seville, Barcelona, Korea, Thailand, and Prague). The analyses presented contribute to the growing understanding of the changes within the dancer's perceptual system that have emerged in the field of Networked Art.

My experience of creating telematic dance began in 2001 when I attended an artistic residency with Johannes Birringer's Environments Lab (1999-2003), at Ohio State University (USA). I returned to Brazil in 2002 and by 2005 I had begun creating telematic dance performances, mostly in partnership with The National Education and Research Network (RNP). RNP understood that the establishment of communication channels with other networks was important in strengthening the global internet. The interconnection with other advanced academic networks, in particular Ipê Network, has been an essential element in integrating the Brazilian national scientific community with foreign researchers. The outcomes have included the development of services and applications for high level performance networks<sup>1</sup>. The Ipê Network has been "my stage" during the nine year period over which I completed this research. Through the Ipê Network, I have shared virtual space with Brazilian and foreign artists and have created networked art with a range of artistic purposes beyond simply dance to include the artistic languages of others. During this period, I created ten pieces in partnership with the research group entitled Technological Poetics, which I have also coordinated since 2004. These pieces have various different approaches. It is through the analysis of some of these pieces that I consider the perceptual demands on dancers within the telematics environment. This analysis contributes to new notions of time and space that are then discussed as tangible elements of the dance configuration.

### **Embodiment process and some questions about the experience of telematic dance**

In this article, it is assumed that the human being, that is, the professional dancer, knows of the world through her/his sensorimotor skills and how these are in play when she/he interacts with the environment (Nöe 2004). Such perceptions are steadily built, rather than suddenly appearing as absolute and complete context.

To perceive is (among other things) to learn how the environment structures one's possibilities for movement and so it is, thereby, to experience possibilities of movement and action afforded by the environment (*ibid*, 105).

To experience detail virtually, you don't need to have all the detail in your head. All you *need* is quick and easy access to the relevant detail when you need it. (...) So you don't need to construct a representation of all detail of the scene in front of you to have a sense of its detailed presence (*ibid*, 50).

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<sup>1</sup> <http://www.rnp.br/>.

Nöe's (*ibid*) statements suggest some questions regarding the experience of a dancer in performance and in learning when the dancer is involved in telematic artistic processes, such as:

- What kind of movement and action does the Networked Dance Performance afford to the experienced dancer?
- What perceptual detail is more easily accessed when the dancer perceives a remote partner and the virtual environments that join both of them?
- How does the dancer's sensorimotor skills react and therefore *learn* in relation to the different states of time and the different organizations of space that are constructed within telematic dance performance?

The stage-based dance environment promotes different sensorimotor experiences compared with the virtually distributed dance space found in telematic pieces; and thus affords dancers different skills. Each will provide the dancer with stimulus to different yet specific perceptions according to the sensorimotor skills demanded of him/her in each context. The dancer in a Networked Performance has to deal with remote partners and with distinct conditions of remote space (mostly bi-dimensional images, and in some cases, artists who work with 3D, an illusion of a tri-dimensional world) and time (needing to deal with latency and time zones). Therefore, given that the human being creates change in their environments and vice-versa, in a continuous and uninterrupted process that mutually contributes to the formation of the human conceptual system (Lakoff and Johnson 1999), the networked dance experience is distinctly different to the stage-based dance experience.

What we understand the world to be like is determined by many things: our sensory organs, our ability to move and to manipulate objects, the detailed structure of our brain, our culture, and our interactions in our environment, at the very least. What we take to be true in a situation depends on our embodied understanding of the situation, which is in turn shaped by all these factors. Thus for us, any truth that we can have access to, depends on such embodied understanding. (Lakoff and Johnson 1999, 102)

The understanding of Networked Performance will thus be embodied by the dancer when s/he has sufficient experience of dealing with the environment; that is, when his/her perceptual system is ready to react with remote partners and when his/her brain-body understand the new space-time conditions. Of course, this is a valid statement for choreographers and dancers who are also just interested in working *with* the net as a display and not purely *through it* in unicast transmission. Therefore, to work in a networked way means that the dancer has to deal with the conditions that the network imposes on specific notions of existence (of being there) and with the conditions of space and time. The dancer is engaging as an *embodied mind*.

Embodied Concepts: Our conceptual system is grounded in, neurally makes use of, and is crucially shaped by our perceptual and motor systems. (...) Embodied Mind: Because concepts and reason both derive from, and make use of, the sensorimotor system, the mind is not separate from or independent of the body. (*ibid*, 555)

If the telematic context imposes conditions that the dancers have to deal with as assumed above, and the dancer needs to make specific use of their sensorimotor system in discovering new ways to perceive and to move in this environment, then their conceptual system is embodied according to this dance configuration. As such, choreographic ideas and improvisational dance strategies will then be implicated within the embodied mind.

This aim of this article is to discuss this understanding of the embodied dancer and to then reflect on the context of telematic dance (also known as Networked Dance Performance). From the analysis of several works from Technology Poetics, a primary finding is linked to the importance of time in this setting, and not just space as is usually the case in dance analysis. In addition to this perspective on embodiment, there are three further concepts that offer important grounding to the article. These are: enaction, cognitive artefact and extended mind. The philosopher Alva Nöe (2004) wrote:

*What we perceive* is determined by *what we do* (or what we know how to do); it is determined by what we are *ready* to do. In ways I try to make precise, we *enact* our perceptual experience; we act it out. To be perceiver is to understand, implicitly, the effects of movement on sensory stimulation. (...) We spontaneously crane our necks, peer, squint, reach for our glasses, or draw near to get a better look (or better to handle, sniff, lick or listen to what interests us). The central claim of what I call the enactive approach is that our ability to perceive not only depends on, but is constituted by, our possession of this sort of sensorimotor knowledge (Nöe, 1-2)

The enactive approach helps us to explain how the action in the telematic environment, as well as the dancer's sensation of the place they are in, both contribute to the building of their perception of the context. Considerations of how dancers use the camera to connect with a remote partner, or how the movement patterns change to deal with the latency of the internet, are included to help explain how the perceptual system of the dancer changes in response to dance configurations.

Cognitive artefact and extended mind are concepts grounded in the studies of the philosopher Andy Clark, who sees cognition as distributed over brain, body, and world.

The role of the brain, in any case, is merely to get the body to go through the right motions. Adaptive success finally accrues not to

brains but to brain-body coalitions embedded in ecologically realistic environments. (...) [Real embodied intelligence] is fundamentally a means of *engaging* with the world - of using active strategies that leave much of the information out in the world, and cannily using iterated, real-time sequences of body-world interactions to solve problems in a robust and flexible way. (Clark 1997, 98)

Human-environment/environment-human are transits in which information is embodied; modelling this person who, in turn, will be modelling that context (also called embeddedness), which act as cognitive artefacts and extends the possibilities of the subject's action (*ibid*). Consequently, the environment promoted by cyberculture and experienced by the dancers who use the network as a new artistic proposition, can be considered a cognitive niche full of cognitive artefacts: the cameras, sensors attached to the body or the environment, the computers and software that process and send the image, the very condition of advanced network technology etc. The body will be modelled, extended and impregnated by these technological devices. These subjects are also considered here in the discussion of Telematic Dance.

### **Telematic Dance, Networked Dance Performance**

Telematic Dance or Networked Dance Performance has several names and definitions. However the focus seems to be on the distance and the distributed way of creating dance. There are two principal changes in the 'networked' dance performance: the way that we use the space, and the way that we have to be 'on time'. We know that spacetime is a defined concept, in which the terms in question are inseparable. Discussions about Cyberspace - emphasizing only the space - do not focus on time, which has new meanings within Digital Culture. Through the works that are reviewed in the next section, I aim to emphasize the new possibilities afforded by temporal perception in Networked Art. The concept of spacetime continues to be admitted. It is a specific focus and does not cancel one of the other terms.

Mail Art might be understood as an initial reference to this field of artistic activity that promotes transit between geographical points. According to Gilberto Prado:

By bringing together artists of all nationalities and ideological leanings "sharing" a common goal, it was to try new possibilities and exchange "works" in a free network and parallel market of "official" art. The mail art is certainly one of the first artistic expressions dealing with network communication on a large scale. It finds its origins in movements such as Neo-Dada, Fluxus, New Realism and the Japanese Gutai group, formed in the late '50s, anticipating major changes that would occur in the Western art world, as the happen-

ing and action painting. The year 1963 founding date of the New York Correspondence School of Art by artist Ray Johnson, can be considered the "birth date" of mail art. (Prado, 2003:40)

However, the new communication technologies (Internet) were responsible for promoting a major change in the art of geographical distance. While the Mail Art project needed a physical body to be transported, in telematics there are new corporealities other than physical materiality. This has been possible since the invention of electromagnetic waves by Heinrich Hertz in the nineteenth century.

The discovery of electromagnetic waves in the late nineteenth century by Henrich Herz marks the great divide between the material and the telematic age, which is characterized by the split between message and sender, between signal and body. (Baumgärtel, 2005:61)

At that moment, the transit between the things of the world marked an unprecedented change and modified the notion of space-time, distance and presence, concepts relevant to this article. Baumgärtel found that communication does not need the body or material for transport and from this discovery it was understood that communicative information is "immaterial and invisible waves carrying signals from one station to another" (*ibid.*).

The term telematics (*télématique*) is a neologism created by experts Simon Nora and Alain Minc, senior officials of the General Inspectorate of Finance of the French government, and written in the report entitled *L'Informatisation de la société* requested by President Valéry Giscard d'Estaing in 1976, on the convergence of telecommunication in business and management. For Nora and Minc, the term refers to the visualization of data stored on computer via telecommunication networks. For them, it is an event like the arrival of electricity, as it also provides the necessary condition for all company network usage. More generally, the prefix *tele* means how far (eg. telescope, telephone) and the suffix *matic* is related to computer science. The scholar Flusser supports this in part, and adds the notion of automata – self movement – extending the meaning of the suffix, *matic*. This gives the reading of telematics as a technique for the automatic application of technological devices to bring together people who are far apart in space and time, so as to perform for one another (Flusser 1998).

In the dance field, the first experience of telematics occurred through satellite communication, called *Satellite Arts Project* by artists Kit Galloway and Sherry Rabinowitz, in 1977. Images of dancers located in Maryland and their dance partners, who were located in California, the other side of the United States, were mixed and transmitted in real time. In that moment, they introduced a new way to stage dance by converging different conditions of space-time. In 1986, David Rockeby conducted a project which involved sending and receiving sensations of the movements of dancers who were located in Toronto and Paris through different devices (tele-

phone, video, computer, etc.). In September 1990, an event was held at Electronic Cafe International where performances and dances using videophone, fax, and slow scan were created between different cities (Prado, 2003). A further important example is the installation *Telematic Dreaming* by Paul Serman as part of the event I + the Other: dignity for all, reflections on humanity, held in Amsterdam in 1994.

In her book, *Closer: performance, technologies, phenomenology* (2007), Susan Kozel discusses (tele)presence in relationship to the public over the four weeks of her own experience of performing in Serman's installation, *Telematic Dreaming*, which saw her stay in a bed while interacting with the audience who then received her image in another room with the same setting. The sensations felt in her body through the telematic contact with the public during this period had poetry, care and attention, but also pain, violence, sensuality, sexuality and aggression demonstrating that the body also suffers and feels through telepresence. Such feelings are discussed in Kozel's book which questions notions of the biological condition of the body in remote presence.

Like widely use telecommunication, the telematic devices have promoted exchanges in the artistic, social, economic and personal spheres. The informational superhighway is the pathway to the exchange of binary data whether monetary, medical, theoretical or conceptual knowledge from every field, and art is another set of information to run through it. Telematics is directly responsible for the re-configuration of time, space, distance and presence, as it promotes technological mediation of remote subjects.

### **Embodied Telematic Dancer**

According to the assumptions above, we can say that cognitive artefacts of the digital world promote other demands on some dancers and choreographers who were (and are) interested to investigate, understand and create in the networked performance field. If we accept the assertion by Alva Noë (2004) that perception is related to the action in the world, then the insights gained in this context are concerned with how the sensorimotor system deals with these technological artefacts and how they are embedded in this digital and telematic culture. Assuming they are cognitive artefacts (Clark 2003), and we are *object-* and *movement-*dependent (Noë 2004), this cognitive ecology is responsible for how we embody this world and how we are shaped and extended by it. I now present a range of examples, and through analysis try to elaborate these understandings of the Networked Dance Performance field.

In partnership with RNP at the launch of the Ipê Network<sup>2</sup> in 2005, we staged the telematic dance piece *Versus* (2005)<sup>3</sup>, depicted in Figures 1, 2, 3 and 4, with dancers and musicians distributed amongst three different Brazilian cities: dance in Salvador and Brasilia, music in João Pessoa. The viewing public was present in Brasilia, and the space in Salvador was configured as the studio of an 'intelligent stage'<sup>4</sup>. This meant that the environment at the Salvador site was sensitive to the presence of the dancers and the image was processed in real time through the software Isadora. The resulting image on the Internet was the video-scenography in the background which was composed of a screen with the image of the bodies of the dancers interrelating in real-time with environments in both Salvador and Brasilia.



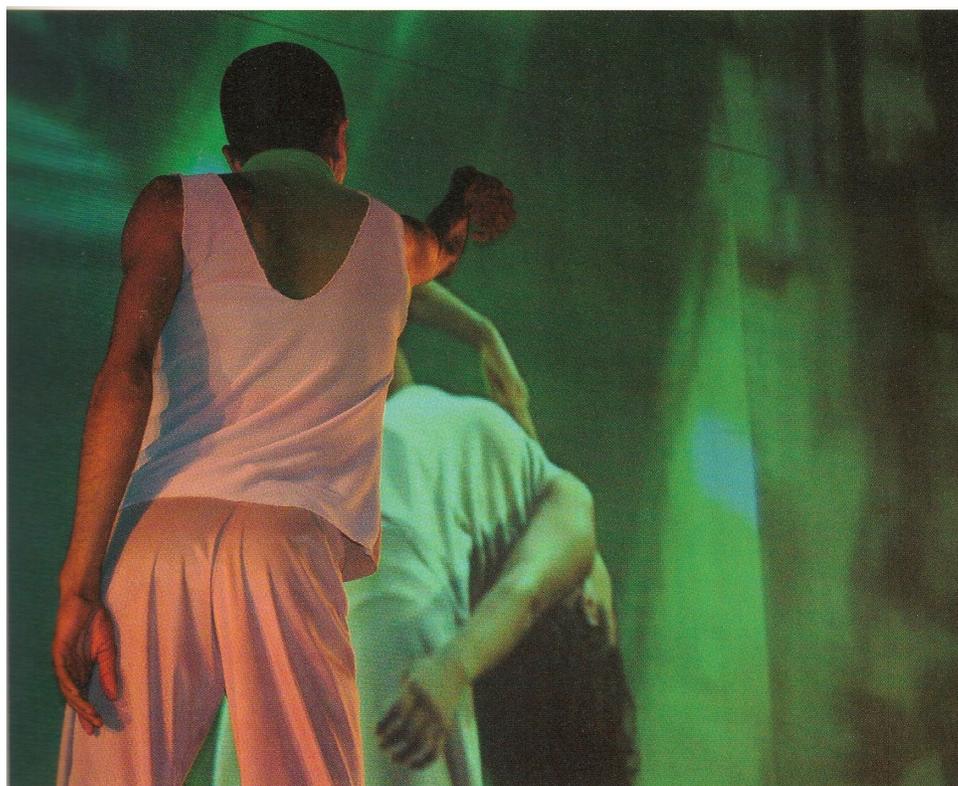
**Figure 1 and 2:** *Versus* (2005). Background from Salvador which images are processed in real time through Isadora software.

The objective in *Versus* was not concerned with making overlapping images available, but was rather to allow remote bodies to effectively dance together. As *Versus* could be watched on the Internet and also in the space in Brasilia, it needed to be planned and created in two different ways: a dance performance for Internet users and a dance performance for the real time live audience who could see dancers on the stage interacting with their remote partners. These were specific configurations that required different organization and aesthetics.

<sup>2</sup> Ipê Network made available to the Brazilian academic Internet the same capacity as Internet2 (USA), Géant2 (Europe) and CaNet\*3 (Canada).

<sup>3</sup> All dance pieces cited in this article can be viewed on <http://ivanisantana.net/videos/>.

<sup>4</sup> Sensors of different types are installed in the space allowing the computer to capture and process the presence and movement of the dancer.



**Figure 3:** *Versus* (2005).

In the context of the Networked Dance Performance, the choreographer works with the new demand of understanding the piece as a timeline of layers to be created in a real time. As the choreographer of *Versus* (2005), I had to construct a storyboard as a guide to use during the presentation of the piece that everybody could follow. This meant having key-frames for the cameras for each scene, so that the camera-men and the dancers knew where they would have to be (i.e. camera position and motion, dancer position and movement proposal), and which image had to be projected on each screen of each node.

The dancer, as explained above, had to organize their dance improvisation dealing with the camera-position to make his/her image interesting to the remote partner. On the other hand, the dancer had to be both aware and careful to dance along with the image received from the remote partner. This relationship meant that the video camera, projector devices and networked information mediated the construction of the dance in real time over the Internet. These are the cognitive artefacts that promote specific use of the sensorimotor system (movement- and ob-

ject-dependence) which contributes to the creation of a specific conceptual system based on the embodied understanding of this world.



**Figure 4:** *Versus* (2005) the shadow in between is the image of the dancer in the middle of her last movement.

Our sensory relation to the world varies along two dimensions. The relation is *movement*-dependent when the slightest movements of the body modulate sensory stimulation. But when you see an object, your relation to it is also *object*-dependent; that is, movements *of the object* produce sensory change. In general, when you see x, your

relation to it is both movement- and object-dependent. (The object dependence of sensory stimulation, we have noticed, plays an important role in explaining the ability to perceive change). To perceive and object, in general, is to deploy sensorimotor skills of both sorts; perceivers are familiar with not only the sensory effects of movement, but also the sensory effects produced by environmental changes. (Nöe 2004, 64)

Physical reality is replaced by the virtual condition where the dancer can stand upside down or be resized as a giant or a small being relative to their remote partner. The dance happens from another reality of the body and this stimulates other movement ignitions and other bodily qualities to confront the physical body with the virtual body. It is noteworthy that these two bodies here are understood as present in the context, thus challenging the concept of presence so often discussed in contemporary debates. The remote partner here is considered as a present person and not an absent person. Despite being announced as 'real time', there is a difference of milliseconds which, for dance, promotes other ignitions and behaviours in this body in movement. In addition to change spatial perception, there are changes of time perception. In the last scene of *Versus* (2005) we explored the latency with camera inversion creating several layers overlapped with both nodes - Salvador and Brasilia.



**Figure 5 and 6:** *e\_Pormundos Afeto* (2009) Fortaleza and Barcelona (Kònic Thtr). We created a "mirror effect" through the overlap of delayed images (latency). We can see different instants all together in real time.

At the beginning of my research journey, the focus was on creating layers of images, so that each remote point was one of the layers, in order that the latter would compose the final result of the work. A delay was created at each layer. Because of this delay, the screen guide that was generally accepted as the final image, that is, the sum of all the layers that served as a reference for the dancer became a past tem-

porality with which the dancer might dialogue to build the relationship between him/herself and the other. Accordingly, during the performance, the dancer saw his/her image in the past on-screen guide. Working with a remote partner this resulted in a past time due to the latency. Thus, the audience would see two overlapping moments onstage: the present time, the 'flesh body', dancing onstage with the incoming images and projected late and past time inscribed in the images that built the relationship between partners from different remote sites. Time became our subject and we exploited the capabilities of the latency scenically and aesthetically, for example in *e\_Promundos Afeto* (2009/2011) shown in Figures 5 and 6.



**Figure 7:** *e\_Promundos Afeto* (2009). Point of view from Spain (Kònic Thtr).

*e\_Promundos Afeto*, is a networked performance created by myself with the Research Group Technological Poetics, in partnership Kònic Thtr<sup>5</sup>, as a result of the Working Group on Digital Media and Arts (GTMDA) in 2009. The goal of GTM-

<sup>5</sup> Besides the group did not have experience in telematic dance, we invited them to work with us as Kònic Thtr "is an artistic platform based in Barcelona dedicated to contemporary creation at the confluence between arts, new technologies and science. The main activity being focused on the application of interactive technologies to artistic projects" (<http://koniclab.info/>).

DA was to create a computational tool (named Arthron) for the transmission and management of high-resolution image via advanced networks to stream telematic dance. Supported by RNP over two years (2009 - 2010), this project had the opportunity to be staged at several important events, such as The Third European Network Performing Arts Production, held at the Gran Teatre del Liceu in Barcelona, Spain and Salvador, Brazil. One of the goals of the *e\_Pormundos Afeto* was to enable the interaction of the public through the Internet, allowing anyone connected to the network to attend and participate in the show. For this, the public accessing the performance via the Internet entered a system whereby they could interact with a virtual environment through a chosen avatar. The images were then projected onto the stage, resulting in a final image which comprised the virtual environment, the avatars and the remote dancers (Figure 7). Thus, in the work *e\_Pormundos Afeto*, there is the possibility of converging all the time zones of the planet, just by connecting to the internet and witnessing the spectacle.

There is also another way to discuss time in this context. The piece *dQ13 - Dancing Beyond Time* (2013) brought together the cities of Daejeon (Korea), Prague (Czech Republic), Barcelona (Spain) and Salvador (Brazil) to create an interactive telematic performance for the Asia-Pacific Advanced Network 36th Meeting<sup>6</sup>. This required a convergent time zone with the respective time zone of each artistic node. In other words we can say we 'folded up' the time zone of -9 UTC/GMT<sup>7</sup>, + 2 UTC/GMT, +1 UTC/GMT and - 3 UTC/GMT into just one period of time. We were dancing and interacting simultaneously through the Internet with these 4 (time) nodes. The image on each site became suspended as a single event in time. Not only were our spaces in contact through the broadcast, but the morning (Brazil time), afternoon (Spain and Czech Republic) and evening (Korea) periods were interwoven as a single moment. The broadcast image could then be understood to be operating as a simulacrum, while time zones converged. Other examples of this construct of overlapped time (convergent time zones) can be seen in the Networked Performance *e\_Pormundos Afeto* (2009/2011) which involved Salvador (-3 UTC/GMT) and Barcelona (+1 UTC/GMT), and in *Proyecto Paso* (2006) which occurred between the United States (-7 UTC/GMT), Brazil (-3 UCT/GMT) and Spain (+1 UTC/GMT). Such processes had a delay in the transmission of information. This arises from the way in which telecommunication networks have a latency in the transmission of information, which generates a delay of seconds, making demands on the dancer to find a specific way to make his/her movement coincide with the movement of his/her (remote) partner. Different qualities of movement emerge as dancers deal with this convergence of time zones and with the effect of the latency.

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<sup>6</sup> The performance *Dancing Beyond Time* was presented at Kaist, in Daejeon, Korea, in the Asia-Pacific Advanced Network 36th Meeting, 23rd August 2013.  
<http://apan.net/meetings/Daejeon2013/>.

<sup>7</sup> UTC: Universal Time Coordinated. GMT: Greenwich Mean Time.

It is rare to question the issue of time in Cyberculture. Hassan and Purser suggest that this is because we are, probably not aware that we live in an era where we are slaves to clocks. They state:

It is clear that we move unthinkingly with the rhythm of clock time, so deeply do we experience it. It is clear also that to a significant degree in controls us and synchronizes us to its mathematical rhythms. Less clear is how consciously think about other forms of time express our thoughts about the experience of these. [...] Clock time, as an abstract form of time, has been the time of modernity and of capitalist industrialism. It is a form of time reckoning that has inserted itself into our subconsciousness to the extent that most of us consider (when we do consider) that this is what time is (Hassan and Purser 2007, 6)

In other words, we might become surprised by the speed of the facts (information) we have to process in relation to the time that we have been accustomed to, but our awareness is limited to this. It is unlikely we are engaged in revising the notions of temporality in light of new technological devices.

### **Final considerations**

According to the philosopher Alva Nöe (2004), our perception is linked to how we act in the world in which we live. Thus, the perception of an individual in the Digital Culture occurs in the actions between the spaces filled by technological devices - cognitive artefacts - that reconfigure and resize the sensorimotor apparatus and hence the conceptual system of the individual. Devices that are connected to the body in such a way to modify it, and also change in this process to be co-evolutive and co-dependent. In this way, technological artefacts that we use in the processes of dance can be seen as telematics that resize our action-perception in the twenty-first century. The conventional form that usually defines dance telematics is that the bodies are located in different geographic points, and until recently was how I directed my research in this field. However, after these almost ten years of research, I have concluded that the locations (nodes) of the piece do not interfere specifically in the telematic setting, with the exception of its position in a particular time zone. The various features of time can be explored in Telematic Dance. The delay is a technical problem in the transmission of information to the engineers. However, the delay for artists can be an aesthetic to include in the artwork form, as discussed in the examples above (Figures 5 and 6).

Following this discussion, the dancer acts and understands their world from the cognitive artefacts that he/she uses (remembering that the choreography itself is a cognitive artefact, along with choreographic notation, storyboards etc.). Therefore, one can consider the relationship between the dancer, his/her artistic propositions

and the context to which it belongs (his/her surroundings) as implicating each other, where such implications have consequences for the aesthetics of the work, for the subject of that work and for the concepts of world it inhabits. Thus, telecommunication networks currently stand as possible artistic propositions for dancers and choreographers.

The artwork created during this period of research in the field of Network Art, such as *Versus* (2005), *e\_Pormundos Afeto* (2009/10) and *dQ13 - Dancing Beyond Time* (2013) mentioned in this text were important to realize that this technology, as a cognitive artefact, contributed to the dancer to discover other ways of relating to partner and move. Sometimes the dancer had just the image of the hand of his/her remote partner and this information was enough to create the entire context of the scene, thus confirming studies of Alva Nöe on how we apprehend the world and relate to it, that is not as complete whole, but built from several and multiple small information. Different from conventional stage, the remote stage could offer body fragments to dance with and this is not a detriment to the relationship between the partners, but another form of the body understand and interact each other. In addition, the existing time delay in the transmission of information was included in the action, when necessary to synchronize the dance with the remote partner (Figures 2, 3, and 4), then becoming part of the quality of movement.

If the notion of time brought by Art Network is another artistic proposition, then, perception, action and understanding of the world must also be artistic propositions. Michael Rush (2006) states that one of the major changes with the arrival of Digital Culture is the interest in time not space. As indicated by the trajectory of art, photography made it possible to capture an instant; the invention of cinema managed to visualize movement as a continuity of instants of time; and now, digital devices are enabling the processing and reconfiguration of time.

Rush is right to consider time as raw brute art arising from the Digital Culture. Since the rise of photography, the development through film and now the arrival of ICTs, terms such as speed, acceleration, delay, just to name a few, are discussed with the field of arts as well as more general usages. However, such considerations still seem concerned with an understanding of clock time. Time has been shattered by several overlapping windows on your computer screen, or when various actions are performed simultaneously on social networks such as writing, talking on the phone and listen to music at the same time. Open windows not just for space, but for time (physical and symbolic) to separate each of these actions. Telematic Dance comes from an informational context that does not present a fixed temporality, but presents the convergence of several and multiple times that overlap within advanced telecommunication networks. To analyze these art process as Networked Dance is to realize the demands on a body that experiences and discusses the possibilities of the articulation of time.

Networked cultures and societies are now confronted with the historical opportunity to not only 'control' time once more through our own contextual self-creation of it but also to rediscover and connect with natural world. In other words through the temporal worlds constructed by information technologies we stand on the brink of a new with time. (Hassan and Purser, 46).

The Digital Culture offers this opportunity for the choreographers to re-think time. When you create a Telematic Dance, the dramaturgy, narrative, organizational flow of work is established by other parameters distinct from those used in the physical world as a conventional stage, the street, gallery or other alternative spaces for dance presentation. Building a dance piece through the network means thinking about the various facets that will be observed for each of the points (nodes) and those participants who can attend online (Fig. 7). A new dance thinking is needed to create Networked Dance in which concepts as time, presence, touch, relationship and even the very body have specific understandings embedded in the Digital Culture.

The cognitive artefacts that make up Digital Culture have resized our world. Temporal differences have become visible as the globalized world has collapsed and expanded our perceptual apparatus. These changes are evident in dancing bodies and the Digital Culture that has promoted the electronic body and its new meanings ('*info-sense*', '*tele-senses*'). That is the challenge brought about by the Networked Dance has opened the possibility of revising our conception of time through aesthetic experiences like the works discussed here.

### **Bibliography**

Baumgärtel, Tilman. 2005. "Immaterial Material: Physicality, Corporality, and Dematerialization in Telecommunication Artworks." In *At a Distance: Precursors to Art and Activism on the Internet*, edited by Annmarie Chandler, and Norie Neumark, 60-70. Cambridge: MIT Press.

Clark, Andy. 1997. *Being There: Putting Brain, Body, and World Together Again*. Cambridge, London: Bradford Book, MIT Press.

Flusser, Vilém. 1998. "Agrupación o conexión?" In *Ars telematica. Telecomunicación, Internet y Ciberespacio*, edited by Claudia Giannetti, 13-16. Barcelona: ACC L'Angelot.

Hansen, Mark B. N. 2006. *New philosophy for new media*. Cambridge: MIT Press.

Hassan, Robert, and Ronald Purser. 2007. *24/7 Time and Temporality in the network society*. Stanford, California: Stanford University Press.

Lakoff, George, and Mark Johnson. 1999. *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books.

Nöe, Alva. 2004. *Action in Perception*. Cambridge: MIT Press.

Prado, Gilbertto. 2003. *Arte telemática: dos intercâmbios pontuais aos ambientes virtuais multiusuário*. São Paulo: Itau Cultural.

**About the Author**

Ivani Santana is a dancer and choreographer working in the field of dance-technology since 1990 and with Network Dance Performance since 2005. She holds a Master's Degree and a Ph.D. in Communication and Semiotics from Catholic University (PUK - Brazil) and a post doctorate from Sonic Arts Research Centre, Queen's University Belfast, NI/UK. She is professor at Institute of Humanities, Arts and Sciences and at the Master and Ph.D. Program of Theater and Dance, University of Bahia, Brazil. Coordinator of the Research Group Technological Poetics and Director of MAPAD2 - Map and Program of Digital Dance. Author of: *Open Body: Cunningham, Dance and New Technologies* (2002) and *Dance at the Digital Culture* (2006), and many articles in international journal, including *Nouvelles des Danse* (Belgium), *Performance Arts and Digital Media*, *The Cultures and Globalization Series* (UK). In 2006, Her Royal Highness the Princess of Hanover, UNESCO Goodwill Ambassador, and the Director-General of UNESCO awarded the UNESCO Prize for the Promotion of the Arts - New Technologies to Ivani Santana during the Monaco Dance Forum, where she also was invited to be a choreographer in residence at the Centre Chorégraphique National, in Aix-en-Provence- France where she created *Le Moi, Le Crystal et L'Eau* (2007).



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