Day-Dreaming States in Interfaced Environments

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Abstract

In Cyberart, the anthropological effects of cyberspace homologate post-biological forms of existing experiencing sensitive qualities of interactive worlds. By interacting, we generate "interval zones"[2], between the body and the technologies, mixing artificial and biological and expanding cognitive processes through an amplified, electrified, computer-interfaced body. Telematic reality in OUROBOROS[3] is related to Brazilian rituals and the desire to incorporate animals receiving their powers. When connected, we reach another level of being: that of the reptile, live among snakes, what means to stimulate life in some level of dream and imagination. By hyperconnections, immersions, navigations, telepresence and robotic remote action, or creating artificial life and self-regenerations,we experience OUROBOROS' principle: "My end is my beginning", or the cyclic nature of the universe, the life's unending principle.

1.Theme In Cyberart, the *"sujet interfacé"*[4] surpasses the human condition experiencing sensitive qualities of interactive worlds. Body's structural copulae connected to interactive technologies exchange natural and artificial signals. Consequently, the anthropological effects of cyberspace homologate post-biological forms of existing in individual or networked computer-generated artificial environments enabling complex ways to act into the data structure. We act in the field of phenomena, experimenting invisible forces, physical and mathematical laws, simulating genetic behaviors of organisms in artificial environments. By interacting we experience the poetic existence in *memescapes*[5], inhabiting within artificial landscapes no longer made of earth, but of memory units. Interfaces and data extend gestures beyond the boundaries of the body, and our sensitivity can live in a new cognitive space as an extension of our sensory space. What radically modifies the art scenario is undoubtedly the possibility of interactive technologies to offer responses, feedbacks and self-organizations, generating "interval zones"[6] between the body and the technologies, by mixing artificial and biological signals. Interfaces and algorithmic processes expand cognitive processes through an amplified, electrified, computer-interfaced body. Interactive art goes into the field of complexity sciences, and technoecosystem's issues are important to understand what is implied in the sensitive experiences.

My artistic project *OUROBOROS* explores dialogical processes between the human, the animal and the artificial, providing telematic connections that open a new sensitive field to art expressiveness. Interactive artists always explore the possibilities of technological grammars to offer a dialogical and collaborative system to manifest metaphorical issues generating emotion in simulated life forms. From this point of view, we use softwares, their metalanguage and metacodes, and even if they have had until now limited possibilities to elaborate desires, dreams and intuitions, these systems can already create synthetic lives or hybrid lives coupling the natural and the virtual. In the generation of synthetic worlds, algorithms determine environments based on some kinds of mutant behaviors, in the process of data regeneration, which simulate perception capabilities, communication capabilities, reasoning and decision capabilities. Computers are increasingly becoming more organic with their capacity to regenerate information and simulate dynamic and cognitive processes.

Telematic reality in *OUROBOROS* is related to Brazilian rituals and the desire to incorporate animals by receiving their powers. Interactions allow us to live among snakes, what means to stimulate life moments in some level of dream and imagination. By interacting we can be immersed in day-dreaming states, because the interfaced body experiment illusions and dreams, enigmatic and pleasant thoughts, while we are awake connected to virtual worlds. Our *cyberception* Ascott [7]reaches another level of being: that of the reptile, by hyperconnections, immersions, navigations, telepresence, remote actions and self-organizations. By interacting in the different linked environments we are guided by the slogan *"My end is my beginning",* concerned to the cyclic nature of the universe: self-fecundation; disintegration and re-integration; truth and cognition, self-regenerations, the unending principle. Four poetic environments are inspired in *OUROBOROS*', the great world serpent that encircles the earth, biting, devouring, eating its own tail. *MEMORIES* hybridize images, sounds, texts and offer connections and associative thoughts in hypermedia structures with a database with memories' holes on the snakes' skins exploring symbolic, scientific, anthropological and artistic aspects of serpents' life. People can also write, send and share their memories about snakes, and a collective text results from the interactions. *SERPENTARIUM* proposes a telerobotic event with telepresence and remote action allowing us the seamless condition by sharing the body of a robot-snake living in a serpentarium in Brazil. We live with real snakes, and a web camera is coupled to the robot and transmits in the scenes from the serpentarium. The remotely controlled robot-snake makes several trajectories by the participants' orders that send movements using the keys of direction whose signals are interpreted and result in trajectories in the serpentarium. The robot is an agent that dwells and acts in the physical world. *VILLAGE* is an on-line virtual reality where we can live with these legendary creatures. It bestows visual and sound qualities during navigations and teleimmersions in the on-line virtual reality snakes' landscape. By using the arrow keys and mouse or a joystick we can move within the artificial world and the sensory stimuli allow proprioceptions to the body in some physical correlations with the virtual space. Displacements change images and and moving around inside the environment we are reptiles, living between artificial snakes, always having a serpents' point of view. Tunnels and topographies, sounds of snakes, images of snakes' lives stimulate our serpents' tours. *TERRARIUM* explores the creation and the control of artificial life. By using the data structure and algorithms' behaviors, we create, provoke, share and control life through

the interactive systems. Concerning artificial life, by linking DNA sequences from twelve species of snakes, whose genetic code is given by experts of the University of Caxias do Sul, we generate virtual serpents. Parameters translated into algorithms, create artificial serpents controlled by genetic algorithm system prepared to execute and process calculations, simulating characteristics of organic environments The replication of another snake as a clone of memes is automatically sent to any other machine, as well the creatures created by the *cross-over* combination can be replicated in other machines. The organic simulated behavior of the environment is controlled by linking heat and dynamics, because the artificial temperature influences the speed of serpents' displacements. By giving food, lifetime of serpents is enhanced. The selection of data results in the fitness function and the same process generates combinations of sets. *VILLAGE* and *TERRARIUM* can be placed on the second interactivity level, following Edmond Couchot's recent theories[8] related to the second Cybernetics, offering complex behaviors from technologies whose evolutions and independent responses are provided by complex systems. In this sort of interactivity, technologies'behaviors are more refined becoming closer to organic, biological and intelligent systems. Interactions are no longer reactions or single responses but complex and evolutive situations working on many probabilistic and not deterministic ways. Using algorithms inspired in cognitive sciences and biologic sciences, connexionism and genetics, we explore some relationships processed by data structure. Artificial worlds change, evolving as natural worlds. The vocabulary of this kind of interactivity comes from genetics laws, physical phenomena, mental functions and correspond to the technology powers simulating some sort of life. Technologies are capable of partially perceiving, analyzing and evolving in some situations, responding with self-regenerations which determine new forms of life related to artificial systems.

Agents/Dynamic and autopoetic.

The development of a collaborative website with artificial life has explored simultaneously an agent's knowledge data related to a multiagents system with genetic algorithms and their capacity to execute and process some autonomous calculations. We consider an agent, the algorithms that can produce many actions because their own internal mechanisms change evaluating the conditions and influencing the agents during the interactions. The passive entities are called environment and the scene of the virtual is named landscape. The agents in *TERRARIUM* are the virtual serpents that recognize the characteristics of the synthetic territory or scene, and acquire some intelligent with behaviors. Each serpent has displacements with a certain level of spatial intelligence and lives with the other creatures. They have a relative level of multiagents' systems because the collective behavior serpents have. Each one has an independent and a collective existence respecting the other's constitution. We observe that the system generates a virtual entity with capacity of perception and partial representation of the environment autonomous behavior, corresponding to the system's knowledge, its capacity of reasoning and considering the conditions of serpents' life. The virtual creatures go up and down the topographies of the virtual landscape, they search for food, become faster and faster in their displacements because of the heat of the environment, among other qualities simulating natural environment. *VILLAGE* has a virtual dynamic capacity changing by algorithms that determine the synthetic landscape, when the user navigates in proprioceptive states, or living spatial correspondences with the simulated world that responds to his/her actions. The dynamic scene responds by mutations simulating an imaginary synthetic environment, offering some spatial sensations we experience in real world. We simulate some displacements in many directions with the arrow keys or a joystick going to the left, to the right, going ahead, coming back and modifying the point of view by using a few classes of objects collision, genetic algorithms, light, sound implemented in C++ and using a software developed by the NTAV programmers. In these creative environments we have to deal with variables of data flow, control, random situations, self-regeneration calculation or combining those and other computer methods and producing sets of data to achieve different results searched by the artistic thought.

The artists always try to exceed the limits of the systems and program the variables of the interactions envisioning the aesthetic dimension of interactive worlds. Technologies modify art environment not only in a technical way but because they are sensitive and cognitive systems and act in epistemological levels surpassing machine work, and acting more like a consciousness process related to complex systems. To navigate in virtual worlds, to explore autopoetics and self-organization, to regenerate virtual environments, to raise artificial life, to be telepresent and act in remote environment is a very rich field for the imagination of artists' creative minds. Technological context puts art in the field of complexity and requires not only redimensioning artistic activity but also the entirety of the so-called Human Sciences to exercise inter and cross-disciplinarity. Art, with its terrain of freedom, is the place of convergence for such exercise. About the work, Roy Ascott says: *" results from the creative transdisciplinary action of a group[1] of scientists, technologists and artists, whose skills, know-how and insight, combine imagination with automation and robotics, software design, biological science, and telematic expertise. This is a collaborative work at a very refined level of integration. The work, too, is integrative of aesthetic experience with scientific exactitude and educational intent".*

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