Electronic Art in Brazil: Exhibition Spaces, Museological Strategies and Digital Archive

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Abstract

This panel intends to discuss operational strategies for public and private exhibition spaces, proposed by artists, curators, professionals in expography and museology in the field of Brazilian Electronic & Digital Art, from early experiences to a contemporary perspective. It also aims to analyze and discuss museological strategies for electronic art exhibitions as well as for interdisciplinary exhibitions involving art, science and technology. In this discussion we question not only the innovative functions of these spaces for electronic/digital art, but their necessary functions as promoters of processes for preservation and archiving. The panel comes from broader discussions among artists and researchers, many responsible for curatorial and exhibition projects, from the second and third generation of Brazilian Electronic Art in Latin America.

Keywords

Brazilian Electronic Art, Expography, Museology, Pioneers, Archiving, Art Laboratories, Digital Art, Latin America.

Introduction

This analysis addresses some issues from pioneer artists and more recent generations, to study groups, laboratories and curatorial experiences in electronic art in Brazil, to problematize exhibition spaces, museum strategies and digital archives in the field of contemporary art. It begins by proposing a digital archive of electronic art in Latin America, with a focus on Brazil in this study. This is followed by a sampling of some laboratories and research groups in Brazil, with which these authors have more direct contact. It presents a historical perspective of electronic art pioneers and the beginning of research in Brazil's midwest. It discusses exhibition spaces, museum strategies based on the experiences of artists and curators from the midwest, south and southeast of Brazil, and concludes with questions to think about concerning Art and Digital, from past and present exhibitions.

The Digital Humanities initiative is very intimately concerned with archival practices, especially as it tends to subsume information on art and heritage conservation. The archival program appears to be imminently necessary for the preservation of Latin America's digital/electronic art heritage, in countries like Argentina, Chile, Mexico, and especially Brazil which is the focus of the panel. We have been trying to create a database of artists spanning six decades - from what a section of electronic art historians are beginning to call pioneer electronic artists. We could focus on the chronological aspect of the new arts in Europe and the New World, as well as Asia and Western Europe and the Middle East – i.e. everywhere where new media have been invasive. Latin America, especially with a great country like Brazil, is no exception. In this article, we look at issues surrounding any attempt to preserve, protect and organize bibliographical information on the new arts in Latin America, but especially Brazil.

The prototype for archives are already up and running with such conventional web based encyclopedic efforts as Wikipedia. Brazil's electronic arts, as in the case with most Latin American countries, have minimal exposure through international networks, which are dominated by pro-globalization capital. This is the way economies work. Privileged economies share greater access to information and also to the archival repositories that have been developed for a digital humanities index. For example, the major art indexes of multinationals like Google, Ghetty Foundation Archives, freebase.com or Proquest are more relevant to the archival concerns of the countries in which they operate. What categories are to be included in the construction of a digital archive for electronics arts, and new digital media culture in Brazil? The answer to that question has to be found in a large historical rendition of the context and categorization of art practices from the sixties. In Mexico, for instance

Manuel Felguerez, was creating visual arts using computers. Julio Le Parc in Argentina, and Mariotti in Peru anticipated more kinetic and hardcore electronic art genres whose parallels and exemplars are also visible, sometimes with great magnitude and impact, in the art works of some pioneering and ingenious artists who discarded the older formats. Visual arts worlds were already surprised by and attracted to the punch card abstractions generated by Waldemar Cordeiro[1] and Giorgio Moscatti[2]. Then there are kinetic works like those of Otavio Donasci[3]. Another significant category, again parallel to what was happening with kinetic arts in Mexico, were the works of Abraham Palatnik[4].

The Qt multiple platform format, based on C++, was used to develop a catalogue format appropriate for a digital archive interface of art works created by Latin American artists in the last forty years (Figure 1). A basic formatting program incorporating links to these artworks could be envisaged as an additional step. This would use the Qt *catalogue raisoné* information to connect to most of the foundational archive links such as are available freely on the web: these include WorldCat, ULAN, SUDOC, LCCN and the ISNI resources common to such encyclopedic sites as Wikipedia for example.

Figure. 1

In conclusion we would like to suggest a categorical format (program) for the Brazil archive, which already demonstrates promise and possibilities of heritage construction. Perhaps kinetics, installation, and computerized visual imagery constitute proto-genres in technology based pioneering art. From these three filters we can deduce the complex branching network of the great variety of contemporary digital art in Brazil, some of whose specimens have been nurtured and conceived, albeit not yet preserved in any archive, in forums such as the São Paulo Biennial, and the Itaú Cultural Institute[5]. In either case a *catalogue raisonné* should acknowledge the broad primitive categories within the early electronic art of Brazil so it could evolve into a broad digital humanities archival resource for the more contemporary arts of this culturally advanced nation.

Electronic Art in Institutional Laboratories: Some Brazilian Research Groups

Since the time of Waldemar Cordeiro and Giorgio Moscati, the development of electronic art combines artistic and scientific knowledge. The first works of Brazilian computational art emerged from this composition and place, collaboratively in a laboratory. Before this, Brazil had known the kinetic art of Abraham Palatnik, whose training in electronics and art brought together the desired qualities in one person. With increasingly complex processes, electronic art began to be incubated in the laboratory, research center or university. The model has spread, not because it's a fad, but because of the idiosyncrasies of this branch of art: specialized knowledge and equipment. Everything led to laboratories being the optimal spaces for the production of electronic art.

The laboratories, in their various formats and compositions, became the "ateliers" of the technological branch of art, fostering collaborative work in multidisciplinary teams. In this context many teams and specialized places were created, especially in Brazil, but we will present only those with which we have more direct contact, such as the info-aesthetic group, later computational art, at the University of Brasília and, also in the midwest, the research group in interactive media development and innovation at the University of Goiânia, both of which are Medialabs. In São Paulo, they include the digital poetics group based at the University of São Paulo and the inter-institutional research group on the crossovers between art, science and technology at the State University of São Paulo. The movement expanded in the southeast with the art and new organisms group at the Federal University of Rio de Janeiro and in the south of the country with the art and technology group of the

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[1]. Waldemar Cordeiro. Visual Art *Cinecromatico*. 1951.

[2]. Waldemar Cordeiro and Giorgio Moscatti.1969. *Derivatives of an image*. 47 × 34.5 cm.

[3]. Otavio Donasci. 1980. *Video Creatures. Human Body and Computer photography*.

[4]. Abraham Palatnik . 1951. *ART MACHINE* . Installation.

[5]. "Major exhibitions at the Itau Cultural Institute include Imateriais (1999) and the Emoção Art.ficial Biennale (2002-2012)"

Federal University of Santa Maria, among others. It should be noted that many state capitals, such as Natal, Salvador, Porto Alegre, Belém and Belo Horizonte, among other cities, founded laboratories focused on electronic art research and production, underpinned by collaboration as a frame of reference. The relationship between art, science and technology set the tone for production, which has followed a poetic vein based on interactivity, immersion, multi-sensory experience, agency and connectivity.

With its production based on national territory, technological art was consolidated in Brazil in the 1990s, with events, publications and exhibitions that showed the poetic strength of this area. Born from the confluence between kinetic art, video arts, performance and participatory art, Brazilian electronic poetry created its own territory and marked out its place in the world, finding the incubator it needed in laboratories and research centers. The multidisciplinary teams were not just necessary but fundamental for the technological and poetic density ingrained in the works, resulting in internationally renowned artists whose works reflect the complexity and simplicity of the art, in its electronic, computational and technological facets.

Computer Art: Pioneers and events 2004 a Turning Point
In Brazil, around 1987, a small group of artists and scientists called the Infoesthetica Group began to explore an art form that was emerging at the time, in which sensory, poetic and aesthetic experiences would be inter-mediated by computers. This group was formed by Aloisio Arcela, Bia Medeiros, Homero Picollo (software creator), Paulo Fogaça, Suzete Venturelli and Tania Fraga. The procedures that characterized the works proposed at that time were very specific and required programming knowledge from the artists to break the codes (Diamond, 2008). Their main goal was not the development and research of computer science algorithms but to acquire this type of knowledge in order to create meaningful sensory, poetic and aesthetic environments with it. The Brazilian group was not the first of its kind. They followed artists such as Bernard Caillaud (France), Waldemar Cordeiro (Brazil), Yoshiro Kawaguchi (Japan) Paul Brown (UK), Hebert Franke (Germany), Nicholas Schoeffer (Hungary), John Whitney (USA), Lilian Schwartz (USA), Frieder Nake (Germany), to name just a few. Theoreticians such as Arlindo Machado (Brazil), Lúcia Santaella (Brazil), Vilém Flusser (Czechoslovakia-Brazil), Philipe Queau (France), Edmound Couchot (France), Roy Ascott (UK), among others, had also already written about this emergent art form. These theoreticians had been awakening artists to the experimental potential of computer technologies. Flusser, for example, lived in Sao Paulo for 30 years. He investigated the role of artists and philosophers in contemporary society in the post industrial age pointing to the possibilities for technical objects.

By the end of the 60s the pioneering artist Waldemar Cordeiro began to use computers in visual arts in Brazil. In 1971, he showed his computer artworks at the exhibition Arteônica and presented a manifesto with the same name, which has since influenced many Brazilian artists. In 1972, he created the Arteônica Center at the Art Institute of the University of Campinas. In 1994, after much struggle, these ideas began to be more generally accepted by the Brazilian art community and the first Brazilian art graduation program, focusing on these issues, was created at the Art Institute of the University of Brasilia, in Brasilia, and a few exhibitions were held in important institutions. From 1997 until 2015, the Brazilian Itau Cultural Institute has had a leading role in the field of art and technology. It has been showing and awarding artists and has promoted very important international art and technology biennial exhibitions named *Art.ficial Emotion*.

A second generation of artists, theoreticians and curators, working with art and technology, was emerging around 1996-2008. They followed Machado, Bousso and Santaella's leadership, and have begun to investigate this specific type of art. Consequently, what used to be a small biannual meeting at the University of Brasilia was transformed into an annual International Congress always held in conjunction with a Computer Art exhibition.

Exhibition Spaces, Museum Strategies and Archiving
In 2004, during one of the annual congresses quoted above, the exhibition >=4D (*Greater or Equal to 4D*) was held at Bank of Brazil's Cultural Center in Brasilia. For that occasion Tania Fraga and Wagner Barja curated the show and Fraga introduced the concept of meta-installation. The focus of almost of all the works was interactivity. The idea was to create space-time dialogues among these artworks, and not a set of separate independent installations. In it, human and artificial intelligence were united to create a symbiotic

communion among the interactors' minds, the artists and the machines that run the software within the exhibition spaces. These artworks entwined subjective sensations with mathematics and art.

Summing up, it is necessary to state that, obviously, our ability to manipulate computer languages trans-codified into feelings and sensations is still very limited. Brazil may play a leading role in this field due to the speed with which Brazilian society has been absorbing the changes prompted by the development of computer technologies. Brazilian artists have been challenged by theoreticians to develop new identities for a society which desires development and access to technologies and the benefits they bring to contemporary life. Computer Art may become one of the answers for these challenges. The University of Brasilia has been a pioneer maintaining the commitment that guided the establishment of Brasilia as a hub of contemporary values, appreciating the blend of Brazilian culture with the arts.

The Symposium of Contemporary Art started in 2006, promoted by Postgraduate Program in Visual Arts (PPGART/UFSM) and the Laboratory of Research in Contemporary Art, Technology and Digital Media (LABART). Each year there is a distinct theme related to digital art and technology research. Until 2013, art exhibitions bringing together Brazilian artists of international renown, second and third generation pioneers with research in digital and computer poetics, were held in tandem with this event in the south of the country. Festival of Art Science and Technology of Rio Grande do Sul (FACTORS) with artists from a more recent generation began in 2014. FACTORS 2.0 was held in 2015 at Santa Maria's Museum of Art in conjunction with the 24th National Association of Plastic Arts Researchers (ANPAP) anual meeting with the artists Andrei Thomaz, Bruna Dias, Carlos Donaduzzi, Fernando Codevilla, Flavya Mutran, Gabriel Mascaro, Gilbertto Prado, Jack Holmer, Joana Burd, Matheus Moreno, Suzete Venturelli, Yara Guasque.

These exhibitions are interdisciplinary in nature and also generate the study and analysis of other exhibition styles and museographic strategies, from the Museum of Art, Science and Technology project, promoted by LABART's art and technology research group, at the Federal University of Santa Maria since 2011. During these years, three different exhibition actions were carried out: the first, the Art-Science-Technology Interactive Museum: "Mata-200 milhões de anos Árvore Pedra" ("Mata-200 million years Tree Stone") was attended by the artist Anna Barros and took place at Santa Maria Museum of Art (MASM) in 2011, with an emphasis on nano art. The second, "Art-Sustainability-Science", took place at UFSM in 2013, bringing together the artists Anelise Witt, Guto Nóbrega, and Malu Fragoso, among others. The third, "Neuroart", presented a work by the artist Alberto Semeler in 2015, and a new version of "Neuroscience and Art: sensory perception", together with FACTORS 3.0 in 2016, with the artists including Mariela Yeregui, Manuela Lopez, Raquel Zuanon, Raul Dotto, Rosangela Leote, and Tania Fraga. Neuroscience is the guiding curatorial principle of this exhibition bringing together participatory, interactive projects, videos and performances at the convergence of art, science and technology.

In this sense some questions are raised regarding 2016's exhibitionary action. One question concerns the provocation that these works impose on perception. Neuroscience is the guiding curatorial principle of this exhibition bringing together participatory, interactive projects, videos and performances at the convergence of art, science and technology. In general, contemporary art concentrates its forces on deconstructing pre-established perceptual and sensory experiences, and in a certain way, the appropriation of new technological devices makes feeling art become extremely fluid. Another issue relates to understanding how these exhibitionary actions, together with the constant updating of knowledge in the different areas involved, have opened up a distinct and collaborative path for rethinking museum strategies for the group involved. The third question highlights how these exhibitionary actions contribute not only to questioning whether [thought-out], up-to-date expographic practices and processes for conserving and archiving Digital Art can have the potential for upgrades, but to think critically about whether current survival strategies are not wrong.

Imateriais (Itaú Cultural, 1999) was developed using 3D videogame technology similar to Half-Life (Valve, 1998) and made reference to the exhibition Les Immatériaux (1985, curated by Jean-François Lyotard). In the Imateriais exhibition, visitors were first photographed at an ATM machine, where they also selected their virtual body, their avatar. Then they received a password and proceeded to one of 25 terminals that ran the multiplayer videogame. Inside the virtual world, each visitor could see everyone else and recognize them by the photos

which were displayed in their avatars. They could also talk to each other using headsets, through a real time voice system, which located their voices inside the virtual world, controlling sound volume and stereo effect according to their virtual position. The whole exhibition stimulated a reflection about what it would be like "to feel" for a virtual body. Desertesejo (Gilbertto Prado, 2000-2014), a dreamlike, immersive piece developed originally in VRML in 2000 as a networked virtual web browser based environment, that allowed 50 simultaneous online participants. The VRML plug-in used in 2000 became obsolete after about a decade, and the piece was entirely restored in 2014, at Itaú Cultural, using a web browser based video game engine (Unity 3D). "Descendo a Escada (Descending a Staircase) (Regina Silveira, 2002)", also developed at Itaú Cultural, is an interactive, staircase projection on three planes which follows Regina's own graphics rules of perspective. For this piece, it was necessary to change the "standard" mathematical perspective rules. This was done in two relatively simple steps: first a regular perspective projection was generated for the whole staircase, frame to frame, and then this sequence was cast, using a conical projection, into the three planes that compose the piece, creating the intended perspective distortion.

Finally, the Itaú Cultural innovation team has been working with Regina Silveira since September 2016 on her new piece, a yet to be named work due to be released in June 2017. It will be a multiplayer experience in a VR environment, based on Regina's well known labyrinths, but created with genetic algorithms in a Cray XC-40 supercomputer.

Art and Digital: Exhibitions Past and Present

The idea of a history of exhibitions is fairly recent. Emerging in the wake of the process of cultural globalization and the proliferation of mega-exhibitions in contemporary art, interest in a narrative of the history of exhibitions is not only a reflection of consolidating curatorial practices on the art circuit, but also of understanding that curatorship can be a fertile instrument for the construction of diverse narratives and outlooks in relation to the history of art, especially in relation to the history of art and technology in countries outside the hegemonic blocs. To speak of the history of art and technology exhibitions in Brazil means, in the first instance, not forgetting the work of the curator Walter Zanini, not only in the 16th and 17th editions

of the International Biennial of São Paulo (1981 and 1983 respectively), when he abolished exhibition spaces reserved for countries, but also exhibitions and proposals such as JACS, Prospective 74 and Visual Poetics (1977) held when he was director of the Museum of Contemporary Art (MAC).

For example, in JACS (1972), in addition to Zanini opening up space for production that was in dialogue with new media (xerox, video, etc.), he raffled spaces for artists to produce their works in the museum requesting, in the rules of enrollment, that artists focus more on the artistic process than on the finished object.

Prospectiva 74 was innovative, too, by forming a network of known artists, in which each artist could invite one more and so on. This network of friends resulted in an exhibition with over 150 artists who produced works that went beyond the limits of conventional media such as video art and mail art. Visual Poetics (1977) also had innovative aspects and gave the public the chance to choose the works they might like to take home, giving out photocopies of the documents and works displayed, configuring the spontaneous participation of visitors in creating numerous "mobile exhibitions" and thus highlighting the value of the collaborative network between artists.

It is important to emphasize that the end of the 1960s and early 1970s in Brazil coincided with the period of the military regime's revival and its mechanisms of censorship and repression. As a reaction to the dynamics of an art trade sympathetic to the dictatorship, experimental artists in art and technology of the time took up the challenge not only to work with styles outside the legitimized canons but also with works that functioned as guerrilla tactics against the system then in force.

In 1971, in parallel with other protests in the field of art and technology, Waldemar Cordeiro organized the *Arteônica* international exhibition at Fundação Armando Álvares Penteado (FAAP). In the exhibition catalog he highlighted the democratizing aspect of *telematic arts*, put into practice in the country mainly from the 80s. By assigning to art the function of "communicating communication", Cordeiro understood the computer as an instrument of social transformation. For him, the modern artist was the one in a position to create new communication techniques.

If the popularization of the internet allowed us to imagine a world where information could be more accessible - as Cordeiro thought at the time - on the other

hand, we cannot fail to notice the intrinsic relationship between archiving, surveillance and the monitoring of user data by large companies and corporations within the current context. Initiatives such as Wikileaks, organized and led by Julian Assange, who made secret documents public, prove the lack of privacy in the network environment. In this sense, it seems to me that, rather than focus on exhibitions that work with the specificities of particular styles, or to ask ourselves what are the details of curatorial activity in art and technology exhibitions, it might also be of interest to verify which projects can contribute to our thinking and reflections on the urgent context in which we live. Among them, the Arquivo Vivo curatorship in the Paço das Artes whose idea was to work with issues relating to the database and the archive as a device of control and power.

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Cleomar Rocha is a doctor in Contemporary Communication and Culture (Federal University of Bahia) with three post-doctoral courses: Poéticas Interdisciplinares (Federal University of Rio de Janeiro); Cultural Studies (Federal University of Rio de Janeiro); Intelligence Technology and Digital Design (Pontifical University of São Paulo). Rocha is a coordinator of Media Lab Brazil, artist and researcher. He is a professor of the Federal University of Goiás, and visiting professor at the Federal University of Rio de Janeiro and the University of Caldas, in Colombia.

Marcos Cuzziol is in charge of Itaú Cultural's Department of Innovation. Responsible for the "Emoção Art.ficial" Art and Technology Biennale from 2002 to 2012. An engineer and 3D game developer, he holds a doctorate in Arts from the University of Sao Paulo.

Nara Cristina Santos is Post-Doctorate in Visual Arts at the Federal University of Rio de Janeiro 2012-2013. PhD in Visual Arts at the Federal University of Rio Grande do Sul 2004, with an emphasis on History, Theory and Criticism of Art and PhD internship in Paris VIII, France 2001. Her doctoral thesis: Art (e) Technology in sensitive emergency with the digital environment: Brazilian projects. Currently professor at the Visual Arts Department 1993 - Federal University of Santa Maria, where she works in the Postgraduate Program in Visual Arts, PPGART. She coordinates the Laboratory of Research in Contemporary Art, Technology and Digital Media, LABART and leads the research group Art and Technology-CNPq. She was part of the Digital Art of the Ministry of Culture/MINC 2009-2011. A member of the Brazilian Committee of the History of Art/CBHA and the National Association of Plastic Arts Researchers/ANPAP, where she is president for the 2015-2016 biennium.

Priscila Arantes is a researcher, curator, professor and museum director. Currently she teaches Masters and PhD students in the design program at the School of Arts, Architecture, Design and Fashion of the Universidade Anhembi Morumbi. She holds a PhD in Communication and Semiotics from PUC/SP and a postdoctoral degree in Art Criticism and History from the Penn State University. She is currently artistic director and curator of the Paço das Artes, a museum in São Paulo, since 2007. Her publications include Arte e Mídia: perspectivas da estética digital (Art and Media: perspectives of the digital aesthetic), Arte: história, crítica e curadoria (Art:

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Tania Fraga is a Brazilian architect and artist with a Ph.D. in Communication and Semiotics at the Catholic University of Sao Paulo. She is vice-president of the Sao Paulo Institute of Mathematics and Arts. In 2010-11 she developed a Senior Post Doctoral research project at the School of Communication and Arts, University of Sao Paulo, with a research grant from Sao Paulo Research Foundation, FAPESP. In 1999 she developed a Post Doctoral research project at the Centre for Advanced Inquiry in Interactive Arts and Science Technology and Art Research, UK, with a research grant from the Agency for the Improvement of Higher Education Personnel, CAPES. In 1991/1992/ 2010/2011 she was a Visiting Scholar at the Computer Science Department at The George Washington University, USA. In 1986 she received a grant from the Fulbright Commission. She has been showing and publishing her work in many national and international events.

Maria Luiza P. G. Fragoso multimedia artist with a PhD in Arts and Multimedia at the University of Campinas (UNICAMP) in São Paulo (2003). She develops research on artistic experimentation in telematic environments focused on interdisciplinary aspects between art, science, technology and traditional cultures. Currently professor at the Visual Communication Design Department at the Federal University of Rio de Janeiro, and thesis supervisor since 2005. Elected a member of the National Association of Researchers in Fine Arts's board of directors for the period 2010-2012. Coordinator of the research group REDE- Art and Technology, transcultural networks in multimedia and telematics, and coordinator of NANO Lab – Nucleus of Art and New Organisms.

Reynaldo Thompson is a Mexican scholar, architect and artist who holds a PhD on Aesthetic Studies. His artwork has been shown internationally. A background in visual art and architecture helps him interact with space and time in almost unusual but repressedly delightful ways. He participated in artist residencies in the United States of America and has curated exhibitions in Mexico and the USA. At present he is associate professor at the University of Guanajuato, Mexico where he also chairs the Department of Art and Management in the Engineering Division. His main areas of interest are art and technology history and its analysis, focusing in recent years on the study of the origins of electronic art in Latin America. At present, he is planning to launch a database on the evolution of digital art in the continent together with a team of international experts in Latin America, USA, Canada and Europe.