

**Interactive Installations: applicability and inferences
in the creative process of FACECODE**

**Instalaciones Interactivas: aplicabilidad e inferencias
en el proceso creativo de FACECODE**

**Instalações Interativas: aplicabilidade e inferências no
processo criativo de FACECODE**

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Abstract

Theoretical-practical research about the creative process with electronic medias involving digital poetry. The computer revolution has reinforced the visual arts, converging into *glitch art*, *the generative art* and *online art*. The methodology was focused in bibliographical survey, data gathering, state of the art and the separated analysis of artists' productions, whose dealing with the investigations' themes are related to the study of the concepts pertinent to the central idea of the interactive piece *Facecode* (Stephanin, 2015). Thus, the object of this work had as its premise the conceptual line of approaching the

ideas of materiality, corporeality and spacial structuration, so much as temporality and interactivity.

Keywords: interactivity; techno-art; installation; cyberart; glitch art

Resumen

Investigación teórico-práctica sobre el proceso creativo con medios electrónicos de poesía digital. La revolución informática ha reforzado las artes visuales, convirtiéndose en el arte glitch, el arte generativo y el arte en línea. La metodología se centró en la encuesta bibliográfica, la recolección de datos, el estado del arte y el análisis separado de las producciones artísticas, cuyo tratamiento de los temas de las investigaciones está relacionado con el estudio de los conceptos pertinentes a la idea central de la pieza interactiva Facecode (Stefanin, 2015). Así, el objeto de este trabajo tuvo como premisa la línea conceptual de abordar las ideas de materialidad, corporeidad y estructuración espacial, así como temporalidad e interactividad.

Palabras-clave: interactividad; tecno-art; instalación; cyberarte; arte glitch.

Resumo

Pesquisa teórico-prática sobre o processo criativo com mídias eletrônicas envolvendo poesia digital. A revolução do computador reforçou as artes visuais, convergindo em arte de *falhas*, a arte generativa e a arte on-line. A metodologia foi focada em pesquisa bibliográfica, em coleta de dados, no estado da arte e em análise separada das produções de artistas, cujos temas estão relacionados ao estudo dos conceitos pertinentes à idéia central da peça interativa Facecode (Stefanin, 2015). Assim, o objetivo deste trabalho teve como premissa a linha conceitual de abordar as idéias de materialidade, corporeidade e estruturação espacial, tanto quanto temporalidade e interatividade.

Palavras-chave: interatividade; techno-art; instalação; ciberart; glitch art

The digital art – Interactivity and numerical vision

The interaction man-machine occurs in the visual arts by the human extension originated in the *bit* universe; integrates the user's control (*interactor*) to a system that emerges and reports its movements in numbers that, when simulated and reproduced by the equipments, delivers a representation of the human body inside the machine.

Various technologies are made to allow visual experiences of interaction, reproduction, virtual/augmented reality among many other tools that tend to amplify the human vision. Still, to this day, we still need the machines to have a so-called *intelligent*

vision; this mechanic and algorithmic vision – part of the investigation that this paper described and tended to.

The experimental production with emergent technologies, appropriates the applicabilities to create concepts. Although the interactivity constitutes a life with futuristic technology, what has enabled the creation of artificial life, touch systems and virtual or augmented reality, projects of *telepresence*, recodification and generative art. Themes of technologic poetry that are present in the artistic framework related to this research:

“In the back, an electronic and monodimetric vision, the last one creating an image of vertiginous, intertwining flows that never stops constituting itself in circuits of protean commutations and active, divergent and convergent plots, in a planetary dimension, circuits that transmute the distance in luminous interfaces. Such circuits are at the same time political, geographical, cultural, spacial, ideological, technological [...] the idea of the illuminism’s eye-lamp has become a reality through the panoptical device of the video-lamp inserted in the surveillance cameras installed in banks, stores and factories, roads and houses, security areas and also in the screens of VR devices which image sees us. (Parente, 1993)

Struggling to understand the technology of others, the interactive art uses the technology to create aesthetic reflexive experiences intended to question the world and represent it through the figurativity. Thus, the interactive artist conceives the piece, the spectator participates and relates to the object by numerical interfaces. The interaction invites the user to access the control shortcut of the installation that pieces together the application of new technologies in interactive environments through interfaces, gives the control of the narrative to the user, who interacts in the virtual environment by algorithms previously set by the author that enable the immersion of the user by the manipulation of the actions determined by the related artist.

The feeling of being present or involved in somewhere else, any narrative as exciting as virtual reality, blocks and removes the surrounding world, awakening the sensation of immersion of the rules and codes of the work.

This plastic-conceptual exercise delivers to the public the aesthetic experience overlooked by a computational art piece of work. By strategies and creation processes that involve the appropriation and the human and spacial interference in virtual interfaces. The subversion of systems acts as a trigger and provoker of this mix made of the contemporary aesthetics, as pointed by Arantes:

In installations that deal with digital resources, the signals sent through the body by the interactor – breath, touch, body displacement, voice etc – are received by the computer and transformed in real time into computational paradigms. In these cases, the body is the engine of the work, since it’s by the signals sent from the interactor’s body that the piece can manifest itself. (Arantes, 2005)

The environment or technological media sets the aesthetics of decadence and interruption of return to the distortion and digitalization of magnetic lines of the tube of cathodic rays explored by Nam June Paik, in MagnetTV, 1937 and experiments such as “scratchings” and burn of celluloid and also a color projection box that included painting directly into filmstrip. Amongst various Paik’s works with televisions and manipulation of information in a unusual way.

A simple example of interactivity in art is the use of an output *command* giving feedback to the input, delivering a visual signal or distorted sound; or even by modifying the connector’s plugs, as Nam June Paik used to do in the so called *Wobulating*. Any circuit or hardware can be used in performance installations or recodifications.

Glitch art: the aesthetics of the error

The production with digital poetry currently converges to Glitch Art, illustrated by techniques of digital image manipulation transformed in non-conventional aesthetic forms focused in transforming them in digital art as they were previously observed in Reas' works.

The aesthetics of the error (glitch) can be an expected moment in a system that promotes itself and makes us see aspects that could otherwise have gone unnoticed. To create Glitch art is to value every moment via contextualization or provocation. The errors convey an entangled of memories and expectations that the digital arts process in the conventional canons in the form of reflexive media art an upgrade of the extended expectator, a attendant with sub and meta-cultural narratives, physically and cognitively challenging them as post-human in a culture of constant redefinition.

The computacional aesthetics delve into questions such as ownership and duality of the softwares’ capacity of processing unexpected data and data coming from a man-machine interaction – machine that purposefully simulates an error. Something unexpected, out of control makes itself appear as a product of a perfectly working system; when we ignore the error, we investigate new ways of dealing with technology, beyond the standard logic and rational systems.

We live today in one of these fringe times when all of the old order of representation and knowledge oscilates to give place to imaginariums, ways of knowing and social regulation styles still not quite stabilized. We are living one of these rare moments in where, from a new technical configuration, as in a new relation with the cosmos, a new style of humanity is invented. (Domingues, 1997)

Generative art is the practice of a system that establishes some degree of autonomy which results in a workpiece. The *Glitch art* uses chaotic computacional processes of digital manipulation. The *hacking* of images in the digital level adds layers of complexity when negating the control for a system or process that is widely known in

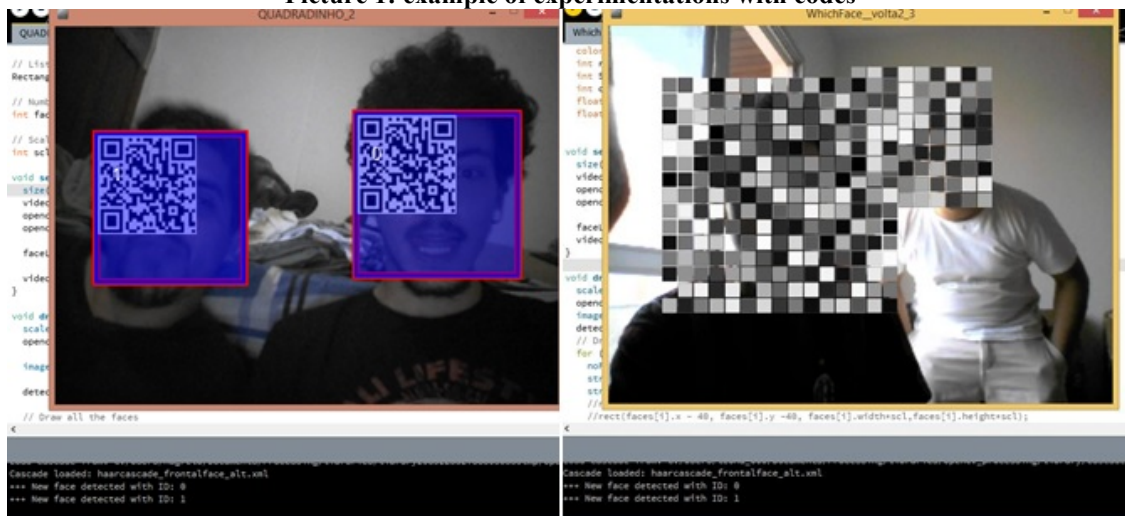
art history. The technique of corrupting a photo or *JPEG* with compact data results in a *pixelated* aspect that explicits the digitalization, indifferent to the algorithm logic. What denounces the *Glitch art* is the use of algorithms and contexts in an unexpected and undefined way by its creators. What really matter is the control that guides the process.

More and more we create images for the machines to watch, most of the visual products are created by equipments or numerical interfaces for the same machines to see and interpret our productions. See with our own human eyes is becoming an exception when we talk about *QR codes*, facial recognition systems and a series of automations that make part of the investigative themes of this research which enumerates the creation process, research and application of numerical materiality in the field of visual arts

Art produces, what without it isn't art, a singular sensorial jubilation effect of perceptive trance, related to the sensible forms that it inserts in the worpiece be they realist, abstracts, geometrical or conceptual, since this trance can come to either in a material or immaterial form, which without it, wouldn't be able to retain the vision, sight, the hearing, the attention. (Couchot, 2003)

Thus, we define the themes of the installation that will be produced and the algorithmic system of the workpiece was defined as: The image captured in real time goes through loops of detection of parameters that detect faces and people through the transformation of dark spaces into parameters and the distances between predefined points that define a human face, key points are: the distance between the eyes, between the nostrils, the size of the mouth and chin, unique patterns in each human, set the patterns that characterize the presence of a face, the program launches a loop of creation of a *QR-taq code* and shows instantly the recodification over the person's face for the time they participate of the workpiece with the parameters visible by the camera.

Picture 1: example of experimentations with codes



The moment of recodification generates a data bank of the captured image of the represented code, the face of the person who participated in the piecework will be appropriated and will become part of the mosaic of it.

With the development of the next version, we adjusted the overlapping layers of the recoded image. Although, we decided to work the recodification with generative techniques for the completion of this workpiece.

The libraries and tools for treating the machine as the owner of a vision that, even if sensible, does not have the human as communication of an artificial intelligence. The application of libraries with open sources focused in expanding the quantity of available creative works through its licenses that allow the copy and distribution with less restrictions. The collaboration of control to the fragmented processes, rearranged and mutilated, though living and in motion, with an intelligence of its own, a “digital brush” based in the human-computer interaction.

The machines’ vision, with real time data processing and in-cloud sharing favors immensely the interaction of the artist with the public and the media, methods and shared communication. The personal and usual construction of the creative process is private to each artist and every work of *Glitch art* is developed as to experiment, prove and remake the processes in a style or methodology. The human thought and the computer logic expresses themselves in the chaotic compulsion of society at the same time they are excessively structured and defined as computer programming.

The evidence of technology’s incapacity in compressing or reproducing real or intelligent life in a mechanic, synthetic way of biotechnology surpasses limits of the human body and humanizes the multiplicity of non-conciliated readings that float in the matrix of digital aesthetics. The consolidation of social medias precedes the return of the *DIY* and the reutilization of obsolete equipments to create art. Modifying components and electric circuits today compacted in the microcontrollers make the creation of prototypes more accessible to experimentation.

The exploration of binary material as to create art can materialize itself in the form of light, image or object digitally fabricated. The exposed qualities in the digital aesthetic as fragmentation, repetition, linearity and complexity exposes the power of computer technology and reveals the processes along the error’s elements such as spots, layers, multiples, movement and randomness.

One way to reflect about the man-machine interaction is the thought that computer languages developed by programmers who don’t know the power of its errors and versions. A problem is the filing and the storage of digital materials. The innumerable

designations as *datablending*, *datamosh* or *hex* are the practical variety of flux break by different technologies or platforms.

The digital processes in visual arts are related to the error, the rejected production and the obsolete material to subvert new systems in an adapted evolutive movement that spreads itself to every spot that promotes a change of scenario, be they virtual or real. For this, the challenge is to understand the limit of acceptance of computer arts in the universe of plastic arts. This manifestation is a contradictory relation in the ways of man-machine interaction that explore functionalities and express the human control in the digital process. A paradox characterizes itself between *Glitch art* and Algorithmic art, one can or cannot rely on the other in the description of methods, aesthetics and the artists' philosophy, the application's conscient decision. This investigation of the creation of digital art with the description of methods as analysis, introduction of data in unconventional forms, differently from Algorithmic art which comes from ideas or codes to create images, since the visual result of *Glitch art* is part of the chaotic variable that contrasts the processing and the virtual molding of augmented reality.

A new universe unveils when we notice that even a small thing around us can be used to create art. The evidence of ephemeral gleams impregnated in the social networks in the form of GIFs, stupid animations or even recoded from videos in form of animated images, no different from the starter screen.

The image in its turn, tends to lose the two-dimensionality in lieu of three-dimensionality. Screens and helmets allow the viewing of three-dimensional animated objects in various environments with which the observer can interact with. The simulation of the objects and complex scenes, in movement, still quite far away from perfection, but this evolution of virtual perception is already a characteristic of a change in the traditional hierarchy of the sensible. (Couchot, 2003)

The error is absorbed, the image literally isn't the portrayal of an experience. The restlessness is simultaneously a sight to behold and a sign of doubt, the social networks and internet portals are a deliberate chaos, a browsing conditioned to the exploitation of vices and costumes of repeated updates in useless information that bloats society, verbally or non-verbally, virtual or real.

The error shows the artist's intention in provoking a level of possibility at least from a human perspective, where we force the logical form of the computer to chaotically appear as broken.

Ernest Edmonds is a multi-artist, known as a specialist in human-computer interaction. His line of investigation based in practice, the Creativity and Cognition in the production of artistic pieces, projection and photographic printing digitally manipulated. In his 'constructions' he works with patterns and uses algorithms to create them. The composition in itself has become more important to him than the real representation.

He minimized the elements that stress the structure of the work and not its superficial complexity. This structure is the key to the asthetical experience of the artwork. The color is like the defining element, in previous pieces he chose mainly black and white according to the unreliable color of the devices. *“In my work, the idea is to operate with structures that can mediate sound and vision, as to a work of unified system could be produced, which involves both aspects”* (Edmonds in: Em Novas Construções em Art, <http://www.ernestedmonds.com/>)

Inspired by the Automatic Art, we retake the research to new libraries that could represent a code. Diferently from the previously existent in the Generative art we improved a code that will work the face of the participant according to the data captured by the face detector; with this data are generated codes related to space, colors and overlaying. As creation process, the artists register the digital art under Codecanvas, as a collage of the generated codes in the software test phase.

Figure 2: Open space experience / Codecanvas



To think that Internet and computers as an art media requires structure, a synthesis of culture, technology and aesthetics. In contemporary times, digital artists have extrapolated resources and equipments technologies they investigate through a contemporary lens, minimal concepts of instructions and expressions in various means of communication, as natural language, the code and simulations. Each layer a different perspective of the process that combines its potencies to create something more complex to the rules and codes in the structure, as stressed by Domingues:

The cyber-art introduces in the artistic context the use of computer technologies resulting from scientific discoveries in microcomputing and telematics, generating interactive environments that use the expressiveness of the cyberspace, personal computer spaces or web-connected. Cyber-art is one of many names to the art made possible by the insertion of computerized technologies in the artistic world, followed by the use of numerical language and its characteristics to incentivize creations and the new relations of fruition by the public. (Domingues, 2002)

As a tool for the registry of the questionnaire, we used Google Forms in a shared research on the Internet, available from November to December of 2015, as to clarify some aspects of Interactive art. The answers were tabularized and counted with the webtool: http://www.writewords.org.uk/word_count.asp that resulted in the tables bellow, illustrated and commented with the steps of the creative process shared, as the research shows.

So, as with everything exposed so far, relating to the characterization of the digital artists' profiles, the research investigations happened mostly on the internet and discussion groups; bibliography of expositions and events with similar themes were adopted, as well as communication *in loco* with renowned artists of the digital arts universe through social networks and in person.

Questions directed to artists and people interested in digital arts such as *Interactivity, Videomapping, Digital Installations, Hacker, VJ, Projection* amongst other themes were listed in the forms that made part of the analysis of the identified profiles and made available for further consultation.

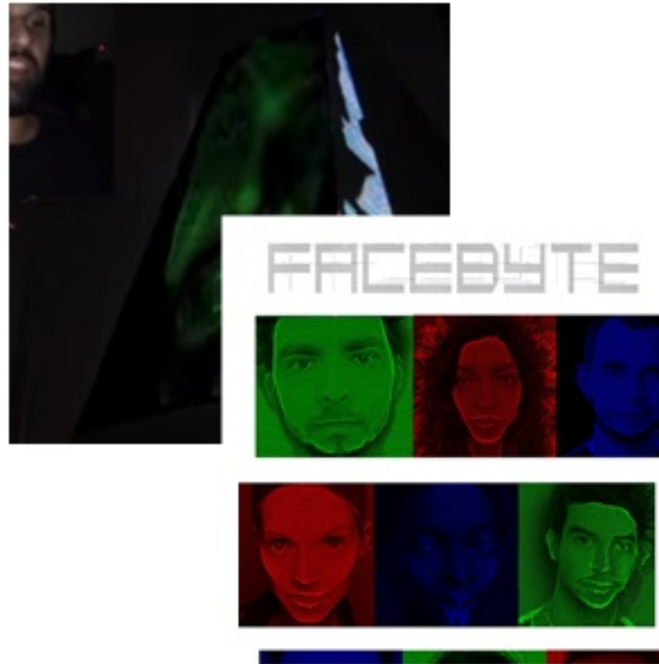
The question resulted in the convergence of interests of the participants, mostly for: *Videomapping, Photography, Design, Video art and Graffiti*. Those are concept words and techniques of visual arts that partially integrate the digital arts, although words such as *Graffiti and Design* happen more often. We analyzed them as part of the contemporaneous language that utilizes the electronic and virtual means to publish their art.

The conversion of the questionnaire to the thematic *Videomapping* integrates the research. To clarify such digital technique, as confirmed element of the *qualitative* research of the project, a collaborative work was done with the digital artist, *Videomapper* Edgar Salmem, member of the Vjzaria group (www.vjzaria.com). VJZARIA is a renown duo from Brazil, residing in Dubai since 2012. Vinicius Luz and Edgar Salmen have been working together in video mapping, live projections, generative projections, light installations, digital architecture and graffiti, stereoscopies, 360° projection and filming, 3D production and also as VJ's for more than a decade. They employ their inovative creativity in their art, based in investigation and experimentation. The acclaimed duo have worked in projects in more than 20 countries around the world. This year, for example, they participated in the Genius Loci Festival in Weimar, germany, winners of the first prize with their projection. Beyond that, they won the Special Jury Prize in Niigata, Japan. In various places in Dubai they create in clubs, light drawings, as well as videomapping projections. Also, when the opportunity arrives, they like to work together with other artists of different areas and to find ways to integrate the new creations in their work.

As description of the Facebyte work – of which this research was part of - *that helped in the clarification of the videomapping technique*, the productio of the respectiv

collab project proposed the mapping and public interaction where the analysis of the public's digitalization and the appropriation of their image is projected in the event's building.

Figure 3: Facebyte project detail



The second question: *what artistic process do you use in your work?* Presented a sampling with 27% of the answers mentioning the word *Digital* as part of their creation processes, followed by the capture of images with 23 as referential to the current image manipulation techniques, where it goes from the capture to manipulation, or editing which is part of our current visual culture of coded, edited and manipulated digitally in various processes from the creation to materialization. Other words like *Illustration* and *Painting* come in second place in this *qualitative* research that shows the search for technique refining through digital or electronic means that the computer revolution allows us in the digital and numerical creation.

Considerations

The starting point is ourselves, our identity or representation, about the relationship between people and the electronic language, the hypertext, the paradoxical meta-language of the audiovisual and the contemporaneity of our shining visual culture that explores the imagetic content to the extreme, bringing the *glitch* (error in digital code processing) as the day-to-day aesthetics. As verified during this work, such resources are characteristic of the electronic world, that we are deep in it and for that creations with

such languages happen in a creative, inovative and inventive way, the process should be understood as a whole and as part of the same process that programming allows, from library analysis to the interpretation and instrumentation of such resources up to its application, legitimated in the data acquired during this research.

Currently, the certificates fragment the accessibility of browsers and devices that depend on specific technology to work. A curve in the access is explicit if we compared the 20 years or researching of Nam June Paik in using the live video in television in his performances. This research has demonstrated the possibilities that numerical art brings to images and the same also make flourish collages in visual culture and objects that assume subverted systems in the change of paradigms of the information digital revolution.

Associated to the expansion of micro-controllers and the digital making of prototypes, characteristic elements of computer engineering, our contemporary society is in contact with cutting-edge technology all the time in various house or professional equipments, whose curious and analytic eye of an artist can elaborate and work in new compositions or narratives.

The technological scenario of hybridization of electronic language with the expository/representative space goes beyond presentations in media and urban levels as if constant in the researches' methodologic procedures, which identified a large interest in techniques as *videomapping* and the *glitch art*, characteristics of contemporality of art.

The research identified then the use of urban espaces and the alteration, through light or interactivity, that is explored in various pieces and, currently, a reflexion of the virtual self. That same self put in highlight in the era of the *self* and the sharing, as the workpiece Facecode proposed, was explained in details during the description of the creative process.

Much was learned through the investigation of scientific and artistic nature about the importance of the object of the work as participant in the relationship public-work and art-artist. The access to arts, real or virtual is aplified through technologies that are employed to produce arts in the plurality of medias and societies.

The Facecode work as exercise in creation of digital poetry took the artist-researcher to investigate and observe how the dematerialization of culture lived by the post-modern human is expliciting the influence of computers. And how does the *Glitch-art* contributes to the scenario of the contemporary society alternating the aesthetic experience and the daily routine of the people who take part in the representations that show the computer manipulation and the recodification of data and images.

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