

From Objective to Interactive Art: Net.Art, Videogames and Artificial Creativity

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1. INTRODUCTION: THE ART IN THE AGE OF CIBER CULTURE

If we take into consideration that capacities as scientific and artistic creativity can not be isolated from the cultural and social context that surrounds them, and that our actual context is plagued by elements that conform to the so called 'Ciber-culture', then it follows that science and art are affected by this shift in the cultural paradigm; with each field moving closer to each other through technology.

This fact carries infinite philosophical and esthetic implications in regards to important changes in social relations as well as the perception of the world around us and of ourselves. This in turn cannot avoid affecting art, which unashamedly already uses technology and explores the world of possibilities that unfolds.

The new technologies, and Artificial Intelligence in particular, are significantly changing the creative process. Visual arts, musical and literary compositions integrate increasingly more technological elements in their creative and broadcast process.

2. THE INFLUENCE OF NEW TECHNOLOGIES IN THE ART

"In every era, there has been a revolution in the arts. In the Renaissance it was 'perspective', in the 20th century movement through cinema, and in the 21st century it is the interaction made possible by new technologies. Confronted by the work, the spectator becomes an active part of it" (Grau, O. 2008).

Aesthetics is a branch of philosophy whose objective is the study of the essence and perception of beauty. Formally, it studies aesthetic reasons and emotions as well as different arts forms.

Nowadays, the idea of a finished and ready to be admired artwork has been substituted by the idea of a completely interactive work, where the receptor of the art also constitutes part of the art, and the development process along with the artwork itself bring together technological elements that aesthetics still trying to grasp.

The influence of technology in social-cultural transformations is increasingly evident.

Technology, to a large extent, changes the way that we perceive the world, the cognitive, and therefore social practices, the everyday.

We understand that all technology is an extension of the body and mind of the human being. That

7th European Conference on Computing and Philosophy (ECAP'09)

the analysis of human communication must take into consideration the technological means, interpreted as contexts themselves as these tend to transform human perception and as a consequence culture.

These changes have been occurring at such speed that a philosophical analysis becomes urgent, from the Aesthetic, to the impact that the introduction of high technology has on artistic creativity. This article directs itself to this philosophical project; to analyse the three great spheres in which art and technology go hand in hand, generating new paradigms.

2.1.NET.ART AND THE USES OF TECHNOLOICAL ELEMENTS.

The first of the above-mentioned spheres is NET.ART. More and more artists are using high level technology in their works (we can cite works like Moises Mañas's "Untitledcity.com" based on a text by philosopher Paul Virilio it proposes a chaotic and metaphorical journey through a nameless city using a giant mouse pad with a screen included to allow visitor interaction), so that it is easy to appreciate the unstoppable communion of art and technology. These works are no longer static, but rather in constant connectivity with the world around them or with the spectators themselves, who simultaneously modify it while they observe, creating it. Another example is Mariano Sardon's installation "Libros de Arena" [Books of Sand] where hand-movements in sand, contained in glass cubes, coincide with hypertext taken from the Web that includes texts by Borges, this text copies the hand-movements giving the impression that it is a liquid and later disappears. This work thus exists in an absolute interaction, representing in each moment a precise 'now' impossible to freeze, or tie to a moment in time.

Inside the interactive hardware, we found large quantities of systems that include the spectator in its development for which there is a pre required participation e.g. to emit a sound, to walk or to execute another pre-established action; therefore, activating mechanisms to permit the work to interact with the spectator. Other works included in this category are those of the artist Stelarc, these denounce the insignificance of the body at the same time that they announce its survival by means of technology. In his performances it is he himself that interacts with the aid of a third mechanical arm that he is able to move using nerves impulses from his legs and abdomen.

The virtual NET.ART generated by a computer, is a direct consequence of new information technologies, in particular of networks, which supplies not only the necessary data support but also the presence of millions of people that enjoy and participate in such art. Nevertheless, the artistic practices that integrate audiences' participation, that try to erase the frontier between creator and spectator or those that pose as a collective creation, are not that new. There is already a respectable tradition influenced by Dadaism that multiplied and diversified from the 60s, and is, according to some, the precursor from which the new tendencies have flourished. Nowadays, information networks, are the perfect medium through which to explore the possibilities of these practices, that in general try to erase the border between creator and spectator. Therefore, it is not uncommon, for NET.ART to adopt as its main objective the creation of works that could be expanded by others or to offer tools for collective creativity.

It is not just about the formats and genres that emerge from technological innovations, but also the fact that today's artist, though a product of Modernity's paradigms, must put special emphasis on experimentation per se: in order to discover new languages necessitated by the aesthetic stimulation

7th European Conference on Computing and Philosophy (ECAP'09)

implied by the artistic act but applied to the complex social and actual panorama. In its own way, the NET.ART. is a clear symptom of how, among other things, the Web is an instrument of social criticism as well as a territory where, through the users' contributions, it is possible to construct an unofficial history like those deployed by information exchange sites, such as Wikipedia.com whose texts are modifiable by any of its users in real time.

Fundamentally, the Internet is a network articulated through texts. But, in it, the definite and unalterable status of the printed word, gave way to a fragile status, in constant change with an exponential possibility of expansion, dissemination and replication from the readers-writers placed alongside the net.

In this sense, we can understand that the hypertext or hypermedia responds to a reconfiguration of our manner of hearing, seeing and producing knowledge and at the same time that it reconfigures our manner of communication. This rupture of the lineal narrative, relates to other ruptures in history, for example like that of the author as the omnipotent narrator, giving way, in turn, to fragmented text and to reading as deciphering. Poetry machines, that are programmed to recite random words derived from the reader, transform him/her into an author, into the agent in the game of creation.

2.2 THE VIDEOGAME AS ARTISTIC CREATION

This second sphere, Videogames, has not yet been the focus of much study among artists and academics, despite its significant presence in daily life and the large market that it represents. To interpret these merely as a pass-time (mainly directed to young audiences) is to ignore their artistic facet. Many videogames are genuine works of art, something that goes even further than an interactive movie.

The way in which an image is treated, the soundtracks chosen, the care taken on scripts and the added component of interaction, all transform Videogames into high-quality artistic works, but nevertheless are not considered as such. The meeting of art and technology is nothing new, we can find it in photography, in cinema, in many emergent arts that generated skepticism and considerable criticism in their beginnings.

In the case of photography, for example, it was said that it would herald the end of Art (if you could capture an image using technology there would be no more paintings) but not only did this fail to happen but Art evolved in many more rich and various forms. With videogames we find ourselves in a very similar situation. The critics are many but it is undeniable that the videogame constitutes a new form of art.

In the first place; the videogame embraces other existing forms of art. E.g.

Music: videogames always carry a sound track, from the most simple, 8 bits compositions of the first videogames (as in the classic Zelda) to the most elaborated of today (there are hundreds of videogames with spectacular sound tracks like Faraon de Sierra, Strike Force Commands, recorded by the Bratislava Philharmonic etc. or you can listen to SVMRES a Spanish videogame that proves there is no need to emulate American big productions to find good sound tracks) Furthermore, in some videogames, the music is their core. As in Electropunkton, Octocky or Toshio Iwai's Sim

7th European Conference on Computing and Philosophy (ECAP'09)

Tunes or Loom in which the game's own interface is derived through sounds and musical notes. As well as Rez and Vib Ribbons where the music develops as playing progress and the actions of the player determine the game's soundtrack.

Visual Arts: images are a very important component in videogames, in some cases could also be real works of art. Broken Sword, the Revolution Software is a videogame based in the classic Point and Click interface over hand made graphics. But we could also found many more examples of magnificent graphics from the very simple ones (but highly artistic never the less) as in Rorschach, to the stunning graphics of the super productions like God of War III, FallOut 3. Splinter Cell, Mass Effect etc. (Obviously we leaving many behind but these must suffice here)

Literature: stands not just for the dialogues or text that may appear in a videogame, but also for the elaborate scripts behind them. We can cite the Silent Hill's saga, which presents abundant symbolism and one of the best scripts in the history of videogames. Actually, the first one of the saga was adapted to the big screen, as it happened with Tomb Raider and Resident Evil, although it must be say with mixed results. Also videogames with clear literary references, like American McGee's "Alice", an Electronics Arts game that returns to Lewis Carrol's classic Alice in Wonderland. Only this time Alice's parents die in a fire, and the trauma of the tragedy sends Alice back, deep into Wonderland, to find that the wonder country is terribly changed, everything is dark and somber and Carrol's characters are singularly sinister. Throughout the game, Alice's goal is to transform this land to the original and magical Wonderland. We must also take into consideration the added difficulty that many videogame scripts must deal with an infinity of alternative endings, all dependant on the actions of the player (as in Chrono Trigger and some of the Final Fantasy saga).

Videogames do not only integrate different art spheres, and on many occasions in perfect harmony, but also encompass the phenomenon of immersion that we feel while reading a novel or watching a movie and this is exponentially incremented in their case. The spectator becomes the main character, the work/play cannot advance without him and his choices, which will decidedly influence the development of the plot.

On second consideration, and leaving aside the fact that video games can constitute an art form in themselves, we can see how they offer the tools to generate another type of art. Many artists are experimenting with these tools to create their own work. John Kilma, generated critical social art works using the tools offered by videogames. For example a toy helicopter, similar to the ones that offer rides at fairs, and activated in the same way; by introducing a coin, but in this case, what we see on the 3D screen is American soldiers advancing over a map of Afghanistan, with real images provided by the U S State Department database.

The collective DerivArt also employs video games' tools to create critical social artworks as in Burbujómetro (bubble meter). The game consists in breaking bubbles by shooting them from a pistol-like control, when the bubbles explode they show the prices of condominiums and apartments in different Spanish provinces in real time, proposing in this manner, a reflection upon the socioeconomic dynamic of Spain's real estate bubble.

Many more examples can be given, but these will suffice to illustrate the artistic possibilities of video games as tools.

7th European Conference on Computing and Philosophy (ECAP'09)

2.3 Artificial Creativity and artificial creators

In the third sphere, we located the concept of Artificial Creativity, which constitutes one step further in the communion between art and technology. While some people generate works of art through technological devices or aided by them, others strive to turn the machines themselves into artists.

Today plenty of artwork is generated by artificial creators, in fields as diverse as music (with artificial programs that create music, such as the Meter Todd system for musical composition, Gen Jam and Gem Jam Populi by Biles); artificial musical performance (with SAXEX application developed by Ramón Lopez de Mantarás); literature (with programs such as PC Writer 2008, the first artificial writer of a novel); and visual arts (Artificial Artist V1.0, or the works of Karl Sims that employ genetic algorithms).

The results of using these systems in different artistic areas are, to say the least, very surprising. The field of music is one of the most investigated areas of Computational Creativity. In this area, we found NeuroSwing for example, a program capable of generating the backup rhythm section for a jazz musician soloist in real time.

The create on of automatic stories have not been left behind either; for some years now, different but heterogeneous investigative projects have developed stories, albeit varying in length and creativity. Some of them sophisticated enough to make the reader believe that the writer was not a machine but human. The longest story today is the novel created by PCWriter2008 along with poetic creations by WASP, of Pablo Gervas. Using algorithms to create poems from words inserted in the program by the user by uniting them to its own database of words to generate poems in the style of the Spanish Golden Era (1).

In the Visual Arts we also found multiple programs, among the most complex one is Artista Artificial V0.1. that integrates the artificial creator “Nevar” plus an Artificial Art critic and a loop-based repetitive process. Obviously, this is only a small example of the many Artificial Creative programs currently in existence, however, there are enough to demonstrate that Artificial Creativity is a reality and its outcome is amazing.

The above mentioned systems are programmed using different methods; from case-based reasoning systems (capable of learning from experience) to multi-agent systems (a group of relative autonomous and intelligent entities cooperating with each other to develop a task or solve a problem) or Genetic Algorithms (adaptive seek methods based in biological evolution) and neuronal nets (to which no rule is inculcated because they are capable of learning and recognizing patterns, generalizing from experience).

The development of this type of program, aspires to transcend the classic programming in which the programmer give the orders and the program executes them, to be able to generate intelligent, creative and above all autonomous machines, and to a certain extent, capable of adapting to circumstances, be flexible and learn from experiences.

Of course, as we have stated in this article, the union of art and technology generates great amount of mistrust. In the particular case of machines capable of generating art works, the mistrust and the critiques are larger still.

7th European Conference on Computing and Philosophy (ECAP'09)

More than few people doubt the possibility of creativity's existence outside the human realm and try to devalue artificial creations. The principal objection of those who mistrust the machines' intelligence is based on the belief that the machines do not possess a sense of self or are able to ask themselves why they execute the actions for which they have been programmed. Notwithstanding the fact that they possess a certain amount of autonomy, even if restrictive and the result appears to be largely creative in part. The possibility of Artificial Creativity cannot be dismissed so easily; less so if we take into account that technological evolution is exponentially faster than the natural one.

What we consider a key example to demonstrate the above mentioned, is the musical composition system METER TODD in which a population of artificial composers interact with a population of artificial critics. In this way, the creations evolve in an autonomous manner, independently of the programmer. Due to this great level of independence and its fast evolution, they showed an aesthetic totally apart from the human one.

These types of systems demonstrate the urgency to rethink such concepts as creativity, culture and aesthetics. Until now, such concepts appeared to be defined solely in relation to humans. But if in the future the artificial creators were capable to communicate in mass, something quite plausible as outlined in the above cited example, the first cases (although in small scale) that have already manifested are generating something we could denominate as "Artificial Culture" or even "Artificial Aesthetic". Then it would be necessary to redesign those concepts.

We must be prepare to do so, a new social conscience of the Artificial Intelligence's fast evolution must be forged (and with that Artificial Creativity). Being aware of how close we are to the fact that the future artificial creators will have as many aptitudes as humans and we may end up not being able to tell them apart.

3. Conclusions

We have seen in this paper how the inclusion of high-level technologies in the art world has generated an unprecedented revolution. The works are no longer static, finished entities, nor are the recipients of the artworks any longer passive spectators, but rather part of the work itself, a work that never ends and exists solely through these interactions.

From an objective art we have moved to an interactive art, one that is able to better represent the peculiarities of humans and the culture in which they live: that is, a being that is primarily social (with a permanent need for interaction), always unfinished, in a constant state of evolution, and one that is living in a continuously changing world.

This interaction, therefore, is the key to the new art.

We have seen this concept demonstrated to perfection in Net.Art, an art form based firmly on the idea of interaction, where the work of art is in itself infinite works of art, since with every new interaction, novel spectator and given moment in time, something original is created, existing only in that interaction with the world and the people.

This idea is also well presented in the case of videogames. A videogame does not exist without its player, by whose interaction life is bestowed on the otherwise inert. He is the one who determines

7th European Conference on Computing and Philosophy (ECAP'09)

what happens and when. Therefore, the videogame is neither a closed piece of work nor just one game. On the contrary, it is as many works of art as the amount of people who play it. This concept is taken to the extreme in some examples, such as when the player uses the existing technology of the videogame to invent different ways of playing the game, ways that have not been considered by the designer. That is to say that, within the various restrictions of the program, an appropriation could exist on the player's part where they make use of the game in a way that it is not "normal" or not in the design. An example we are all familiar with is playing Tetris, either by following the objective of the game (in which the possible games are still infinite and dependent on the actions of each player), or by using the game to create patterns or drawings with the pieces, by gathering them by colour for example. Or, for a more up to date example, playing GTA while adhering to all urban and traffic laws.

Interaction, therefore, is a fundamental element of NetArt and videogames. But what is its role in the realm of Artificial Creativity? The works of artificial creators are not necessarily interactive, but interaction still constitutes a key point in Artificial Creativity. Let's see: the step that allowed machines (at first automats programmed only to perform the same repetitive action in time) to be capable of generating creative works, was the introduction of artificial neurons and case based reasoning, techniques that allowed the machine to comprehend its relationship with the world, with humans and with other machines. The evolution of the machine itself was therefore through interaction.

The increasing use of technology in artistic creation, as well as the introduction of Artificial Creativity has begun to blur the frontiers between the natural and the artificial, man and machine. That is to say, while the artist depends more and more on technology to generate his work, artificial beings are likewise able more and more to communicate and interact, even to be creative. How far can hybrid impulse go? Is there any essential difference between artificial and human beings? The first response that comes to mind is that they are not biological, that they do not possess an organic component. But how important is this difference? Is it merely circumstantial? On the other hand, artificial systems are often reflected in nature, for example in genetic evolution or neuron networks. Also to be considered is that many of us have non-biological parts, such as prostheses, pacemakers and artificial organs. Where then is the boundary? What is the biological percentage that a being must possess to be considered human or to stop being one? Where does machine start and human end?

We have seen that information programs exist today capable of generating creative works in the sphere of the arts and science at considerable levels, but still far from the abilities of great human creators. The problem lies in the fact that, for the time being at least, a machine is only capable of combining known elements to generate new ones from the starting point of a generative system. It cannot change such a system. It is not capable of consciously breaking the rules as a contemporary human artist can. But knowing that technological evolution is exponentially faster than natural evolution, can we guarantee that they will not in the near future? If we take into consideration that the human being is already able to construct machinery or software that in specific tasks surpasses man's physical and technical capabilities, machines able to learn from experiences or by behavior imitation, including machines capable of creating other machines, are we not getting closer to the point where the machine may get an inkling of what we understand as conscience?

With all the wonder that these themes stir, as well as the many questions they create, they ultimately show us that we are living out a paradigm shift that demands the rethinking of some of the most

7th European Conference on Computing and Philosophy (ECAP'09)

fundamental concepts. The old categories are obsolete, their compartments too small to encompass these new emerging forms of art, and far too rigid to express the hybrid inter-disciplines that these involve.

Thus, we consider the emergence of a new aesthetic, one that is able to account for the new phenomenon emerging from the union of art and technology, as absolutely indispensable. Issues such as artistic creativity and which criteria should determine when something is a work of art must be addressed. The art market itself must be revised to consider the new forms of art emerging from the interaction between artistic creation and technology.

References

- (1)Cañas, D., & González Tardón, C. (2006) “¿Puede un ordenador escribir un poema de amor?”. Poesía Di gital, 9|06, Documentos.
- (2)GRAU, O. “Virtual Art. From Illusion to Immersion”. The MIT Press. Cambridge, 2003.
- (3)PIMENTEL, K.; TEIXEIRA, K. “Virtual Reality: Through the New Looking Glass”. Windcrest Books. New York, 1993.