Art and Technology: An Innocent Relation or a Dangerous Affair?

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Abstract:

The technology has brought into our lives new means of expression, on which artists picked up very quickly and exploited in their work. Latest developments in sensor networks, robotics and visual technologies have stimulated various attempts to fuse the technology with the human body, either as a scientific experiment or as a new means of artistic expression. We perceive this merger of Art with Technology as a necessary and unavoidable result of our contemporary societies, considering at the same time Art as the means of the human expression. In this work we follow the way in which Art integrates with modern technologies, starting from Telepresence and Telematic Art towards the Cyborg Performance and Second Life like experiences. By examining the fusion of Science, Technology, Art and the Human Body we analyse the social effects that might result from such a fusion. We may notice that the growing use of technology in Art advances the communication between people, but at the same time separates audiences from performers. Virtual technologies offer illusionistic worlds and exciting experiences but they often alienate the actor from his stage and the spectator from his spectacle. We ask a question: is the merger of Art and the Technology an innocent relation or a dangerous affair?

Keywords:

Cyborg Theatre, Telematic Art, Telepresence, Art and Technology, Hyper-Reality, Stelarc

INTRODUCTION

The term Art, according to the Aristotelian and Platonian theory, refers to mimesis and representation of reality [1][2]. Certainly, the concept of Art has changed during the years. It obtained new meanings related to stimulation of thoughts and emotions, or defined as a medium of expression and communication. The concept of Art became related to the mastering the skills, and the way of communicating these skills is clearly connected to the technologies used by artists. The fact that Art is a product which has to be communicated in order to be seen or heard, in principle sensed by and shared with others in order to exist, may cause many social effects that we should always take in account when we are talking about Art or when we create the Art. The integration of Art and Technology is an unavoidable result produced by contemporary societies in order to satisfy their current needs, the needs which are always cultivated according to their cultural level.

In the beginning of the 20th century, only few years after the birth of the Cinema, the technology of the moving pictures has signified the commencement of a new era in the Theatre and Performing Arts. Artists like Erwin Piscator and Emil Burian [3] used extensively still and

cinematic projections combined with complex set mechanisms, like revolving stages, scaffold stages etc, creating a mnemonic documentary theatre; a modern theatre for its era, necessary for the socio-political situation of those times. This type of the theatre very soon influenced European and American productions. A screen projection became an organic part of the performance. This was a medium that was missing from the theatre stage. The moving image has brought the outside world into closed spaces, expressed the public voice in terms of documentary and replaced the chorus of the Greek tragedy in terms of drama. This new medium reflected the thoughts of an individual character on a stage, the internal world of a personality, illustrated feelings that were impossible to be expressed before unless they were spoken. Only few years later, around 50's, Josef Svoboda projected characters of his play in external locations (*The Eleventh Commandment* in 1950 and *Laterna Magika* in 1958) [4], creating interactivity between filmed and live performers. In 1965 he projected a live relay on the stage with the assistance of a local television channel, connecting the real life performers on the streets, being far away from the theatre, with the action on stage [5].

TELEPRESENCE AND TELEMATIC ART

In 1969, the idea of the Telepresence has already been born. The art and technology associated with Telepresence, later referred as the Telematic Art, came in to connect people who were spread around the world. In Allan Kaprow's project, "*Hallo*" (1969), WGBH-TV[1] facilities were used in order to link four locations in the Boston area [6]. The artist, as the director of the project, could switch from one location to another by changing the channels, whereas people from different locations could communicate with one another. Kaprow wanted to introduce a global medium, interconnecting continents, languages and cultures in one sociological mix. The main message of this project was that somebody could be connected with someone else at a different location without boundaries. Douglas Davis created a live telecast performance, "*The Last Nine Minutes*" in 1977, which was transmitted via satellite to over thirty countries. His main point was to establish contact with his viewers via a TV screen by breaking figuratively the separation that the medium creates between the spectator and the artist. During the same year, Kit Galloway and Sherrie Rabinowitz created the "*Satellite Arts*" project in collaboration with NASA. Distant dancers interacted on the same show. In the beginning they were divided by a split screen and at the end they merged in a third space, not here and not there, but somewhere in-between [7]. At that time the satellite was the only viable medium for transmitting live TV quality video across oceans. The artists focused on transmission delays over long distance networks. They performed a number of tele-collaborative dance, performance, and music scores in order to determine what genres could be supported, trying to assess what new genres would emerge as intrinsic to this new way of being-in-the-world [15]. Only few years later, Kit Galloway and Sherrie Rabinowitz produced the project "Hole in Space". The project was based on similar technologies and was facilitated by a satellite link between the New York and Los Angeles. One evening in November 1980 the pedestrians walking outside of the Lincoln Centre for the Performing Arts in the New York City and some others walking past "*The Broadway*" department store in the open air Shopping Centre in the Century City, in Los Angeles, unsuspectingly faced each other via big screens. They could see, listen and talk to each other like they had met by chance on the same sidewalk. The project lasted for three days and brought together friends, relatives and families that had not met for many years. Station House Opera performed "*Play on Earth*" (2006), and many similar ones before, a transcontinental collaborative performance staged on three continents, in Singapore, Britain and Brazil. Three remote places were merged together to create a fourth imaginary world. Three audiences, in each of the countries, experienced the performance simultaneously. "*Projected simultaneously from three corners of the world, a narrative unfolds,*

[1] WGBH-TV is a non-commercial television and radio broadcast service located in Boston, Massachusetts.

immediate, unpredictable and alive" [8]. Cisco high definition video and spatial audio technologies (e.g. Telepresence [13]) brought people from the opposite sides of the world closer to one another via high quality video projections creating realistic illusion of a physical presence in space. Around the same time Paul Sermon's Telematic experiments have culminated in projects, such as: "*Telematic Dreaming*" (1992), "*Telematic Vision*" (1993), "*Telematic Encounter*" (1997), "*Picnic on the Screen*" (2009) and many others. His projects were based on similar technologies, outlining the same idea of the coexistence of people who live apart and they meet in a virtual place. For example "*Telematic Dreaming*" was an installation, facilitated over the ISDN network, which connected two separate locations operated as a customized video-conferencing system. The idea was to enable a visual communication between the users, offering at the same time the virtual pleasure of touching each other in a different, third illusionistic space.

The reason for this retrospection is not to track the historical evolution of the Technology; at least not only that. The purpose of this journey in time was to observe the way in which the Art gradually has been absorbing the Technology and how the relation between the two has reflected the human needs; with artists being the representatives of these needs. We could say that the evolution of new technologies and their integration with art clearly reflects a need for communication. How clear is this, it is a subject for investigation. The introduction of moving images in performing arts was welcomed by the artists of the 20th century, and even earlier, as the big magic of those times (e.g. Georges Méliès). Very soon the dynamic picture was summoned to cover what the theatrical performance could not achieve. And the true is that it succeeded its purpose. What a picture can say, the words cannot describe. The more pictures were projected on the theatre stage, the more and better the information was. Performance art has obtained what had been missing until those times. The moving image was a revolutionary way of communication and it is still very powerful in our days. Soon after, the television appeared to be the new source of entertainment and information. It entered the houses and for sure kept some of the spectators inside their homes. The television screen became the alternative option of the shared spectacle in public places. Maybe at some point it substituted the shared entertainment. The result of this process was a kind of ambiguous one: easier access to entertainment but less reaction to what was offered by the specific medium. The concept of live interactivity in the space between the artist and his audience was just about to be abolished. Certainly the viewer could always press the "off" button, but nothing more than that. And the reaction to that was what we already mentioned as the Telepresence. The artists used the new medium and the means offered by the technological progress to fight back. The need of breaking boundaries, emotional or geographic ones and overcoming any distances with the audience came to be one of the reasons why art, at that time, has adopted this technology as a new means of expression. The merger of art, science and new technologies has already become another reality. Computer Technologies and Internet facilities turned the whole world in to a big community. People were very much connected before their separation. Technology became the interface which brought people together, while art was the provider of experience, emotions or illusions offered to its community. We are just one step before what Baudrillard called a hyper-reality:

> *The play has settled to one from screen to screen. It is almost dialogues between terminals or between different media. In a way it is the medium conversing with itself, this intense circulation, this type of auto-referentiality of media which includes us in its network. But it's somewhat of an integrated man-machine circuit. And at the present the difference between man and machine is very difficult to determine. ... you can never really go back to the source, you can never interrogate an event, a character, a discourse about its degree of original reality. That's what I call hyper-reality. Fundamentally, it's a domain where you can no longer interrogate the reality or unreality, the truth or falsity of something [9, page 146].*

Baudrillard's statement, although it might sounds very heavy, is worth our attention. Maybe things are not always black or white. We cannot renounce the medium in order to find our lost selves or redefine our existence in a newly developed social structure. We cannot refuse the evolution of Art and Technology - a result of the evolution of the contemporary societies. Neither can we deny the importance of the technological development and its contribution to the Arts. There is nothing wrong with the medium itself. What complicates things is the way that technology is employed by its creators and its users. Here we should be concerned about Baudrillard's statements.

The interaction between Art and Technology did not happen only in Telematics. As we know very well, the moving picture and the means that accompanied this technology are only part of the ambiguous mix. We may notice that Art has "insulted" the medium, at the same time using it in order to re-establish the relation between the creator and his/her spectator. On the other hand, Art has developed and continues developing through Technology. Furthermore the artists, who were fighting the medium with the medium, continued using it as a communication tool. Some of them tried to keep the spectator close to their creations by interacting with them (again via monitors), others united their Art and their audiences by connecting people from different continents and others turned the spectator into a mere computer user. We refer here to the spectator and not the audience anymore. We are about to overlook that the term "spectator" refers to one viewer, while the audience is constituted by a number of people gathered in one place in order to share the spectacle.

We are about to stop gathering in public places in order to enjoy a spectacle because there is not such a need anymore. While we, the artists, were trying to keep the contact among ourselves and with our spectators, we created at the same time perfect conditions for the separation and distance between the Art and its audience. Now as the touch can be performed virtually and not physically, it becomes even more exciting since the medium itself is exciting. We are much more concentrated on the means that we use than on the subject. The alienation that we tried so hard to avoid becomes the vehicle of the communication. We have managed to break the walls of the traditional theatre space by placing transparent ones; the screens from which we sometimes cannot get through.

FROM TELEMATICS TO VIRTUAL REALITIES

In our days the realities are under questionable. The real for one person does not always match with the real of the other one. Almost everything is under question and this uncertainty may be a part of our culture. In the traditional theatre we used to talk about the spectator's identification with the character of the play whilst today we can identify ourselves with an avatar, which definitely belongs to us if we need to. We do not have to squeeze in to another real body any more, waiting for a couple of hours for the big moment of Catharsis, which might come or might not. There is always a "Second Life" for us, where all the dreams may come true. "Escape to the Internet's largest user-created, 3D virtual world community". This is how the game *Second Life* (created in 2003), starts. "Who will you meet in *Second Life*? Who will you be? What will you discover? Everything is possible in the *Second Life*. Expect the unexpected. A whole new world is waiting." It is true that the whole concept of the game is a piece of Art. There is no doubt that the fusion of Art and Technology created new worlds, more illusionistic than ever, far from the triviality of the everyday life. This game offers the option to choose who we want to be, the face and body that we want to inhabit, the profession and the society in which we prefer to live in. We can interact with other avatars/friends from the real life via internet. We are allowed to experience relations with them or with others that we would never have the courage to think of in the real life. We can buy houses and live a life not possible in the real world. It can all happen without any danger or risk. We can safely sit in front of our computer playing with our second self. There are some people who spend more time in their "Second Life" than in their real one. It

seems that this amazing game offers the second chance in our first life. It looks like there is an opportunity here to repair one's life. Nevertheless, whoever wants to repair something needs first to admit its damage or malfunction. Whoever chooses to buy a second life is obviously not satisfied enough with his first one.

Creating artificial societies and virtual lives, through collaboration between contemporary art and technology, is one of the biggest achievements with ambiguous significance. Such types of games can offer not only a high quality user entertainment, but can also be a very good research tool for scholars, researchers and business people who wish to experiment on future societies. For example we can derive information about consumer's behaviour, new social trends, reactions to fashion and art, even test innovative working conditions of the employed people. We can use social games as a means of educating or treating people with various disorders etc. In such a way we can statistically analyse results and propose new plans. Such "games" can be used, as it has been done already in many cases, as a unique group analysis engine producing results assorted by country, society, professions etc. The question coming to mind is whether scientists and artists have merged their creativity in order to produce an innovative interpretational apparatus beneficial for our society, or they have offered a pure entertainment mechanism as an alternative solution to our unsecure, stressful and ordinary life. Is the *Second Life* an inventive method for creating better and healthier worlds or it is an escape from our real unwanted ones? Should we reconsider Jean Baudrillard's statement a true one about hyper-realities in which the difference between the man and a machine is difficult to be determined? Have we created a new realm where we can no longer distinguish between the real and unreal, the truth and false of something? The *Second Life* is a perfect computer communication network, which puts thousands of people behind their computer screens, interacting with each other without any need to meet with one another, simply because none of them really exists and most of them would like to exist as an avatar. Many young people spend hours and days in front of their screens entertaining themselves by manipulating their second self in "Second Life". They would not interrupt this kind of pleasure if they did not have obligations and duties that their real life requires them to perform.[2] We may wonder if there is any reason for someone to abandon such a game if one did not have to face the functions and needs of one's real body. The hunger and the reproduction are only two of many basic human needs. We may also wonder what kind of societies would be created if *Second Life* existed in reality as our "Second Chance". What kind of attitudes would we develop? Would we create a world similar to *Matrix, Gamer* or *Surrogates*? These movies demonstrate and illustrate ideas of aggressive control, not only over our own doubles/avatars, but belonging to others; avatars coexisting in the same world. How much can the fear of death influence development of our attitudes in our real and virtual lives? How much does the virtual life represent the real one? How difficult is it to accept the deterioration of the human body ... and the technological one as well? As we well know the machines can break down, fail to function properly, malfunction etc. There are viruses, created by humans that could totally destroy our artificial bodies. Hence, if we had a "Second Chance", would we create a better place for living or would we duplicate the real one, just by adding more technology into it? What would become of us, the humans, if we were offered a "Second Chance"?

CYBORG PERGFORMANCE AND THE IDEA OF BEEING A GYBORG

Stelios Arcadiou, known as a Cyborg artist, may be able to offer an answer to the questions we have asked before. According to him, as the body becomes obsolete we need to reposition it from the psycho realm of the biological sphere to the cyber zone of the interface, extending it by shifting from its genetic containments to an electronic extrusion. He claims that theories

[2] Research in the University of Peloponnese, School of Fine Art, Department of Theatre Studies (2009), shows that seven people out of ten agree with the above statement. Young people seem to have more fun in their virtual lives than in their real ones.

regarding evolution of species and gender distinction can be remapped and reconfigured for the alternative hybrids of the human and the machine. Hence an old-fashioned metaphysical distinction of the soul versus body and mind versus brain can be replaced by the disconnection between the body and species as the body is redesigned and diversified in its form and functions. Arkadiou believes that as the old and often arbitrary psycho–analytical methods are exhausted, the obsession with the self, the sexual difference and the symbols will start to subside in cyber systems that monitor, map and modify the body. ..."***cyber–systems spawn, alternate, hybrid and surrogate bodies***" [10, page 456]. As he says:

> "*The question is not whether society will allow people freedom of expression but whether the human species will allow the individuals to construct alternate genetic coding.* ***The fundamental freedom is for individuals to determine their own DNA destiny*** [10, page 457]**.**"

Stelios Arcadiou claims that the evolution ends when the technology starts to invade the human body. By using miniaturized robots combined with nanotechnology we can have the option to become a host for the technology. By augmenting our body with these types of technologies we can enhance our bacteriological population. We can monitor it and strengthen it at the same time [11, page 46]. On the other hand and according to the artist's ideas we could redesign the body by hollowing, hardening and dehydrating it. The example that he is using in order to sustain his argument refers to the process of giving birth. At the same time he proposes a way to extend life or to avoid death. He notes that nowadays it is possible to create life outside the woman's womb. We can fertilize the egg outside the body and re-implant it. Medically we could even sustain a foetus outside of the body. In this way, technically there would be no birth and the life would no longer begin with birth [11, page 44]. He continues that if we are able to change or replace malfunctioning parts of the body with other accessible components, subsequently there should be no death, except in the case of any unpredicted terrible incident.

Although Stelios Arcadiou's ideas are very intriguing, strong contradictions in his thoughts might be more confusing than encouraging the creation of a better and longer living human body. As the artist admits, the technological invasion of the body will put an end on its evolution. This is a fact that we always assume to be unwanted. Stelarc's argument is very much connected with the idea of extending life and avoiding death. However, by replacing body organs/parts with better ones we want to achieve a better quality of life and not just to extend the length of life of the humans. Various questions arise here. How much can a body live with replaceable parts? How much of the body enhancements can the brain accept? What about the compatibility among all the artificial components and their symbiosis with the brain? We know very well that brain does not work forever and it is structured to accept certain level of stress. It can also malfunction, age and crash similarly to a computer system. What is the next step then? Should we replace the brain when it starts malfunctioning? Even if we were able to do so, how would we replace this part of the body? Let's assume that we could clone our brains and store them somewhere as backups for later use, like spare body parts. In this case we are talking about a total technological invasion of the body. Any further evolution of the humans would be based on digital technologies that may also malfunction. By creating this kind of humans or humanoids we automatically create new social conditions. The existence of the real human beings with the unmodified and hopefully healthy brains would be then absolutely necessary in order to control all the machinery around. This may sound like a Second Life game in which the player impersonates in flesh his Second Self. An alternative scheme would be for humans to control ex-humans or meta-humans.

Stelios Arcadiou's project "*Ping Body*" gives us a hint of what means for a human to control another human. In this project, he included ElectroEncephaloGram (EEG) foe measuring brainwaves, ElectroMyoGram (EMG) for detecting currents associated with muscle contractions, plethysmogram for measuring changes in body volume, pulse meter and the Doppler blood flow

meter. There were also other transmission devices and sensors monitoring the motion of his limbs, which signified his body posture. The performance of his body became a lighting installation, a kind of controlled choreography with movements which were constrained and involuntary. The artist transformed the spectator into a computer user. The viewer was able to remotely actuate Stelarc's body by connecting to his WEB site and stimulating different parts of his body by clicking on his graphic image, an avatar. On the other hand the artist was able to see the person who was activating him by using ISDN links and wearing goggles on his eyes. During the time when the viewer was activating Stelarc's limbs, he was involuntarily composing sounds and images in the performance space. Stelarc's body was equipped with sensors, electrodes and transducers on his legs, arms and the head that triggered body signals and sounds. The body was used as a video switcher and as a mixer that was stimulated by a computer. It seemed like Stelarc has reversed the relation between the human and the machine by being mechanically controlled by his users/puppeteers, who manipulated his body/puppet, involuntarily creating at the same time a unique scenography in space. On the other hand, the system took a control over the user from the moment that the spectator was producing unintentional effects that the performer was not able to control. The "*Ping Body*" was definitely an exciting and spectacular project; being such since it was a human's creation. We like such projects because they use technology in a totally innovative way. We are impressed with the inventive use of the new means, but this does not mean that we are ready to accept these projects as an alternative way of life.

As in the evolution of ideas there is always the next step, we cannot avoid here mentioning Kevin Warwick's opinion about the future human and the future societies. Warwick as a scientist and a researcher has been experimenting with extra sensual experiences by linking his nervous system with computers. He goes further than Stelios Arcadiou, although he also sees human body as something absolutely obsolete and banal. In his book "*March of the Machines*" we can see how a scientist, and not yet an artist, thinks about our future. Kevin Warwick describes the year 2050 like that: our lives will be run by machines and we, the labourers, will have to do whatever they have planned for us to do. There is a scenography at this part, as he pictures the humans, who have very low communication skills, to carry out some work tasks, over rough land or to climb into irregularly shaped spaces.

> "*Physically the labourers are gelded, to cut out the unnecessary sex drive, and brains have been trimmed to avoid some of the human negative points such as anger, depression and abstract thought*" [12, page 22].

The most of the humans are males, or at least they used to be, and there are few particularly strong females that sometimes are used. Human genders have been destroyed and some unnecessary glands have been taken away. All of them look pretty similar. The labourers are not required to worry and by removing such kind of feelings from their brain they need a good eight hours sleep, fortunately during night time, when their vision system performs poorly. Very often when they get near to the end of their useful working lifespan, it presents a good opportunity to get rid of the old stock.

> "*A labourer's working life starts at the age of about 12, having been selected at birth for such a role. By, about 18, labourers are at their peak of usefulness, and by about 27 or 28 they are usually worn out and are taken to incinerator, though some particularly strong humans do last until their 30's*" [12, page 23].

If Kevin Warwick's ideas were staged as a performance or a theatre project we, the audience, would probably choose to identify ourselves with the machines. According to his scenario, they live longer, they are well served by their modified labourers and they are not in the danger of being incinerated when they are about to worn out.

CONCLUSIONS

In this article we present examples of contemporary artistic approaches where technology forms an integral part of Arts. Since artistic creations seem to offer less restrictions than when applied to everyday life, these technologies are used to the extreme interfering directly with human bodies and in turn creating dangers to creating similar changes to the human psychology. We lead the reader from Telepresence and Telematic technologies through to the Cyborg Theatre. We demonstrated through examples of the most representative artists that the fascination with technology may be a dangerous affair leading to alienation of the person as a human being without any guarantee for resolving any inherent faults of the human bodies, like aging and death.

We cannot argue that the presented ideas are not very interesting and going beyond mere thoughts of the individuals, but they become also socio-political statements. For example worlds described by Kevin Warwick resemble those dreamed of by Hitler in the 30s, almost a century ago, in which lower species are to serve the higher ones or, if not sufficiently useful, to be turned into ashes. There is also no need of using the common arbitrary psychoanalytical readings in order to realize that our anxiety about death is possible to turn us into a dead society with totally alienated people. Enhanced bodies can also malfunction, because computer systems malfunction as well. We do not know any computer system that has never crashed, at least until nowadays. There are no guaranties that such a system is ever going to be created, not even in the very far future. We know very well that there are no Gods, especially no electronic ones. Better quality computers or implants can create distinctions between species. They can create the advanced species with good qualities in contrast to the other, lower quality creations that malfunction easier, the labourers. We are talking again about distinction of status. We are coming back to the same societies with even more alienated ex–humans. Furthermore if it is so important to erase the sex from the human body, then why not just stop using it. This sounds very sad that in order to improve our bodies we have first to torture them by operating them and alternating them.

It is true that merging Art with the Technology improves both of them. It is a fact or a necessity that comes from and with the evolvement of our contemporary societies. We cannot stop such an improvement and we should not do it. Creativity and research are the most important components for any progress, cultural and scientific one. On the other hand it seems sometimes that we are losing our goals not only as artists but also as recipients in front of a spectacle. Art has always been related to a process or a product of deliberately arranging elements in a way to influence the senses and emotions [14]. Sometimes Art has been used to refer to any skill or mastery whilst other times this term has been related to the creation of an experience that can be shared with others. In any case, and without trying to create a cast for the concept of Art, we should admit that we are talking about a communication tool; a tool which converses ideas, thoughts and sometimes maybe also emotions. We see technology and machinery as a painter's contemporary brush or as the author's co-narrator. Observing a robot dancing or singing can still be exciting because it is a spectacle created by a human artist. That is one of the reasons that we love puppetry. But the manipulation of a Cyborg, a meta-human or a half human by another human or a Cyborg (it does not really matter), sounds more sad than artistic. It looks more like a technological show than a Performance Art. Such a show can still be entertaining because releases its audience from any emotions as it is concentrated more on the idea of the technological improvement than on the real human and banal world. And at this point we might be diverting from our original goals. We have concentrated on the means that we use instead on what we really want to talk about, if there is anything still to be said as meta-humans.

It might be easier to keep creating art if we are not sure of how to deal with our progress as humans. It might be easier to keep creating illusionistic worlds where we can erase or implant our sex, where we can construct and destroy the whole world in one instant, where we can create our Gods and semi-Gods. And after the show is over we could start planning for the next adventure. This is equally amazing.

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