CONTENTS

INTRODUCTION

The development of communication technologies has resulted in the emergence of media realities. Their appearance has created areas of interaction and inter-penetration of the media worlds and the actual reality. The boundary between these two basic domains of life – the virtual reality of media and the reality of the physical world – has become both the source of and the model for all other boundaries whose existence has been caused or modified by the media. This boundary is neither stable nor unalterable, and it is as much spatial as temporal (although one could claim that it actually goes beyond both space and time, since – as a *sui generis* mental phenomenon – it does not possess these two dimensions but only refers to them). It is a process within which we can observe a constant exchange of qualities, shifts and displacement of positions, changes of values and meanings. Due to its aforementioned mental character it is an intangible boundary in progress, a kind of nomadic concept, which always moves with us and is constantly transformed in time and space, which accompanies us constantly in its inconstancy. It is the environment of the contemporary existence, our world *in statu nascendi*.

The omnipresence of a boundary defined in this way makes for the fact that our life occurs in some kind of inter-spaces and inter-times, in a hybrid world "in-between"; not only in-between different cultures, but first of all in-between reality and virtuality. This can be seen as the new foundation of the invincible polymorphism of reality, one of the sources of pluralism, and the cause of constant ontological transgressions. Alternatively, following Jean Baudrillard, one can also view it as the source of homogenization, and claim that the more often we visit both of those worlds, the more inseparable and indistinguishable they become. Seen from the latter perspective, reality and virtuality combine into qualitatively new realities that have been called simulacra. According to the supporters of that concept, the entities that constitute them no longer have the qualities that would allow us to differentiate between the virtual and the real forms.

Of these two competing viewpoints, it is the former, i.e. the one offering the image of a profoundly diversified world that seems to me more convincing. It appears to be more effective and useful in describing the complexity of

contemporary culture, and it is far more efficient in the analysis of the most recent art. Moreover, the dynamism and flexibility of the boundaries of reality interpreted in this way suggest the perception of these boundaries as a reference system and a system of interrelations rather than the traditional set of stable divisions. Today the boundaries between various spheres of reality are not seen as dividing them, but rather as establishing their interrelations. Wolfgang Welsch has pointed out that the dynamics and intensity of the relations between the actual reality and the media worlds crucially transforms the character of the interacting domains. It leads, on the one hand, to the virtualization and de-realization of the real, and on the other hand, to the revival and intensification of values ascribed to non-electronic experiences of reality. One side effect of the aforementioned processes – besides the multiplication and differentiation of the experienced worlds – is the revilement of the basically constructive character of each reality.

Looking from a different perspective, we can observe that the development of media has brought about the development and transformation of the techno-sphere. Initially it was perceived in opposition to the biosphere. Today, together with the proclamation of the birth of a post-biological world, it is believed that the boundary between these spheres is becoming as fuzzy as the boundary between the actual reality and the virtual reality of media. Both domains have jointly created the biotechnosphere, thus internalising their interrelations and dynamizing their boundaries.

These changes also affect the character of human identity, which takes the open form of a variable process that transforms relationships between the bodily and the mental spheres, between the reality of the body and the virtuality of the imagination. New technologies become the expansions and extensions of the human body, and thus influence the structure of any individual identity. The body itself, its definition, history, its substance and gender also undergo various trans-formations, which consequently influences the way of understanding identity. The human becomes traveller, in all the senses of the word.

The ease and speed of travelling (physical and virtual) makes it possible for the traveller to experience the places that used to be out of reach. On another level, media connect in the experience of their users distant places, elements of various cultures, and diversified contexts. Such an experience becomes a kind of mosaic or palimpsest. On yet another level, contacts, co-operation or even co-existence within virtual communities, the dynamic development of these environments and links between them and the real world(s) deeply change or even undermine the traditional real communities. Tele-work, tele-study, tele-entertainment or tele-sex become significant part of human activities. Human experience changes into

telematic and, more and more often, individual achieves the status of a psychical nomad, which nowadays means both, cultural- and cyber-nomad.

Generally speaking, contemporary nomadism may take two forms. In the first case, the individual can move within a complex and internally diversified reality accepting its discontinuity and diversity as its characteristic features, and interconnecting (or trying to interconnect) the various encountered and seemingly incompatible elements. The product of such activities would be a cultural and ontological mosaic, very fragmentary and with blurred boundaries, but despite its dispersion still paradoxically hanging together and therefore unitary, common to all the subjects of those practices. The richness, variety, processual nature and inherent non-finality of such a world, as well as its relativisation to an individual, shifting perspective of a moving subject does not allow us to impose a universal network of co-ordinates upon it. Each individual in the course of his or her history creates its character spontaneously, since each individual experiences the whole world as his or her own construction.

The other type of contemporary nomadism is connected with the theory of multiple worlds. It claims that an individual, due to the number of the social roles he or she plays, and to their functioning in various actual and virtual realities, experiences reality in such diverse forms that he or she is unwilling (or even unable) to perceive them within the frame of just one system. What is the most interesting about this concept is not its claim that each of us lives in different worlds, but that we usually remain on their borderlines, or even in-between these worlds, and our main object of experience is the multiplicity and variety.

The new quality of the human situation in the world – the expanded and transformed environment in which, as I have already said, the biosphere with technosphere jointly constitutes the biotechnological syndrome – clearly influences the shape of contemporary culture. It introduces numerous forms that together make up a structure referred to as cyberculture.

I understand ‘cyberculture‘ as a multifaceted complex structure that grows out of the social experience of living in a world dominated by information and communication technologies. Cyberculture emerges as a process through which the information and network society can express as well as understand itself. It consists of an internalised layer of newly created patterns, rules and values, and a set of notions and concepts forming together a developing post-biological consciousness; a layer of activities (mostly communicative) that constitute an objectivized expression of the previously mentioned sphere; a layer of the artefacts resulting from those activities; a layer of institutions sustaining and regulating the functioning of the whole, or constituting its extension and expression.

In the emerging cybercultural multimedia paradigm, the aforementioned boundary relations between the material and the virtual aspects of cultural products come to the foreground. The contemporary works of art using media techniques present various types of relations between the material and the virtual spheres. These relations jointly create the paradigm of co-existence, realized either in conflictive tensions or in a balanced dialogue. They also present various forms of existence of both these dimensions. The variety of manifestations of the material element is counterbalanced with a comparable variety of forms of virtuality. Both of those spheres are interconnected in a dynamic relationship constituting the process of balance seeking. Sometimes the former and at other times the latter dimension wins temporary supremacy and determines the shape of the whole. But each such unstable and temporary state ultimately and inevitably dissolves in the flow of constant transformations, and is soon replaced by a new one. Seeking and establishing this temporary and unstable balance has currently become the basic field and objective of numerous experiments in art.

As a result of those experiments, the territories of artistic practices have undergone revaluation, erosion and dynamization. They have turned into a system of interrelations and references, a hybrid processual inter-space, the "world in between". Besides virtual art, and art presented in virtual domains, like Second Life, a particularly interesting form of those processes is contemporary interactive art focusing on the relations between the constantly changing and ontologically opalescent domains, and on their mutual influences, interpenetration and transformations.

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ART AND LIFE IN SECOND LIFE

Abstract

One of the many virtual worlds inspired by the cyberpunk literature movement, Second Life has attracted global attention since 2006 and counts millions of residents today. Aligned with the Web 2.0 trends and considered by many as the best digital life at the present moment, the SL Metaverse[1] gives flow to cybrid processes. Despite not being a complete novelty – since 3D MUVEs (Multi User Virtual Environments) and social networks have existed on the Web for more than a decade – Second Life brings several new questions and possible influences in language and personal relationships that cannot be ignored. The objective of this paper is to briefly explore the new possibilities for expression and interaction provided by Second Life and other virtual worlds on the Web, especially in art, and to present reflections about their probable influence on the future navigation interfaces on the web. Some selected artworks in Second Life will be pointed out to illustrate the paper.

INTRODUCTION

Living and expressing oneself in a world where one can either follow or break the laws of physics is the potential never experienced before by the flesh-and-bones man. Flying, walking under the water without drowning, painting the sky with any color, having the body one wishes, in whatever shape one can imagine (including non-human shapes), being able to dance any rhythm with a simple click, among other things, are possible and common experiences in Second Life (Linden 2007). A place where originally there is no robbery nor rain, where the walls are needed only for the reasons of privacy, where it is possible to teleport oneself between places and pain does not exist, seems undeniably a glimpse of paradise.

[1] *Metaverse* is short for *metaphysical universe*.

However, in order for an avatar to live that freedom in Second Life (SL), his/her physical body needs to be seated in front of a computer in the First Life[2] (FL). Everything seems to be possible and extraordinary, but nothing really exists in SL if there is no physical human body behind it, feeding and supporting the brain in FL. We could say that SL seemingly provides a platform that gives flow to *The Matrix*[3] (Wachowski, 1999) paradox: living intensely while our body vegetates. Some important differences between SL and The Matrix that can be pointed out, at least for now, include the fact that a) the levels of awareness of the humans are different in each platform (since in SL there is a conscious FL behind the avatars); and b) in SL the human energy is not used by intelligent machines to enslave and dominate the humankind. However, as people start living more and more in SL, we might wonder about whether our consciousness in FL will change or not; whether the network that connects us to the virtual world can become a machine whose consciousness would be formed by all of us; and whether we would prefer the blue or the red pill.[4]

In this sense, thinking about the present techno-social context that people are immersed in, Naisbitt (1999) suggests that technology is poisoning human life; people are often absorbing it without filters and this has caused an absence of meaning in our human existence. In the digital society there are increasingly more technological devices like cell phones (now, also smart phones), mp3 players, PSPs (Play Station Portable), PDAs (Personal Digital Assistant), GPS (Global Positioning System), pen drives, and all possible combinations of those gadgets. Due to their small size, good mobility and ergonomics, these devices have become more than wearable and have almost become part of the human body itself, as its natural extensions. The dividing line between the natural and the artificial is disappearing and we could say that the same process happens with the borders between SL and FL.

It is still too early to conclude something deeper about SL or where this road is leading. However, we are already feeling its effects and influences: SL is the 10th most popular virtual world, including online games (GigaOM, 2007). At any given time there is an average of 30 to 40 thousand people connected

[2] We will use here the term First Life (FL) for the physical corporeal life in opposition to the avatar's life in Second Life (SL).

[3] *The Matrix* (Wachowski 1999) – The movie that shows a future in which the world as we know today is, in reality, a matrix (The Matrix), a simulated reality created by conscious machines in order to subdue and use the human population as a energy source by connecting live human bodies to the matrix through cybernetic implants.

[4] Blue pill and red pill – in the movie The Matrix (Wachowski 1999), Morpheus asks Neo if he wants to take the red pill and see the 'reality' or the blue pill and keep in the illusion, inside the matrix.

inworld and a total Linden Dollars Supply of about U$ 20 million (Second Life, 2008).

Therefore, it is important that we understand what Second Life really is before we can analyze its consequences and possibilities. Is SL really a novelty? Is it a Social Network, a platform or a game? Would SL be the future of the Web or our alienation? Is it really inaugurating a new language?

I shall start by talking about virtual worlds and their evolution to Second Life, then I shall discuss SL's main characteristics, and analyze its potential and its challenge for life and art.

VIRTUAL WORLDS & SECOND LIFE

Despite their modern appearance, on-line virtual worlds have existed for decades. Inspired by the 1970s board game Dungeons and Dragons, the virtual worlds started with the players typing in the characters' features and actions. Since then, the constant improvements in graphic computing associated with broadband Internet connections have provided to those worlds an amazing realism and an intense capability of social representation (role-playing). Virtual worlds like There, Active Worlds and Second Life try to go beyond the role-playing to give the participants more power to create their own experiences (*Business Week*, 2006-1).

Second Life is, therefore, one of the many virtual worlds inspired by the cyber-punk literature, particularly by Neal Stephenson's *Snow Crash* (Stephenson, 1993). Technically, Second Life is a 3D Multi-User Virtual Environment (MUVE) on the Web, created by Linden Lab, and was launched to the public in 2003 (Linden Lab, 2008). According to Maney (2007), Linden Lab declared that their goal was to create a world like the Metaverse described by Stephenson (1993): a totally immersive 3D environment where humans interact (as avatars) with each other (socially and economically) and with software agents of the cyberspace, which uses the physical world metaphor but without the physical limitations. Philip Rosedale, the founder of Linden Lab, said that his intention was to create an "extended reality" in SL by building its virtual version (*The Economist*, 2006). SL is totally built and owned by its residents (avatars).

SL has become popular in US in 2006 due to an article in the *Business Week Magazine*, and since then more and more people – business, independent, artistic and all kinds of people – have experienced the virtual world, bringing

to it their aspirations and interactions. Many companies, institutions and brands like Coca Cola, Nike and Harvard University have their branches in SL today. Figure 1 shows the entrance to the University Anhembi Morumbi campus in SL, inaugurated in 2007.

Fig.1. Screenshot of the Univeristy Anhembi Morumbi in Second Life
(s o u r c e: Martha Gabriel)

SECOND LIFE AVATARS

The term *avatar* comes from Hindu mythology to describe a god descending into a human being and taking it over. In virtual environments – like games, chat, instant messengers, etc. – avatars are the graphical representations of a user in that environment.

In SL, avatars are the *inworld* representations of human beings, in other words, an avatar is a human being descending into a graphical being and taking it over. Avatars in SL are not life simulation systems, since they do not need to be fed or taken care of in order to continue being alive. Actually, avatars do not die in the regular life in SL (this could eventually happen, though, inside some games).

All interactions in SL are created and performed by avatars who are the residents of the virtual world. An avatar can be created with the appearance

and functionalities its owner may want, including special abilities like dancing or acting in special ways. The ways in which an avatar can interact include: a) conversations via chats, instant messenger or voice; b) gestures (which range from simple hand waving to complex dancing steps and flip backs); c) movements – walking, running, flying, etc.; d) building all kinds of contents of the virtual world; e) interactions with object scripts or other avatars; f) money transactions; g) teleporting – it is possible, as in the Star Trek TV series, to teleport instantly to another place, regardless of its location; h) taking pictures or filming (machinimas) anything at any time without needing any special devices; i) modifying its (the avatar's) appearance; j) changing several *inworld* configurations (like the sky, which can, for instance, remain always day- or night-like, as desired); k) modifying views and visualizations, for instance from first person (which is the default point of view in SL) to third person (seeing your avatar's front); and other ways of interaction.

SECOND LIFE GEOGRAPHY

In SL the world is a plane. The basic geographic unit in Second Life is an island. The world is formed by islands and water resulting in a rectangular plane world (see Fig. 2). Islands can be bought (today, an island costs about U$ 2,500.00 plus U$ 300.00 by month). Lands, which are fractions of an island, can also be bought or rented. Due to the increase of search in some areas of Second Life, real estate speculation started happening there as much as it happens in FL. Islands and lands can be bough directly from Linden Lab or through auctions *inworld*. The owner of an island is like its king and has the power to define what kind of interactions and rules apply to his/her island, including geography, weather, avatars' behavior (for example, allowing them – or not – to create objects, to fly, etc.)

Despite the technical limitations[5] that still exist in SL, it has become a success among some clusters of people and there are already speculations, according to

[5] There are some technical requirements in order to access Second Life and use it properly. First, it is necessary to install a client software in the user's computer to access SL. Second, due to the intense 3D graphical renderization processes, the computer that accesses SL needs to have a good processor, large RAM, and, if possible, a video board, otherwise the navigation in SL becomes too slow and the computer crashes frequently. Besides that, although the functionality of talking via voice has been made available for more than one year now, people still communicate predominantly via text, which means, via tiring typing process. Furthermore, if one wants to create more attractive interactions and visuals, it is required that he/she knows programming languages, and it is one of the most critical limitation for users, since laic users don't program, just use the virtual environment.

Roush (2007), that the platform will integrate with Google Earth, forming what would be called Second Earth in the future.

Fig. 2. Visualization of some islands in
(s o u r ce: screenshot taken by the author in July/2007,
using the mapping system in DIGITAL URBAN 2007)

SECOND LIFE ECONOMY

Economy in SL is based on the currency called Linden Dollar. Today, one American Dollar (U$) equals 270 Linden Dollars (L$). In Second Life money has the same uses as in FL: you make your clothes or you buy them; you build your house by yourself or you buy it or hire someone to do it for you, and so on. In order to live in SL it is not necessary to have money or properties, and creating an avatar to participate in the world is free. However, in that situation people are constrained in terms of what they are allowed to do or build *inworld*, since they are always subject to the rules of the islands they are on at the moment.

People can either put money in or cash money out, their avatars use credit cards through the Linden Exchange (LindEx) area in Second Life website. It allows one to freely circulate money between the SL avatar and the FL person. Due to the non-existence of taxes or money circulation control inside SL, avatars can also freely transfer money to each other *inworld*, and cash it out without any control by the actual countries in FL. This has caused some concern and measures in the FL economy to prevent opportunities for money laundering.

Unlike other virtual worlds that allow the participants only to combine pre-existent artifacts *inworld*, SL provides for its residents something equivalent to atoms that permit them to build things from scratch. The avatar that creates an object gets its intellectual rights and determines whether it can be copied, modified or transferred. Thanks to those rights, residents (avatars) can negotiate their creations *inworld*, boosting both creativity and SL economy (*The Economist*, 2006).

Linden Lab does not sell advertisements in SL. Their business model is related to virtual real estate and they earn money when residents buy or rent properties. All advertising *inworld* is created by the owners of the lands in their own areas, as it happens in FL and all the Web and digital world as well.

LIFE IN SECOND LIFE

Although SL offers some new ways of interacting, creating things, and dealing with money, one could not say that it is a complete novelty. 3D platforms and avatars have existed for more than a decade in games and for many years on the Web. The possibility of earning and losing money negotiating with virtual

inworld money has existed before too, for example, in the MMOG (Massive Multiplayer Online Game) Raganarok, which appeared on-line on the Web in 2006 and today has millions of users. Virtual social networks like chats, IRC, Firefly (1996), also have existed for more than a decade. In this sense, we could say that in reality SL is a mix, a compilation of everything that already exists – games, economy, social networks, etc. – exactly as our FL. What is more, life in Second Life not only resembles the life in First Life, but can also affect it and be affected by it (as it happens, for example, with the money transfer processes mentioned above). Due to that, I believe that Second Life initiates a new engaging way of interaction.

There are some important aspects of the life in SL that I shall discuss next.

First, SL inaugurates a 3D social network on the Web that liberates its users from their physical behavior and appearance in First Life: in SL people can choose their shape and appearance (but they can look as they do in FL if they wish), with any desired (programmable) functionality. Identity exploration is one of the main aspects of SL, since it is good for learning, as reported by Gee (2003). In addition to that, according to Gibbs (2005), "Many aspects of visual and motor imagery share a common representational and possibly neuro-physiological substrate", and "people's subjective, felt experiences of their bodies in action provide part of the fundamental grounding for language and thought."

Comparing SL with other digital social networks – like Orkut, Facebook or MySpace, for example – we can say that SL adds several extra layers of social interaction, like the possibility of a) synchronic real time conversations and interactions; b) owning any kind of digital properties (like avatar accessories, lands, objects, cars, scripts, etc.); c) having a "space" where one can move and interact (different from only having a page); d) physical movement of the avatars to experience the world, sometimes in ways that cannot be experienced in FL, e.g. completely changing one's body or flying, among others. Considering Naisbitt's (1999) discussion about technological intoxication and the way it can affect the sense of meaning in life, SL may be paradoxically representing a technological opportunity for the humanization of virtual worlds due to the possibilities of self-expression it allows, thus increasing its "high-touch" potential.

The essence of Second Life is social life. The most popular events in SL are the ones that involve a social component – dates, shows, parties, classes, etc. Unlike the 2D social networks, in SL people not only show their pictures, they "are" their avatars, expressing themselves completely through them. The

identification with the avatar can be so strong in SL that people spend their New Year's eve there, they date and get married to other avatars, and sometimes they spend almost all of their waking hours *inworld*, really living there. This is similar to what happens in games – there are reports of people who died having overdosed on playing or killed themselves because of bad results in on-line games, such as World of Warcraft or Raganarok (Sathe 2005), for example. However, Second Life is not a game[6] – nobody is chasing anybody and there are no predetermined rules or objectives as in a game. In SL, there are as many individual objectives as there are residents (avatars) *inworld* and this makes the environment much more complex, interesting and attractive, much as it is in FL.

We could compare the SL environment to a playground environment. A playground allows for interaction with other people, the choice of the type of play, engagement and participation. Nobody goes to an amusement park to compete or win something, and the more possibilities of playing the park offers, the more attractive it becomes to different kinds of visitors. The concept of Second Life is completely in sync with the tendencies on Web 2.0[7]. In the same way as in YouTube, Flickr, Twitter, and any other participative platform, SL allows its residents to create all the content *inworld* and share it with others, participating in it in many ways, providing search, landmarks, etc. In this sense, in SL the residents create their own "amusement park", therefore the options for different types of interaction and participation are limitless and can draw all kinds of people, not restricting the public.
Another factor to be considered in SL is that the balance between following and breaking the laws of physics can make the environment much more attractive than if it were only possible to **either** break those laws **or** follow them. This provides the surprise effect of never knowing what can happen, as in science fiction stories. One never knows if something or some place *inworld* follows the laws of physics or not, and this makes the action or interaction more experimental than in FL.

I believe that the third factor affecting our relationship with SL is its cybrid nature. Cybridims are potentialized in SL. According to Beiguelman (2004:1),

[6] According to Jull (2001), games need to consider the following elements: 1) game objective, 2) procedure for acting, 3) rules that control the action, 4) number of participants that are necessary, 5) participants role/function, 6) results or revenge, 7) abilities and capabilities needed to act, 8) patterns of interaction, 9) physical preparation and environment requirements, 10) needed gear. In SL there are no objectives, results to reach, specific required abilities, patterns of interaction, etc. Due to that, games can exist inside SL, but SL itself is not a game.

[7] Web 2.0 is a term created by Tim O'Reilly in 2003 referring to the second generation of communities and services based on the Web – like social networks, wikis and folksonomies – that eases the collaboration and sharing among users (O'Reilly 2003).

"the human body has become a set of extensions connected to a cybrid world ruled by the inter-connections between the on-line and off-line systems", and also, "in the same time that those bodies are diluted in a noncorporeal mass made of information, this same mass of data duplicates its experience as telepresence and physical presence." In this sense, the actions and existence of a person in SL are the extensions of his/her FL and the on-line and off-line experiences complement each other, broadening the person's field of activity. To exemplify that, we could point to the Fabjectory (2007), a company that creates the figurines of the objects and avatars that exist in SL, transforming those digital beings into physical and tangible objects in FL. Another very interesting example that shows the convergence – through cyberspace – of physical and virtual places is the art exhibition Mixed Realities (Torbulence, 2008).

The interaction and influences between the on-line and off-line worlds are changing our life in such a way that we could talk about living a more and more "digital life" simultaneously with a "life digital" (Iskold 2007), and it is getting harder to see the dividing line between them since a) more simulation and digital devices and extensions populate our physical life (digital life) and b) we spend increasingly more hours of our day in the realms of the digital and of simulation (e.g. in SL, Web, digital games), bringing life to the digital (life digital). Some interesting examples of that strong link and connection between the on-line and off-line worlds are: a) the robbery of U$ 10,000.00 that occurred in 2007 via SL Linden Dollars exchanged into US money (Meglio 2007), and b) the impact of the economic crisis in the off-line world, causing recession in SL economy in the beginning of 2008 (Holyoke 2008).

Another important aspect of SL that I would like to ponder here are the simulation functionalities in this world, which give a new dimension to language. These functionalities include flying, teleportation and several kinds of visual capabilities available to avatars – seeing through walls, seeing far-away details, seeing their own face (without a mirror) with just a click. I believe that those capabilities in SL influence and affect the language and behavior *inworld* and also that they will tend to affect and influence the language in the whole Web and in FL, too. In the same way, the overtaking of ICQ by MSN and other instant messenger systems ten years ago gave rise to instant messenger language, still used today and influencing people's everyday language. However, although the impact of the virtual worlds on society can be easily observed, it is still very recent, and in order to evaluate the extent to which it will develop, we will need more precise studies and research on the subject.

Finally, based on the above remarks, I believe that the key aspect of SL is that it can give bigger power to the individual than he/she now has in FL. This will include: a) the power over himself/herself (appearance, movements, views, etc.); b) the power over the environment; c) the power not restricted to the virtual environment (due to the process of cybridization) and; d) the power also allowed to non-experts, which is very important for going mainstream.

REALITY IN SECOND LIFE

In Second Life there is no rain, no robbery and no gravity; people travel by teleportation (not flying or driving), communicate via instant messages (not cell phones) and can have any kind of bodies, among other things. So, why do most people create useless or limited objects *inworld*, such as cars, cell phones, houses on land, regular human bodies and body accessories? Why not live in the skies or under the water?

As it happened, in the beginning of the Web, most people reproduced in Second Life their world and aspirations from their First Life, as a small child does when he watches the same movie repeatedly in order to make sure that she/he has control over it and knows all its details, and so he can feel safe. This pattern usually occurs when new technologies emerge – a leap into the new is accompanied by concessions to the old. Jacob Nielsen once said in his keynote address of a session I was attending that "for each new technology that is born, the ideal situation would be if everybody died, so that people who would use it wouldn't be attached to any previous paradigms", in other words, no concession to the old would be necessary. Yet today, the most common patterns of constructing the world of SL still involve the representations of big houses, fashion cars, beautiful human bodies for the avatars, exact replicas of offices and cities from the First Life, islands named after the continents and countries of the Earth. Analyzing the SL environment as a cybernetic system, in the beginning, when people simply repeat *inworld* what they were already familiar with in FL, we could say that this is very similar to the first phase of cybernetics, repeating the trivial machines: one enters a new world, but expects it to behave like the world one knows already, without unexpected objects.

However, after some time, some people start experimenting beyond that in order to use the new potentialities offered by the world. As people realize the possibilities and start using the new language, and building the system, the environment – they step into the second phase of cybernetics. As Wittgenstein

rightly observed, "If we talked a different language, we would perceive a quite different world." For example, in SL, at this level of interaction, people add elements and functionalities to their avatar bodies that cannot exist or would be impossible in FL, like having a body that works like a cannon below the waist and like a human body above the waist – a kind of a cybernetic Minotaur. In that phase, people start asking such questions as "If we can fly in SL, what do we need a car for?" or "If we can walk under the sea, why don't we produce a show down there?" or "If my body can be a medium for streaming video, why should I use fixed banners anywhere?" Surely in this phase, stability is no longer a guarantee for survival, and so, as was stated by Laurentiz (2007), "besides being able to keep stability, a 'live' system also needs to be able to modify its basic structure in order to adapt to the changed situations provoked by the environment, or else it should rely on the possibility of transition to a state of larger complexity." In that second phase of cybernetics, the feedback processes occur and patterns emerge in the systemic structure in an intense and determined way, imposing themselves on the system's components and objects (in the case of SL, on the avatars and the environment). The creative element is introduced: communication incorporates intentionality, we invent the environment, the information emerges when rupture happens. According to von Foerster, there is no a priori information in that state, but it is created from intentionality (Marcondes, 2006).

Focusing on the question of reality, in cybernetics, according to Marcondes (2006: 38), "instead of reality, there is calculation." We create our reality in our mind and we control what we perceive. In Second Life, reality is – literally – calculation, and it is interesting to note that despite SL being a programmed world (which depends on hardware and software as much as on people) and allowing truly new operations, the power relations within it seem to remain the same as they have been since the beginning of human history. In SL, everything you use or have must be produced or bought by you. Producing is time- and effort-consuming and requires knowledge – it is necessary to learn programming language, then to program and spend time modeling and rendering objects. Buying requires money. Therefore, in order to get anything is SL, one either has to have technology to be able to produce things or has to have money to buy them. Without one or the other, a person cannot become part of the power structure in SL, just as he/she could not do in FL. Also, in SL there is an oligarchy which invented this model of the world and rules over it – the Linden Lab. Nothing could be more like the FL.

Considering the participatory processes in Second Life, where avatars are created by their equivalents in FL, it seems that Heinz von Foerster's statement in *Short Cuts* has become literal too: "Now there is the possibility of changing

the world, the universe, by changes in my body, my gestures" (Marcondes 2006: 33). Still, according to von Foerster, "the world is neither true nor false, it is what it is, and it only transmits signs, pure intensities", and "there is no external reality, it is our brain, through its calculation procedures, that establishes it to itself." It can perhaps be much easier to perceive that our reality is created by our mind when one lives in Second Life rather than in the First Life, which has always existed for us. First, the world in SL only begins to exist when we decide to create it – even to enter *inworld* we must create our avatar and then the reality that is presented to us, depends only on us. It is interesting to note that in spite of the fact that quantum physics has dealt with this very issue in FL for decades, it seems that we are experiencing a period of awareness now, when a critical mass of people learns about those ideas and becomes interested in them. The movie *What the Bleep Do We Know?* presents quantum physics in such a simple way that despite being a documentary about a very complex subject, it has become popular and has attracted a large audience. The movie shows the essence of quantum physics, i.e., its assumption that everything is waves, possibilities, and it is the observer who transforms a possibility into reality, particularly through his/her observation process. This resembles the case of the virtual worlds.

ART IN SECOND LIFE

Due to the special characteristics of the SL platform discussed above, some activities are favored by the SL environment, e.g. design, architecture, programing, modeling, teaching/learning, and art. SL provides a rich environment that allows either the reproduction of traditional art or interesting experimentation, possible only *inworld*. There are several galleries in SL that present art in traditional style, like .gif images to be used on the residents' houses. However, there are also galleries, such as the Throwing Stones Gallery and other spaces that promote interactive installations in SL, allowing for the exploration of the new possibilities and potential that the environment provides.

Besides the search tool *inworld*, some blogs and magazines, like SLArt (2008) present the art activities *inworld*. Some artworks that exemplify the new potential are *A Rose Heard at Dusk*, by Adam Nash; *Abyss*, by Sunn Thunders and Rezago Kokorin; *FlowerBall*, by Douglas Story et al; *PleaseWakeMeUp Idler*, by Sasun Steinbeck; *Lumiere Noir's exhibit*, at SL4B; and *SKINdoscope SL*, by Martha Gabriel (see Fig. 3).

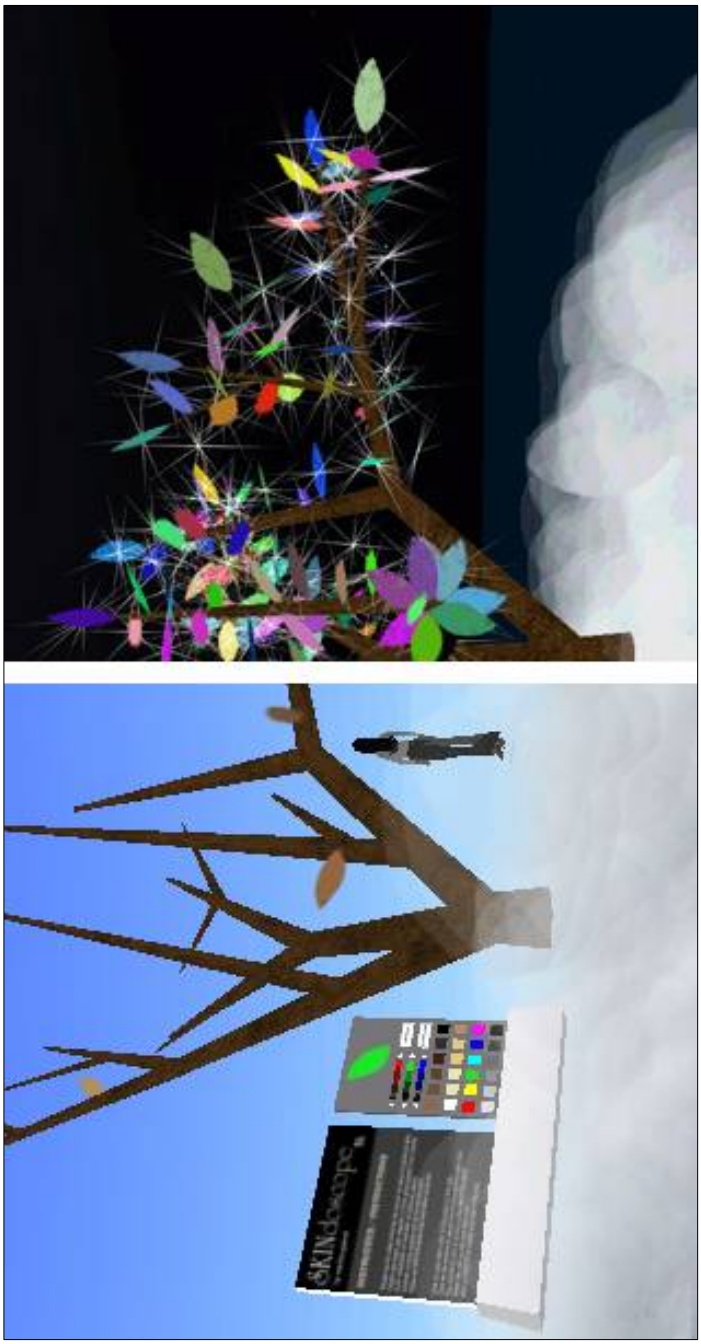

Fig. 3. Screenshots of the artwork SKINdoscope SL (s o u r ce: Martha Gabriel)

For example, the work entitled *SKINdoscope SL* (Gabriel 2007) explores specific possibilities that can be experienced only in a metaverse. Using the skin color, the work builds an interactive tree in Second Life, where each person who interacts with it creates a leaf with his/her skin color. The poetics and visual results are formed by and depend on the relationship between the leaves and their colors, in a game of alterity and identity. Since the interacting person can choose the color of either his/her body or of the body of his/her avatar, *SKINdoscope SL* – a digital work – reflects the data from co-existing physical and digital lives. Also, the tree produces L$ 1.00 coins for each 10 new leaves created and the coins can be taken by any avatar that touches them. The coins represent the richness of people's interaction and their diversity. This ability to grow money on a tree is only possible in the digital realm, but it has extensions in the FL, in a cybrid process. Since this digital money can be used in FL too, the digital and the physical mix again. In this context, the work intends to lead the participant to reflect on the questions of the poetics of alterity/identity and the interpenetrations of the physical and digital lives through a metaverse.

Producing coins in any digital realm is easy, but "spending" the money in a way that does not interfere with the flow of the artwork is not. In Second Life, this only requires a touch, a click – simple like that. If this same financial transaction was to occur in a Web-based artwork, the process of money transfer would need to stop the flow of the artwork. Another peculiarity is that the tree is on a cloud in the sky. Since flying is very easy for avatars, a cloud is a better place for locating the work than regular land contiguous with other lands.

Another interesting example of experiencing art in new ways is the *Lumiere Noir*'s exhibit. The artwork at SL4B is a large scale labyrinth. Many people are afraid of physical large-scale mazes due to their fear of getting lost or claustrophobia. In SL, an avatar can always fly or teleport himself immediately if he feels insecure. These possibilities certainly open new channels for the experiences and sensations that we might not be able to have in FL, but can try in SL.

CONCLUSIONS

Although in some ways SL is not a novelty, as mentioned above, in other ways it initiates a new way of interaction.

On the other hand, there are still several limitations that prevent the language of SL from becoming mainstream, e.g. the need for appropriate hardware, the lack of access *via* a Web browser, and the lack of social control. Although these limitations are likely to be overcome in the near future, we are not able to predict if SL will keep on existing or not. Maybe other virtual worlds will become more popular or even replace it.

It is important to highlight that the thoughts and discussion presented here are only the tip of the iceberg of the virtual worlds and the intention of this paper is to instigate more reflections and questions about the influences of those worlds on our daily life and about the present and future possibilities that they hold. As claimed above, virtual worlds are not a complete novelty and much of the pre-existent studies and research on immersive environments, learning environments, computational interaction, among others, can be applied on a certain level to virtual worlds too. On the other hand, it is very important to note the uniqueness of those worlds due to their specific mix of technological possibilities and functions, as present e.g. in SL. There are also some difficulties to consider, e.g. the need for the user software which separates the virtual worlds from the rest of the Web that can be accessed directly via a browser. Those difficulties limit the access to those worlds and surmounting them could become a leap allowing for a simpler form of navigation on the whole Web, both on websites and in MUVEs.

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SZTUKA I ŻYCIE W SECOND LIFE (streszczenie)

Second Life, jeden z wielu światów wirtualnych powstałych z inspiracji literatury cyberpunkowej przyciąga globalną uwagę od roku 2006 i liczy obecnie już miliony mieszkańców. Powiązany z ogólnym trendem Web 2.0 i uznawany przez wielu za najciekawszą obecnie postać cyfrowego życia, metavers Second Life nadaje impet współczesnym cyber-środowiskom. Pomimo tego, że nie jest kompletną nowością – trójwymiarowe wirtualne środowiska dla licznych użytkowników i sieci społeczne istnieją już w Internecie od ponad dziesięciu lat – Second Life stawia wiele nowych pytań, jak również posiada wpływ na język i relacje interpersonalne, którego nie należy lekceważyć. Celem tego artykułu jest analiza nowych możliwości ekspresji oraz interakcji dostarczanych przez Second Life i inne światy wirtualne ulokowane w Sieci, szczególnie w odniesieniu do sztuki, jak również podjęcie refleksji nad ich możliwym wpływem na przyszłe nawigacje w Sieci. Kilka wybranych dzieł sztuki w Second Life ilustruje podjęte tu rozważania.

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INSTANTANEOUSLY MEDIATED VIRTUAL VISIONS: THE TRANSMEDIA CIRCUIT OF IMAGES, BODY, AND MEANINGS

Abstract

Media interactions, based on a mix of visual iconographies that are complex and highly mediated, are often presented within a remediation framework as the product of immediacy exchanges between the object and the viewer.

Within these media structures that are in flux between the real and the virtual, the transitional remediation concept of old media to new media by Jay David Bolter and Richard Grusin is not sufficient to explain the interactions between technological structures, creative behaviors, emotive interactions and images. The over-layering processes and hybridizations between media that create new languages and sublanguages, both textual and visual, generate new recontextualizations that blend and blur the boundaries with the concept of "body" as a media language which also acts as an emotive filter and reflects upon the methodological media engagements characterized by immediacy as well as hypermediacy, social issues of instant-aneousness, biofeedback responses and dromology.

The article will conclude by discussing the necessity to recover the meaning and the emotive aspect of the interpretations and representations of the concept of reality and virtuality, together with their mythological and social implications. It will support the research for a new circuit of meanings and emotive interactions that offers an evolutionary space for the remediation of the form as well as transmediation of the content within the context of contemporary new media platforms.

INTRODUCTION: THE INTERPRETER BETWEEN OLD AND NEW VISIONS

The contemporary visions and constructions of the world based on virtual imagery and their relationships between reality,[1] visual images and the

[1] The concept of reality is constructed on the Parmenidean philosophical idea of "unknown-able perfect truth." Parmenides of Elea, *Fragments*, trans. D. Gallop. Toronto: University of Toronto Press, 2000.

identification of the self are increasingly built upon the digital processes of alteration and multi-layering of the real. These processes generate a visual iconography which is complex, mediated and often a product of an "immediate" exchange with the object analyzed or processed. Peter Weibel explains that these "free-floating chains of signs, be they images or texts, are interwoven to form a universe without a center."[2] The interrelations do not happen in a vacuum, but in a societal and personal context that feeds into itself: altering, layering and reconstructing the modalities of perception.

> Not only does an object present different Abschattungen (or profiles), but also different points of view are available by way of the same Abschattung. In order to be defined, the object must be related back to the total series of which, by virtue of being one possible apparition, it is a member. In this way the traditional dualism between being and appearance is replaced by a straight polarity of finite and infinite, which locates the infinite at the very core of the finite. This sort of "openness" is at the art of very act of perception. [3]

It is a complex media web structure where the transitional model from old media to new media is not sufficient to explain the interactions between technological structures, creative behaviors and images as a process of remediation. The concept of remediation worked out by Jay David Bolter and Richard Grusin is presented within the context of a digital medium that "wants to erase itself."[4] What Bolter and Grusin do not mention is the overlaying process and hybridizations between media that create new languages and sublanguages, both textual and visual, that generate new recontextualizations.

A cinematic example of this process of layering is offered by Pier Paolo Pasolini's film *Medea* (1970). In this film Pasolini, through the figure of the Centaur and the ensuing dialogue with Jason, analyzes the issues of mythological realism, visual constructions, overlaying of meanings and immediate and mediated relationships. The analysis happens within the structure of a cinematic dialogue that refers to the process of transformation and subsequent incommunicability between new forms of representation and old mythological forms of representation, which necessitate the technological mediation of a translational language to engage with the new structures and the audience's new aesthetics. In Pasolini's film it is the New Centaur that mediates between the audience, represented by the adult Jason, and the old

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[2] P. Weibel, "Expanded Cinema, Video and Virtual Environments", in *Future Cinema: The Cinematic Imaginary After Film*, ed. Jeffrey Shaw and Peter Weibel, 121(Cambridge, MA: MIT Press, 2003).

[3] U. Eco, *The Open Work*, trans. Anna Cancogni. Cambridge, MA: Harvard University Press 1989: 16.

[4] J.D. Bolter and Richard Grusin, *Remediation, Understanding New Media* (Cambridge, MA: The MIT Press, 2000), 45.

mythological structures represented by the Old Centaur. If Jason as a child could speak directly to the representational forms of reality and engage with them by talking directly to the Old Centaur, as an adult, Jason is both a subject and an object shaped by technological developments that necessarily need, according to Pasolini's interpretation, the mediating structure of the new media/New Centaur to speak to the Old Centaur.

The relationship between the Centaur and Jason, in Pasolini's film *Medea*, is played in two parts. At the beginning of the movie it is characterized by non-mediated perception; Jason is in fact an innocent child who can speak directly to the Old Centaur. Later in the movie Pasolini adopts a mediated comparative strategy, bringing on screen a second Centaur as the representative of a rational mind separated from the mythological and unable to speak to the Old Centaur without the decoding intercession of the New Centaur.

This scene represents how human engagements with old structures necessarily undergo a process of "technological mediation" through a series of linguistic and new aesthetic formulae of visual language that have become, according to Pasolini, a complex overlaying burden that eliminates direct translation. Pasolini builds a construct for the necessity of a mediated society wherein the process of transmediation is not just a phenomenon of translation of context but a continuous referential and mediation between audience/artist, old media and new media, or as in Pasolini's *Medea* between Jason, the Old Centaur and the New Centaur.

The link between the theoretical cinematic analysis presented by Pasolini in *Medea* and the contemporary new media structures is perhaps best resumed by the conflicting visions of mediacy and immediacy. In contemporary new media representations within the remediation process, the struggle between "transparent immediacy" and "hypermediacy"[5] represents the struggle of the audience, Jason in Pasolini's case, to achieve a new media existence through transparent immediacy. The audience struggles to reconcile with the effacing of the mythological visions, while at the same time it attempts to understand the effects of the remediation process, through hypermediacy, on the aesthetic mythologies of old media.

This impossibility of the audience to connect directly with old media without the mediation of new media necessitates a translation of the content, an aesthetic transmediation, in order to bring from the subconscious back into consciousness the hypermedia processes of contemporary media technologies.
In his analysis of contemporary technology, Bolter explains the disappearance of the medium by stating that "[i]n this media-filled world, the wire itself is the

[5] J.D. Bolter, "Remediation and the Desire for Immediacy," *Convergence* 6, no. 1 (2000): 62.

ultimate mediating technology, despite or indeed because of the fact that the wire is designed to efface itself, to disappear from the user's consciousness."[6] Pasolini, arguing for the unity of form and content, evidenced the issue of subconscious presence and the necessity for the mediating technologies to operate as translators of mythological realities.

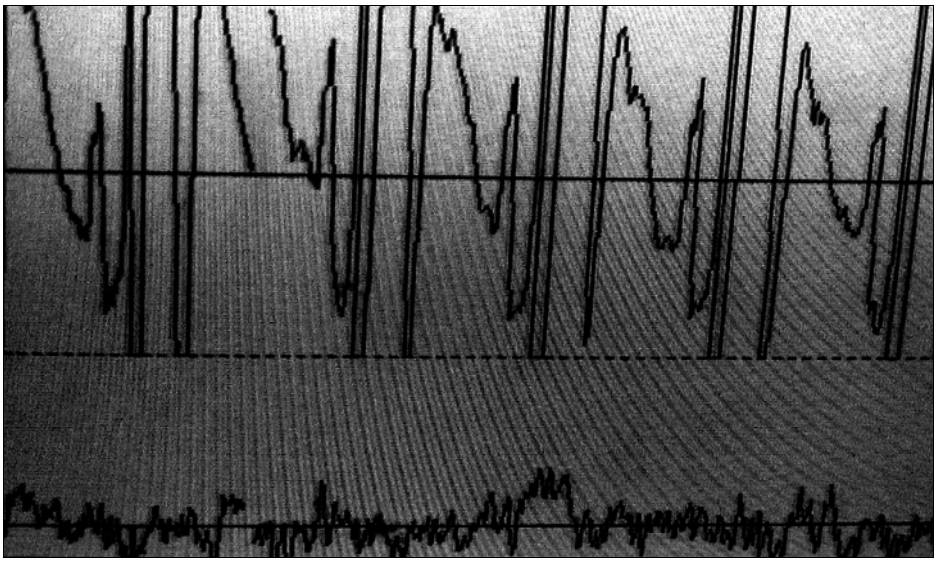

Figure 1. Lanfranco Aceti, *The Land of Senses, Lanfranco*, digital print from biofeedback from virtual reality environments, photography and ink, 2005.

Jay David Bolter and Richard Grusin identify the causes of the remediation process in the media's need for immediacy in engaging with the public, discarding the contribution of meaning in the operational frameworks of media technology. Hypermediacy, as a form of engagement with media representations is made to disappear from consciousness. But their brand of immediacy appears to be of a different nature from that referred to by Pasolini. For Bolter and Grusin it is the immediacy of the artificial construct in creating an immediate and spontaneous style,[7] for Pasolini it is the immediacy of a direct perception of the poetical and mythological realism of human existence resurging from the subconscious.

[6] Ibidem, 63.

[7] J.D. Bolter and R. Grusin, *Remediation, Understanding New Media* (Cambridge, MA: The MIT Press, 2000), 9.

> The truth is that cinema, in the very moment in which it established itself as a new "technique" or "genre" of expression, also established itself as a new technique or genre of escapist performance, with a number of consumers unimaginable for all other forms of expression. This means that it immediately underwent a rather foreseeable and unavoidable rape. In other words, all its irrational, oneiric, elementary, and barbaric elements were forced below the level of consciousness; that is, they were exploited as subconscious instruments of shock and persuasion.[8]

Either as a process of exploitation, as described by Pasolini, or as a quest to create and achieve a sense of liveliness, as envisaged by Bolter and Grusin, the contemporary transmedia engagements between old and new media are characterized by a process of commixture, hybridization, borrowing and appropriation.

THE INSTANTANEOUS DESIRES OF NEW MEDIA

The process of engagement between old and new media is characterized not only by the desire to achieve a degree of transparency and therefore effacement of the medium, but also by the constant borrowing between old and new aesthetics and media technologies.

Bolter and Grusin write that "[t]he desire for immediacy leads digital media to borrow avidly from each other as well as from their analog predecessors such as film, television and photography"[9]. If remediation is the operational framework to achieve the goal of transparency based on the desire of the audience, then the existence of an alternative phenomenon – characterized by hypermediacy as the desire of the audience for the visibility of the media framework – can also become a framework for decoding and interpreting the process of presenting old media boxes in new media boxes.[10] Although immediacy can be characterized by remediation within digital media for the sake of transparency, the necessity to understand the recontextualization process of old media within new media generates the need for hypermediacy. The relationship between immediacy and hypermediacy is not necessarily that of exclusion, but it may represent a phenomenological evolutionary structure that, by remediating the

[8] P.P. Pasolini, *Heretical Empiricism*, ed. Louise K. Barnett, trans. Ben Lawton and Louise K. Barnett (Bloomington and Indianapolis: Indiana University Press, 1988), 172.

[9] J. D. Bolter and R. Grusin, *Remediation, Understanding New Media* (Cambridge, MA: The MIT Press, 2000), 9.

[10] P. Greenaway, "Cinema Militans Lecture: Toward a Re-invention of Cinema," *http://petergreenaway.org.uk*, September 28, 2003 http://petergreenaway.org.uk/essay3.htm (accessed July 1, 2008).

old, represents the problem of reinterpreting how old meanings and media relationships have been affected by new technological developments.

The desire for immediacy leads not only to borrowing but also requires the reinterpretation of the changes induced into the meanings by the process of remediation. The consequence is the audience's need to reinterpret the new meaning of the old medium and its aesthetics within the new media context. What does the transfer of meanings in a remediation process represent for the viewer when there is never total equivalence between "the experience of seeing a painting in person and on the computer screen[?]"[11]

It may not necessarily be the remediation process and its desire for immediacy that leads digital media to borrowings and transparency. The necessity of understanding and building the aesthetic relationships of meanings between the past, present and future, may represent the real desire that leads digital media to seek and reconstruct a severed relationship with the past. It is the audience that desires, as Jason seeks through the New Centaur to speak to the Old Centaur in Pasolini's representation, to engage with the old mythological representations of images, body and meanings in order to decode the new meanings of reality. The audience's desire to re-interpret the past in light of the new processes of technological remediations also requires a translation of meaning from the previous medium to the new. It is this translation of meanings, this recontextualization process that shapes the interactions between the past and the present media.

When in this context new meanings are created, old meanings and their mythologies can only be seen through the new mediating technologies, although their latent existence nevertheless affects the subconscious of the viewer. Although the meanings may have disappeared from the audience's consciousness, they are merged within the combinatory framework of the sign and operate within the subconscious.[12]

Adorno offers an important clue for the understanding of the relationship between content and form. He analyzes the relationship between Gehalt ( ) and Inhalt ( ), and argues for the importance of form and content as evolutionary structures.

> Everything appearing in the artwork is virtually content [*Inhalt*] as much as it is form, whereas form remains that by which the appearing determines itself and content remains what is self-determining… Hegel is right that all aesthetic processes are bound up with content [*Inhalt*], just as in the history

[11] J. D. Bolter, "Remediation and the Desire for Immediacy," *Convergence* 6, no. 1 (2000): 66.
[12] R. Barthes, *Mythologies*, trans. Annette Lavers (London: Vintage, 2000), 117-118.

> of the plastic arts and literature new levels of the external world constantly become apparent and are discovered and assimilated, whereas others perish, lose their artistic potential, and no longer excite…[13]

It is this aesthetic approach to content as part of the external world that is re-discovered, assimilated and re-mediated through innovative technologies that changes according to the form that it is presented in. This alteration of both form and content obliges the viewer to an increasingly complex process of decoding and rediscovery of referentials, which have been manipulated, assembled and structured to become new media conveying new content.

Contemporary new media technologies, through remediation, favor a process of constant merging of old media as well as the recontextualization of meanings that, by becoming transparent old boxes set within new boxes, allow the vision of a complex reality made of evolutionary forms of representations, re-processings and recontextualizations. The process of technological remediation and transmediation of meanings is pursued to "excite" and engage with the audience through the different processes of remediation of old media in new technological formats and recontextualization of old meanings in new media structures.

It is the refashioning of old media that exterminates the reality of the old medium and offers a new reading of the past technology that is possible only through the lens of new media. This evolutionary process made of changes, alterations, new complexities and never straightforward remediation processes is the refashioning not only of media technologies, but also of the cultural frameworks that are embedded within those technologies.

By interpreting Hegel's constructs of form and content, Adorno construes a theoretical framework within which the process of cultural meaning is self-determining and that of the form of the media is determined by the media itself, in a separation of the two elements assuming their apparent total independence.

The relationship between form and content, as envisaged by Adorno, may have been altered by the contemporary media's desire for an instantaneous re-forging of the interactions between form and content. In the process of remediating old media and re-presenting old meanings, the function of new media has become that of showcasing an instantaneous process of evolution in the desire to reach the highest level of transparency. The form, in its technological remediations for transparency, is also competing with the process of hypermediacy that refashions multiple contents via the sign. The message, in

[13] Th.W. Adorno, *Aesthetic Theory*, ed. Gretel Adorno and Rolf Tiedemann, trans. Robert Hullot-Kentor (London: The Athlone Press, 1999), 145.

its old and new meanings, is seen through the multiple screens and applications of new media and embedded in the complexity of technological transformations.

If this is not a relationship where meaning is subservient to form, it is a new kind of interrelation, where the viewer needs the framework of the New Centaur/new media in order to speak to and engage with a past reality of meaning, that of the Old Centaur/old media, not forever lost, but removed from consciousness into the subconscious.

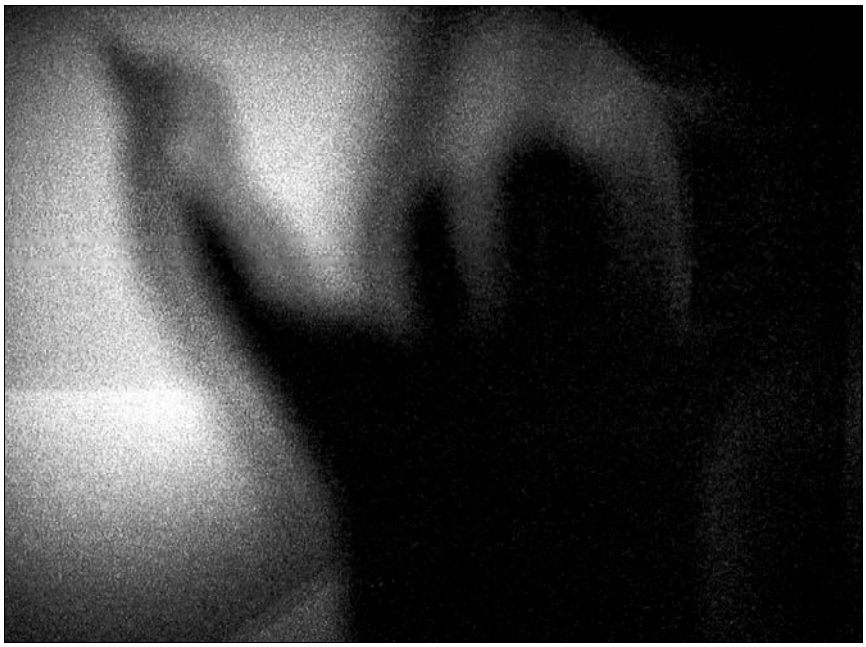

Figure 2. Lanfranco Aceti , *The Existence of a Shadow: In Between Worlds*, digital print from virtual reality environments and charcoal, 2005

The new digital media structures are the ones that can link and mediate between strands of technologically determined aesthetic evolutionary behaviors and meanings as well as reveal the rooted contextual underpinnings of old media as non-mediated, or better said, less-mediated forms of expression through the magnifying lens of new media screens.

This relationship between form and content is explained by Eco, who in analyzing the structures and problems related to the medium of television presents the reader with “the philosophical assumption that intrinsic to every

'genre' of art is a dialogue with its matter, and the establishment of a grammar and a lexicon of its own."[14]

The construction of a grammar of its own, a new grammar in the case of a new medium, or multiple grammars and dialects in the case of contemporary digital media, stresses the problem of communication, interpretation and transfer of meaning, and consequently that of translation between the new and the old media. It is a process of contextualization that in its translation from one medium to another necessarily moves beyond the "simple and unilateral" technological transfer based on a form that determines itself, defined as re-mediation process, and enters into the arena of transmediation, as techno-logical transfers and aesthetic translations of meanings that are no longer self-determining.

TRANSMEDIA AND RECONTEXTUALIZATIONS

Bolter and Grusin look at the concept of repurposing as an elemental part of the media's borrowing for remediation. They also acknowledge the importance of the recontextualization process of content and subsume (by referring to Marshall McLuhan's idea that "the 'content' of any medium is always another medium"[15] and by mentioning the historical role of ekphrasis) the complex process of content transfer, recontextualization, history and aesthetic under the concept of remediation.

The complexity of the content transfer and transformation, which is the major concern of the transmedia approach, is overlooked. Bolter and Grusin focus on the idea of pursuing, through transparency, an equality between different signifiers which could also imply an equality of the signifier and of the signified.[16] What Barthes stresses as important is instead the concept of equivalence between the signifier and the signified, form and content. If for Bolter and Grusin in the viewer's experience there should be no difference in seeing a painting in the real world and seeing it through a screen, the reality of re-presentation and remediation, as they acknowledge, is a very different experience. "The computer always intervenes and makes its presence felt in

[14] U. Eco, *The Open Work*, trans. A. Cancogni (Cambridge, MA: Harvard University Press, 1989), 106.

[15] M. McLuhan, *Understanding Media: The Extensions of Man* (Cambridge, MA: The MIT Press, 1994), 305.

[16] R. Barthes, *Mythologies*, trans. Annette Lavers (London: Vintage, 2000), 112-113.

some way, perhaps because the viewer must click on a button or slide a bar… Transparency, however, remains the goal."[17]

It is the characteristic of the medium's specific language, and not transparency, that obliges the creator of content, or the transmedia artist, to face up to the linguistic structures of the medium, to the old content that by relating to the new medium becomes new content. It is the process of relation between content and multiple media that amplifies the opportunity to create new meanings. The artistic process becomes one of recontextualization, with an aesthetic choice between transparency and hypermediacy, of the content that is being transferred into the new containers.

The artwork and its relationship with new media structures in this trans-mediation process reveals a set of complicated relationships which, related to the aesthetic choices of the artist who created the image that is being remediated, cannot be reduced to the concept of transparency as a universal goal. Neither can the goal of transparency be considered as a media imperative that belongs to the ontology of new media, since there are examples of aesthetic alternative practices that engage with the digital in order to achieve hypermediacy.[18]

The process of contextualization and recontextualization of content that is enacted through the linkages between the forms of old and new media, generates not only new meanings but also new usages for the medium that is reshaped by viewers' behaviours and interactions.

In this contextualized visual panorama, issues related to re-mediation processes and their contextualizations and recontextualizations, as forms of transmedia-tion, assume a particular significance in the attribution of meanings and *intentio authoris* (intention of the author) to the visual artwork as well as in the analysis of the processes of the audience's consumption of both form and content. This analysis has characterized the semiotic debate on media and visual arts, to which Eco has responded by presenting the idea, in literature, of the *intentio operis* (intention of the artwork) disjointed by the *intentio lectoris* (intention of the reader and/or viewer) and the *intentio auctoris*.[19]

[17] Transparency is not necessarily the goal of artists using new media, as Bolter argues. In particular artists who are engaged with the processes of meaning transformation and relation between content and form, as well as socio-political and cultural transformations induced by new media, seek as a goal hypermediacy. Jay David Bolter, "Remediation and the Desire for Immediacy," *Convergence* 6, no. 1 (2000): 66.

[18] An example of hypermediacy and transmedia in art practice is *The Tulse Luper Project* by Peter Greenaway.

[19] U. Eco, *Interpretation and Overinterpretation*, ed. Stefan Collini (Cambridge: Cambridge University Press, 1992), 25.

The existence of an *intentio operis* gives new strength to the concepts of mediacy and immediacy that are not derived by an interpretation of the reader, but by the natural characteristics of the artwork itself and by a new relationship between form and content that is not structured by Hegelian aesthetic frameworks. It also offers the grounds for an analysis of the nature of the medium itself that needs to be translated, adapted, connected and ultimately transmediated with all of its constituent elements, technological and non-technological, within a new context, that is both technological and aesthetic.

The process of transmediation is the interconnection of all of these layers, old and new, theoretical and technological, with which the artwork, in and from its original form, will have to engage to achieve an evolutionary and transformative process. It is this process of adaptation that should be called transmediation, that does not necessarily seek transparency, and that actually presents the new medium, in all of its possible virtual imageries, as the new language with which to interact and create new meanings, both visual and textual.

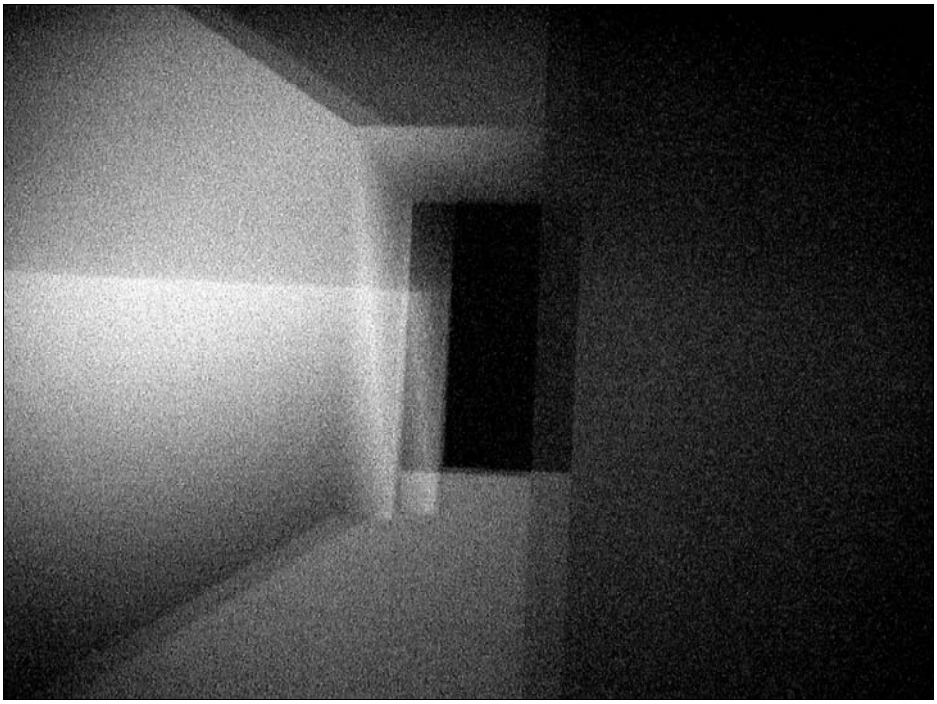

Figure 3. Lanfranco Aceti, *Materializing*, digital print from virtual reality environments and charcoal, 2005

EMBODIED MYTHOLOGICAL MEANINGS

The relationship between old meanings transmediated in new technologies and new meanings generated by the multiple interactions between content and form needs to be analyzed in order to clarify the differences between the processes of transmediation and remediation, the first related to content and the second related to form.

Pasolini explained in the film *Medea* that the object hides a mythological absolute: "Wherever you glance, a god is hidden. If he is absent, the signs of his sacred presence will be there."[20] It follows that the incapacity of recognizeing the mythological absolute generates a loss of meaning. "Has lost all meaning for you (…) like a discarded memory."[21]

This loss of meaning, according to Baudrillard, is caused by the remediation processes of digital media that function as generators of void.

> Photographic or cinema images still pass through the negative stage (and that of projection), whereas the TV image, the video image, digital and synthetic, are images without a negative, and hence without negativity and without reference. They are virtual and the virtual is what puts an end to all negativity, and thus to all reference to the real or to events. At a stroke, the contagion of images, engendering themselves without reference to a real or an imaginary, itself becomes virtually without limits (…) All that remains of it are traces on a monitoring screen.[22]

Baudrillard's interpretation dismisses the sensory-perception nature of the media processes that are characterized by a recombination of both immediacy and hypermediacy approaches. It also discards the possibility of a relationship between the old mythological meaning and the new medium within which both form and content are remediated and transmediated. According to Baudrillard's analysis, art has shifted towards the re-appropriation of the distant, recent or even contemporary past. Baudrillard writes that art is "like the worn threads of a piece of fabric, it is an irony produced only by the disillusion of things, a fossilized irony."[23]

However, the role of contemporary visual arts, particularly of transmediated art forms, is more than irony. Their role is the recontextualization of the old and the revelation of the dangers and possibilities of the new. The transmedia-

[20] *Medea*, VHS, directed by Pierpaolo Pasolini (1970, Italy/France/West Germany, San Marco S.p.a., Janus Film and Fernsehen production, BFI publishing).
[21] Ibid.
[22] J. Baudrillard, *The Illusion of the End*, Stanford, CA: Stanford University Press, 1994, 55-56.
[23] Ibid., 25.

tion process happens in a matrix-based relationship between immediacy and hypermediacy as transmediated negotiations between old and new. This is the process that reveals new meanings, a strategic space that is not self-referential,[24] as Baudrillard puts it, but moves beyond the concept of bachelor machine, *Le Machine Célibataires*, of Michel Carrouges.

The new systems of immersive virtual realities as well as Web 2.0 and social networking systems like MySpace, YouTube and Facebook continuously blur the borderlines of remediation and transmediation by providing instantaneous systems of online transfer with new media technologies. This relationship continuously generates a more complex reality constructed on a mediated interpretation of a flux of perceptions. In Pasolini's *Medea*, the New Centaur explains this relationship by stating: "Because nothing can prevent the old centaur from inspiring sentiments… …or me, the new centaur from expressing them."[25]

When set in this framework of sense-perception, the issues related to immediacy and hypermediacy, moving beyond the issue of transparency as the only goal and construed in a framework of constant interaction, can find an operational structure by referring to Hegel's aesthetic analyses of the visual arts. Hegel, in fact, explains that visual arts "abide by what can be fashioned for sense-perception."[26] But is Hegel's statement still valid when the visual neurological stimuli in a virtual reality environment, with the support of the neurosciences, can be constructed and embodied to "speak" directly to the brain?

This has been an important element in my personal art practice because the unreality of virtual environments and the stimulation of particular areas of sense perception can overcome the impasse of the extermination of reality and that of the creation of illusion. The focus is shifted onto the brain's absolute perception of visual images, not to recuperate "God or Reality"[27] as Baudrillard suggests, but to rediscover the mythological meaning of the object through the immediate sense-perception relationship of the brain with the visual images achieved as mediated experiences.

This oxymoron of a mediated immediate/hypermedia relationship with the image offers the possibility of generating that unity of meaning within the

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[24] Ibid. 56.

[25] *Medea*, VHS, directed by Pierpaolo Pasolini (1970, Italy/France/West Germany, San Marco S.p.a., Janus Film and Fernsehen production, BFI publishing).

[26] G.W.F. Hegel, *Aesthetics: Lectures on Fine Art*, vol. II, trans. T. M. Knox (Oxford: Clarendon Press, 1998), 1035.

[27] J. Baudrillard, *The Vital Illusion*, ed. Julia Witwer (New York: Columbia University Press, 2000), 61.

visual arts that Baudrillard and Pasolini considered lost and Hegel considered as not belonging to the visual arts.

> But in the case of the other arts, [i.e. visual arts] the manner of conception remains, with its inner creative activity, in continual connection with the execution of its designs in a specific perceptible material and therefore is throughout distinct from the forms of religious imageries, scientific thinking, and the prosaic intellect.[28]

Hegel's analyses generate an ulterior set of questions in the visual component of contemporary remediation and transmediation processes. The alterations of the forms of perception are such that these categories need a new philosophical formula that is not just that of a "technological remediation" process, but also that of a contextualized understanding of the modality in which the "visual language" is reconstructed and speaks to the reader/viewer.

> Virtualization, then, is nothing less than the vehicle for the Bergsonist vocation of new media art – the means by which we can bring the force of the virtual to bear on our experience, to tap it as the catalyst for an expansion of the margin of indetermination constitutive of our technically facilitated embodiment.[29]

The modality for the mediation of the visual artworks within a virtual reality environment is changed to such an extent that the work itself is transmediated "beyond" its original existence and the perception of it is targeted with an increasingly refined knowledge and technological support to speak directly to the brain or to target the "immediacy" areas of the brain through a mediated construct.

The new constructs do not necessarily have to be those of virtual reality environments. They can take the form of mixed reality environments or of being transferred into a different medium, an old medium, and placed in a totally different context from which they originated. It is this possibility of infinite connections and reconnections that, as in the writings of Mark B. N. Hansen or Rosalind Krauss, in her essay "Reinventing the Medium", offer an understanding of the history of the hybridization processes and their bearing on contemporary digital remediations as well as on the phenomena of trans-mediation. It is the Bergsonian approach to the theory of perception that offers a more in-depth understanding of contemporary transmediations, as images become relevant and irrelevant according to a body that is, in Gilles Deleuze's

[28] G.W.F. *Hegel, Aesthetics: Lectures on Fine Art*, vol. II, trans. T. M. Knox (Oxford: Clarendon Press, 1998), 998.

[29] M.B.N. Hansen, *New Philosophy for New Media* (Cambridge, MA: The MIT Press, 2004), 146.

interpretation of Bergson, a "center of indetermination within an acentered universe."[30] This approach moves away from the solipsistc and self-referential media construction of the bachelor machine of reproductive absence of meaning, as Baudrillard would say. It also places a different emphasis on the medium. It is no longer just the remediation claim of Bolter and Grusin that media are "thoroughly and bidirectionally interchangeable."[31] It is a claim that Hansen criticizes in his *New Philosophy for New Media,* advocating the embodied experience as inseparable from the act of cognition.

In this context, where interchangeability and media specificity clash, Weibel, with his notion of a universe without a center and Pasolini with the mythological realism come into play. They support the Bergsonian approach of a universe without center, where the experience of the object, of its realities and mythological traces, justifies more than ever a transmediation approach based on the linguistic visual specificities of Walter Benjamin's idea of medium and its multiple interactions, textual, contextual and technological.

DISEMBODIED MEANINGS AND CONTEXTS

The embodiment and disembodiment of mythological and cultural meanings may represent, in the context of contemporary new media, the evolutionary developments of form and content in the process of being remediated and transmediated.

According to McKenzie Wark, "it is not the reality in virtual reality that matters. It is the virtual. (…) The possibility of creating new worlds."[32]

In a mediated and disembodied artistic context, the dualistic perception of mind and body is blurred in a world of new constructions that do not "*seem* to be without location or extension, or to be 'in the brain'."[33]

It is a new hybrid world of contemporary and simultaneously perceived streams of sensory data from both the real and the virtual world. These sense

[30] G. Flaxman ed., *The Brain is the Screeen: Deleuze and the Philosophy of Cinema* (Minneapolis: University of Minnesota Press, 2000), 20.

[31] M.B.N. Hansen, *New Philosophy for New Media* (Cambridge, MA: The MIT Press, 2004), 1.

[32] McKenzie Wark, "Too Real," in *Prefiguring Cyberculture: An Intellectual History*, ed. Darren Tofts, Annemarie Jonson and Alessio Cavallaro, 159 (Cambridge, MA: MIT Press, 2002).

[33] M. Velmans, "Physical, Psychological and Virtual Realities," in *The Virtual Embodied: Presence/Practice/Technology*, ed. John Wood, 49 (London: Routledge, 1998).

perceptions are the basis for a perceptual Gestalt made of re-combinations of elements of the virtual reality world or of the real world.

> Sensory data corresponding to the non-favoured interpretation may be ignored, or incorporated into the prevailing Gestalt. For example, a Cave wall may not be noticed, a loud sound that does not belong to the virtual world may be incorporated into the flow of events within the virtual world interpretation, and so on.[34]

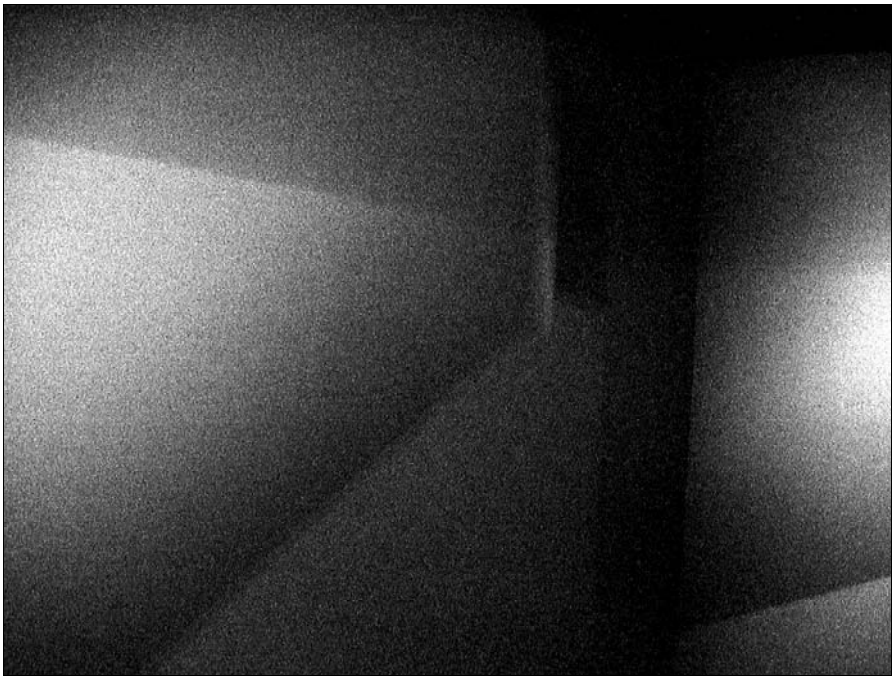

Figure 4. Lanfranco Aceti, *Suspence*, digital print from virtual reality environments and charcoal, 2005

These observations by Mel Slater, Anthony Steed and Andrea Brogni confirm a Bergsonian approach, where the images are filtered and chosen by the body. In these worlds of subliminal stimuli, multiple interacting agents and neuro-visual interactions it is possible to generate a different context for the field of action of mediacy, immediacy and hypermediacy and the role of remediation and transmediation within it. These worlds generate neuroscientific and

[34] A. Brogni, M. Slater and A. Steed, "More Breaks Less Presence," (paper, The 6th Annual International Workshop on Presence, Aalborg University, Denmark, October 6-8, 2003) http://www.cs.ucl.ac.uk/staff/m.slater/Papers/bipspres.pdf (accessed July 10, 2008).

neuroaesthetic interest in "understanding the neurology of art and illuminate (…) the concept of the Platonic Ideal and the Hegelian Idea."[35]

The forms of constructions between the real and the virtual, as well as the series of subliminal stimuli directed to specific areas of the brain, are part of the phenomena of correlation and sense-perception. The presence and existence of the individual in a virtual-reality environment is, therefore, constructed on the subliminal stimuli of artificial imagery that is able to engage the immediacy through the mediated vision of the viewer. The role of the new media as the decoders of the language of the old media, of the embodied meanings that have been transmediated, becomes essential to engage with the multiple sensory perception that, disembodied from the former mythological forms and contents, speak directly to the body.
The immediate engagement with the subconscious – detected through physiological reactions, i.e. electrodermal activity, electroencephalogram and electrocardiogram – happens in a heavily mediated environment. It becomes paradoxical that the engagement with the immediacy, with Pasolini's Old Centaur, is necessarily happening through a technological and rational construction, that of the New Centaur.

The mediacy is, therefore, the interpreter that can allow dialogue with the content of which we have lost knowledge, covered as it is by numerous layers of culture and technology. These layers can retain a concept of the real that is based on the interaction and composition of alternative sensory experience and that, as Le Grice explains, is based on "the arena of the irreversible consequence."[36]

CONCLUSIONS

The art practice derived from these experimentations and interpretations is an expression of the attempt to reconcile mediacy, immediacy and hypermediacy, generating not just a remediation process but also a media-specific translation of the artwork's meaning. This is in order to speak directly to that immediate sense-perception of the visual image that attempts to relate instantaneously and without mediation to the viewer.

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[35] S. Zeki, *Inner Vision: An Exploration of Art and the Brain*, (Oxford: Oxford University Press, 1999), 45.

[36] M. Le Grice, "Virtual Reality: Tautological Oxymoron," in *New Screen Media: Cinema/ Art/Narrative*, ed. Martin Rieser and Andrea Zapp, 233 (London: BFI Publishing, 2002).

In his analysis of the response to an inanimate object or to a man, Benjamin differentiates between the levels of engagements and interactions. In virtual reality, the engagement is focused on the human relationship of copresence and costimulation,[37] dismissing the possibility of having an object that looks at us in return.

> To perceive the aura of an object we look at means to invest it with the ability to look at us in return. This experience corresponds to the data of the *mémoire involontaire*. (These data, incidentally, are unique: they are lost to the memory that seeks to retain them…)[38]

The "investing with data", in this case the biofeedback in virtual reality environments, characterizes the relationship of immediacy between the object and the viewer.

Is immediacy, in this context, also necessarily characterized by instantaneousness? Or is the issue of instantaneous perceptions a different category that should be related to Virilio's concept of dromology?[39]

The concepts of instantaneousness and immediacy appear to be two different categories. Immediacy speaks to the "un-mediated nature" of the visual images, to the instinctual, the reality and the myth of the materiality of the object. Instantaneousness is instead related to the 'speed' of the forms of non-mediated communications.

One possible answer to this question is that these forms of "immediacy" in virtual reality are mediated by the medium of virtual reality and other media forms, i.e. graphic images, film, animations, avatars, technological feedbacks and the materiality of the medium itself. This problem of the relationship between mediacy and immediacy in virtual environments can be presented as an oxymoron and as a falsely mediated relationship.

It should be stressed that in the contemporary cultural context, because of the attempt to "speak" directly to the immediacy structures of the brain through mediated technological and digital formats, the issue of speed becomes relevant and structurally important. This is in order to bypass cultural constructions and directly stimulate the "neurological" structures of our minds. Speed becomes a necessary element for the construction of an immediate and un-mediated society where the reactions are instantaneous. This is quite

[37] M. Garau, M.Slater, D.-P. Pertaub and Sh. Razzaque, "The Responses of People to Virtual Humans in an Immersive Virtual Environment," *Presence* 14, no. 1 (February 2005): 104-116.
[38] W. Benjamin, *Illuminations*, ed. H. Arendt, trans. Harry Zorn (London: Pimlico, 1999), 184.
[39] P. Virilio, *Open Sky*, trans. Julie Rose (London: Verso, 1997), 15.

different from the concept of a society of immediacy that speaks to the Platonic absolute.

Speed is a possible way to speak directly to the Old Centaur held within us, by bypassing the multiple cultural and technological layers of the New Centaur and regaining an understanding of the sacred mythological nature of the object and its sense-perception.

> In claiming that the brain is part of the material world, and resisting the view that the material world is somehow contained in the physical entity we call the bounded brain, Bergson is aiming to show that if the image that is the material world is eliminated then we at the same time destroy the brain and its cerebral disturbances: the brain cannot exist in the absence of the images of the material world that feed it.[40]

Bergson's analysis poses a problem that is related to the field of neuro-aesthetics and neuroscience, that of the interrelation between the image and the brain. The latter is not a blank canvas, but a preformatted structure that is biologically stimulated by precise visual combinations of colors, shapes and movements.[41]

Experiments in virtual reality and the neurosciences are reframing the Platonic and Hegelian classifications for the spheres of interventions in the visual arts. These interventions are not related simply to the design of the forms, but generate interventions directly into the spheres of the religious, scientific and prosaic intellect. The visual arts, with their newly disclosed languages of instantaneous brain stimulations, have the ability to intervene in the debate of mediacy, immediacy and hypermediacy. According to Bergson, they participate directly in the construction of the brain's landscape, revealing the ideal of Plato or confirming the Kantian absolutes. But the problems of speed and rapid stimuli, as well as quick reactions, when related to the concept of immediacy, generate instantaneous reactions to visual images, creating an artistic panorama that Baudrillard defined as meaningless.

> Most signs and messages today solicit us in this hysterical manner. […] They would blackmail us with a blind, psychodramatic transaction, using signs devoid of meaning, that multiply and hypertrophy precisely because they no longer have any secrets or credibility. Signs without faith, without affect or history, signs terrified at the idea of signifying…[42]

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[40] K. A. Pearson, *Philosophy and the Adventure of the Virtual: Bergson and the Time of Life*, (London: Routledge, 2002), 145.

[41] M.B.N.Hansen, *New Philosophy for New Media*, (Cambridge, MA: The MIT Press, 2004), 270.

[42] J. Baudrillard, *Seduction*, trans. Brian Singer (New York: St. Martin's Press, 1990), 120.

This panorama reflects the contemporary reshaping of society into forms of rapid non-engagements, at both cultural and social levels, where the remediation appears to take over the transmediation in a quest to avoid signification and significance.

It is a panorama that, although apparently devoid of meaning, also reflects the implications of a society and artistic practice intervening in rediscovering the role of the fundamental elements of immediacy and their mediated representations. The philosophical concept of immediacy represents the rediscovery of a non-mediated, absolute and mythological relationship that blends and blurs its boundaries with a concept of "body as media language" that filters and reflects upon methodological media engagements characterized by the social issues of instantaneousness, immediate responses, speed and dromology.

The double aspect of these relationships, of the interpretations and representations of the concept of immediacy, is under scrutiny when the social implications reveal two different possibilities, that of the search and representation for an absolute unity, as in Pasolini's work, or the horror for a definitely technologically-mediated existence, as Virilio shows, where immediacy and instantaneousness negate any human existence. The issues of meaning, significance and mythological realism are left on the side. The specifics of the media's language are abandoned and the transmediation processes of contexts are forgotten: all that is left is a constant remediation process of a bachelor's self-referential reproduction.

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BEZZWŁOCZNIE MEDIATYZOWANE WIRTUALNE WIZJE: TRANSMEDIALNY OBIEG OBRAZÓW, CIAŁA I ZNACZEŃ (streszczenie)

Interakcje medialne ugruntowane w kompleksie złożonych i wysoce zmediatyzowanych ikonografii są często przedstawiane w ramie remediacji jako produkt bezpośredniej wymiany między obiektem a widzem.

W obrębie struktur medialnych pozostających w przepływie między realnym a wirtualnym koncepcja remediacji zaproponowana przez Jaya Davida Boltera i Richarda Grusina nie wystarcza by wyjaśnić interakcje między strukturami technologicznymi, twórczymi zachowaniami, ekspresywnymi interakcjami i obrazami. Proces nawarstwiania i hybrydyzacji między mediami, tworzący nowe języki i idiolekty, zarówno tekstowe, jak wizualne, generuje nowe rekontekstualizacje, które mieszają je i zacierają granice z koncepcją 'ciała' jako języka medialnego działającego jako ekspresywny filtr i poddającego refleksji metodologiczne zaangażowanie medialne, charakteryzujące się zarówno bezpośredniością, jak i hiperpośredniością, społeczne kwestie natychmiastowości, *biofeedback* oraz dromologię.
W artykule została poddana dyskusji konieczność odsłonięcia znaczenia i aspektu ekspresywnego interpretacji i przedstawień koncepcji realności i wirtualności, wraz z ich mitologicznymi i społecznymi implikacjami. Ma to wesprzeć badania nowych obiegów znaczeń i ekspresywnych interakcji, które oferują ewolucyjną przestrzeń dla remediacji form i transmediacji treści w kontekście współczesnych platform nowomedialnych.

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HYBRID SPACES OF HUMAN-COMPUTER INTERACTION IN VIEW OF UBICOMP POSTULATES

Abstract

This paper examines the heterogeneous nature of the interaction space in mixed/hybrid reality systems, i.e. the systems that merge everyday, real spaces and virtual worlds, to produce new kind of environments where physical and digital objects can interact in real-time. Hybrid reality systems, in this paper, are analyzed in a theoretical framework provided by a new paradigm in human-computer interaction research (HCI), which is called *Ubicomp – ubiquitous computing*. One of the main goals of *Ubicomp* is to investigate, both theoretically and practically, the possibility of "seamless integration between real and virtual domains ". After analyzing this project I attempt to point out how the concept of hybridity is defined and what general strategies of designing interaction it may lead to.

The most widespread perception of virtual spaces and digital environments is that they are autonomous domains, or even oppose the physical reality. It would seem that the mutual relations between these diverse orders can only be described with such categories as "simulation", "representation" or "transfer". Thus, aside from the various analyses of new practices of communications, which followed in the wake of the development of new computer technologies, as well as the attempts to construct a new model of audiovisual communication, it is the issue of mediatization, of projecting the image of the real world onto the virtual world or of creating new worlds altogether, that is the focus of special scrutiny within the extensive social and cultural research. Naturally, the subject entails a whole range of theories and solutions, which differ in terms of their approach to the relations between the real and the virtual; at the same time, an impression persists that the tone of the debate is set by a clear dichotomy between these two orders – one which has found its fullest expression in the works of Jean Baudrillard.

Such perspective is not only understandable, but also natural – the process of transferring social and cultural activities or practices into virtual spaces, of creating increasingly accurate representations of the real world constitutes one of the main trends in the development of computer technologies. The currently prevailing model of human-computer interaction, based on the direct manipulation of objects in graphical user interface (which actually made possible communications revolution) was founded on the metaphorical rendition of the space of human activity (the desktop metaphor in the operating systems of personal computers). Additionally, although the fascination with the phenomenon of virtual reality (VR) has long since faded, at the same time, imaginations are still fired up with the very notion that one might construct a perfect representation of the real world or create an entirely new world, fully functional and shaped by our will; the same vision determines the common (pop cultural) reception of computer technologies.

This article aims at presenting a rudimentary outline of Ubicomp (=ubiquitous computing), which is a new research paradigm within the HCI (Human-Computer Interaction), and whose primary principle is an extensive symbiosis between the real and the physical order, as well as a mutual interpenetration of the two. Ubicomp, initiated in the late 1980s at Xerox PARC laboratories (Palo Alto Research Center) by a research team led by Mark Weiser, proposes a so-called seamless integration of interactive technologies with everyday space or practices, which presents an alternative to earlier HCI paradigms. The final section of the article focuses on defining the hybridity of the system thus created, as well as pointing out certain implications for the strategies for designing the spaces of human-computer interaction, resulting from the dual nature of "mixed reality" systems.

HYBRID REALITY GAMES

The presentation of some practical application of the model may provide a good starting point for the analysis of the paradigm principles of the Ubicomp. Hybrid Reality Games, also known as Mixed Reality Games, represent an interesting expansion of multiplayer narrative games such as RPG (Role Playing Games). The difference is that the space of those games, i.e. the space in which the players are active, extends beyond the simulated virtual environment onto the physical setting (e.g. urban space). Various mobile devices are therefore used (palmtops, GSM phones) as well as global positioning systems (GPS).[1]

[1] De Souza e Silva and Delacruz argue that it is those three aspects of HRG, namely the use

Although there are already several commercial games of this type available on the market, the majority of the HRG projects are still experimental, research-related or artistic endeavors. One example of an HRG project that is probably best known and most widely discussed is a game called *Can you see me now?*, developed by the British team Blast Theory. As a predominantly artistic project, the game was presented at numerous electronic media art festivals, and in 2003 it won a prestigious award at the *Ars Electronica* festival in Linz. It is worth noting that also involved in the project was the Mixed Reality Lab from the University of Nottingham, one of Europe's leading research centers, responsible for developing the ideas of Ubicomp and situating them within a broad context of social and cultural perspectives. The script of *Can you see me now?* resembles that of the cult game *PacMan* – the online players, who communicate via an Internet chat room, must avoid "getting caught" by a group of several other players, acting as PacMan characters, for as long as possible.

While the online players move around within the virtual environment, i.e. a two- or three-dimensional representation of an urban setting, the other team of competing players („runners"), equipped with palmtops, cell phones and GPS systems, are roaming the physical urban space (the game was originally played in Sheffield, and then in Rotterdam, Köln, Tokyo and Cambridge). The game is played simultaneously in two environments – the physical and the virtual one. The "runners", whose computer screens tell them the exact position of each player, are heading towards the actual location which their online competitors are virtually occupying. When a "runner" comes within the distance of 5 meters from such a location, the online player is "eliminated", and the game is over for him.

The expansion of the virtual world spreading onto the physical reality – as is the case with *Can you see me now? –* certainly calls for a number of issues to be reopened, even if their solutions seem universally accepted. Piotr Zawojski[2] saw the project as a pretext to pose the question of digital art – its notion and status – in a new context. The researchers of computer games are, in turn, particularly interested in the crossing of the – seemingly impassable – boundary between the two spaces – those of the game and of everyday life. One of the specific features of HRG is the fact that the game space cannot be

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of mobile technologies and positioning systems, multiplayer character and the expansion of the game space onto physical space that are of definitive nature, cf. De Souza e Silva A., Delacruz G.C., "Hybrid reality games reframed: Potential uses in educational contexts". *Games and Culture*, 1 (3), 231-251.

[2] Zawojski P., "Sztuka cyfrowa jako wyzwanie dla estetyki", in: Ostrowicki M. (ed.), *Estetyka wirtualności*. Kraków 2005.

designed as an autonomous environment with independent rules. In a way, they are woven into the fabric of public spaces and activities conducted within them, regardless of the game. Below I shall present several significant implications for the development of computer technologies resulting from this fact.

UBICOMP (UBIQUITOUS COMPUTING)

The dynamics of human-computer interaction research, the beginning of which dates back to the early 1960s, seems to have been dictated by a series of periodically emerging research paradigms, which directly determined the individual strategies for the modeling of interaction processes, set the rules of user interface design, or stimulated specific technological solutions (e.g. input/output devices). Additionally, an applicable notion of "paradigm" can be reasonably drawn from the concept proposed by Thomas Kuhn, and viewed as a collection of ideas, axioms, key definitions and theories, upon which a new perception of a particular subject is founded. However, in contrast to the claim of the author of *The Structure of Scientific Revolutions*, the emergence of a new paradigm within the HCI field does not automatically make the existing paradigm(s) obsolete, but merely sets a parallel space for the application of interactive technologies.

Ubicomp is nowadays commonly regarded as such a paradigm of human-computer interaction research, which largely determines the dynamics of the development of current computer technologies and which offers the most promising prospect of its future applications.

The appeal of the ideas on which *Ubicomp* is founded, and which appeared for the first time in the well-known article written by Mark Weiser in 1991[3], lies primarily in the fact that they set the general direction of research, while at the same time leading to a thorough revaluation of the objectives of computing technology. What is also important is Weiser's rhetorical ability, which he employs to emphasize his groundbreaking proposal; the author devotes a lot of attention to explaining what Ubicomp is not. Weiser perceives his postulates as undermining the assumptions behind the other fields of research: firstly, the virtual reality research (since the point should be not to simulate or create new spaces of activity, but to transform physical and social reality), and secondly,

[3] Weiser, M. "The Computer for the Twenty-First Century". *Scientific American*, September 1991. pp. 94-104.

personal technologies research (e.g. PDA – Personal Digital Assistant), as information should not be available in one place only, but instead it should be distributed within the entire reality and appear on its own, depending on the context of usage. Digital assistants are thus to be replaced with a digitally expanded, augmented reality, in which we function as naturally as in the physical environment. Weiser outlines a positive vision of ubiquitous technology, one that is integrated with the objects of the physical world and everyday life practices to such an extent that it becomes invisible, disappearing, calm, embedded, indistinguishable from reality; and such a vision is as utopian as it matches the actual needs, intuitions and potential use of current techniques.

Weiser's ideas resemble those put forward by such grand figures within the interaction research as Vannevar Bush (the idea of hypertext as a mechanism analogous to human mind and memory), Ted Nelson (the idea of Xanadu as a collection of the entire intellectual output of humanity, openly accessible), Joseph C. R. Licklider (the idea of human-computer symbiosis), Ivan Sutherland (the idea of intuitive interaction within graphical environment) and Douglas Engelbart (the idea of expanding human mind and perception), Alan Key (the idea of personal computer), Nicholas Negroponte (the idea of intelligent user assistants) as well as numerous other visionaries, whose revolutionary ideals were timely enough to contribute significantly to the development of computer technologies. Weiser joined this elite group for two reasons.

Firstly, he accurately diagnosed the revaluation of understanding and objectives of interactive technologies, which was becoming increasingly noticeable in early 1990s, only to become a fact at the beginning of the 21st century. The phenomenon of the Internet, the progressive miniaturization accompanied by an increase in computer power, the intensive efforts to create an environment for computer-aided group work, the dynamic development of CGI (computer-generated imagery) tools and techniques and of digital media technologies – all this, within about a dozen years, made obsolete the 1980s model of interaction perceived as an activity both isolated (in spatial and temporal terms) and aimed at carrying out its clearly defined, specific and narrow objectives. Nowadays, computers not only aid and organize the work of their human users, they have also become an integral space of people's everyday activity. Computer networks, WWW, multimedia, distributed information systems, e-mail, and mobile technologies are the phenomena which must obviously be set within the social structures and cultural reality. Interpersonal mediatized communication, taking on various forms, becomes the basic model of interaction, which entails the necessity of user interfaces to be designed upon the foundation of new strategies. Such

dynamics of change in computing technologies, as foreseen by Weiser, were largely enhanced by the important modification of the research perspective within the field of HCI. In the late 1980s, its methodology took a new direction, reaching beyond the individual cognitive activity of a user within a narrowly defined formula of cognitive studies toward a broader exploration of the conditions of social, cultural, communicative and aesthetic interaction. What marked this turning point were the ideas of Lucy Suchman[4] (situated action theory, ethnomethodological perspective), Terry Winograd and Fernando Flores[5] (language/action theory), Susanne Bødker[6] (activity theory), and the anthropologist Edward Hutchins[7] (distributed cognition theory). The numerous references to Heidegger made by Weiser stem directly from his reading the publications of the above-mentioned authors, as well as collaborating with Lucy Suchman at Xerox PARC laboratories.

Another reason behind the universality of the Ubicomp paradigm is its usefulness, confirmed by a number of research projects set within this framework. The studies in question also brought about the transformation of the preliminary general postulates into a relatively coherent collection of strategies and solutions. The process is not yet completed; it seems, however, that it is possible to outline a group of actual research areas, which are based on a shared conceptual structure and on a collection of presuppositions, directly corresponding to the interaction design model, the way the system "presents itself to its recipient", the range of its activity, the type of objects and the structural schema of the interface space. Such research areas or presuppositions include the following:

1. t h e u n i v e r s a l i t y o f c o m p u t e r t e c h n o l o g i e s – in practical terms this concerns the proliferation of a variety of digital devices of different scale and application. The objective here is to expand the interaction model seen in desktop systems to the interaction with miniature devices (palmtops), intermediate scale (computer monitors) and large (digital wall displays and boards);

2. m o b i l e t e c h n o l o g i e s – wireless, handy, portable devices. An interesting example of the application of such postulates is digital outfits,

[4] Suchman, L. A., *Plans and Situated Actions: The Problem of Human-Machine Communication*, Cambridge 1987.

[5] Winograd, T., Flores, F., *Understanding Computers and Cognition*, Addison-Wesley Publishing, 1986.

[6] Bødker, S., "A human activity approach to user interfaces", *Human-Computer Interaction* 4, 1989.

[7] Hutchins, E., *Cognition in the Wild*. MIT Press, Cambridge 1995.

wearable computers or other gadgets – such as portable music and video players;

3. n a t u r a l i n t e r f a c e s – the construction of interfaces which support the natural model of communication. In particular, the term refers to the studies of multi-modal systems, i.e. the ones that use several modes of communication (objects, speech, body language) simultaneously. This means the expansion of the current interaction model, based on the use of keyboard, mouse and monitor.

4. c o n t e x t - a w a r e s y s t e m s – the devices which can be adjusted to the current system of use. So far, the context has been limited to location (motor vehicle navigation systems, digital city guides) or user identity (Internet sites which customize the content depending on the user and his/her interaction history, such as www.amazon.com). Obviously, the context of interaction is a much broader concept, which is why the research within this field constitutes the biggest challenge;

5. a u g m e n t e d r e a l i t y (A R) s y s t e m s – systems enabling computer-generated images to be projected onto the perceptible world. Various "semi-transparent" devices are used (special binoculars, goggles, helmets, semi-transparent screens), in order to expand our field of perception with additional information or representations. One of the first solutions of this type was the system developed at Xerox PARC for copier repairmen. They looked at the machine while wearing a pair of special binoculars, through which they automatically received various instructions on the procedure of the repair. Another form of an AR system makes use of the complex projection mechanism – e.g. by projecting computer-generated, three-dimensional graphic representations onto the image of the world recorded by a camera. Such systems enable their users to manipulate virtual objects by hand movements or special input devices. Such solutions are becoming increasingly popular in industrial design, e.g. in the designing of prototype models. AR systems are therefore founded on a layered composition of the real world and computer-generated images.

The list given above is certainly not complete; I do believe, however, that even such a limited presentation of the research areas is sufficient to validate the purpose and usefulness of the Ubicomp perspective.

HYBRIDIZATION AND HETEROGENEITY IN RELATION TO UBICOMP

Since the principal postulate of Ubicomp is a close integration of computer technologies with reality and everyday life, one might ask about the form of such connection. In what way should the basic presupposition of a seamless connection between the virtual and the physical be understood? What does it mean that technology is "disappearing" into the fabric of the physical and social/cultural reality? The answer to these question brings up another issue, which for the purpose of this article is of the greatest interest to me, namely: how should one understand the hybridity of the systems thus developed, and – more importantly – how does this understanding correspond with the specific strategies of interaction design?

The hybridization of the space of human-computer interaction is a natural outcome of the Ubicomp postulates. It does not, however, consist in "atom-bit" interpenetration, although many of the metaphorical formulations used in talking about it might indicate just that. Manipulating physical objects is distinct from manipulating their virtual representations. Talking about their unification in terms of the ontic dimension is simply pointless. If in the course of the previously discussed game *Can you see me now?* one of the "runners" neutralizes his/her opponent, i.e. a virtual being controlled by an online player, this occurs when he/she finds an unoccupied spot within the real space, corresponding to the position occupied by a virtual avatar within the digital representation of the city. Therefore, these are two parallel spaces, functionally connected, thus comprising one hybrid space of the players' activity. One hybrid system is thus created – the game requires that the players act in both realities, constantly "switching" between them, that they apply the information about the virtual world in the real one, and vice versa. An activity undertaken within one space has an impact on the other one, affecting it and changing the status and position of the objects therein.

Thus, the concept of hybridization applies primarily to the non-homogeneous, physical-digital spaces of human activity, and, in a further perspective, to the non-homogenous strategies of action, rooted within the different dimensions (after all, the rules of Euclidean geometry may not apply in the virtual world). It is in fact this very feature that underlies the breakthrough character of the Ubicomp paradigm. The development of this paradigm marks a crucial change in the perception of human-computer interaction, and, consequently, in the design of the user interface and the input/output devices. The acts of interaction are situated within a broader context of the activity undertaken within both the physical and the social/cultural space. The system in which its

user performs certain tasks becomes a distributed system. Within the paradigm of the graphic environment interaction (GUI), the scenario implies an action within an isolated and autonomous environment – the space of the interaction is the interface space. In hybrid systems, the space and objects within the user interface constitute the elements of a broader spectrum, thus becoming relativized by default, as they correspond to objects in physical reality, other entities, symbolic representations, events, etc. For this very reason the analysis of the socio-cultural context is so crucial with the solutions of this type. The process of interaction design involves – somewhat by definition – the implementation of the existing rules of social practices. From this perspective, changing the research paradigm of human-computer interaction – as discussed here – consists in fact in presenting the problem of the adaptation of computing technologies in appropriate light.

If hybridization, defined as above, constitutes an obvious outcome of the breakthrough the Ubicomp entails, the extent and range of the integration of these "mixed realities" is determined by the particular decisions of the designers and as such it should not be questioned. What Weiser and his successors have undoubtedly managed to achieve is the expansion of the processes of computer interaction beyond the graphic user interface and setting it within a broad context of everyday life. At the same time, it is not necessary for the "seamless integration" he postulates (one that leads to the virtual and the physical becoming indistinguishable) to be applicable in every case, nor to be a standard of a kind in design strategy. The issue of the heterogeneity of a mixed system, which in practice boils down to the question of whether the system is a uniform one or a sum of some object of different nature, is in my opinion a matter of absolute importance. After all, it outlines the actual space of the debate on the postulates of the Ubicomp paradigm. The main point is to assess the design strategies arising from the acceptance of these postulates.

Weiser's unequivocal position in this matter has been determining the dynamics of Ubicomp's development. Accepting the hybridicity, the dual nature of the new spaces of interaction, Weiser states that technology is "literally visible", while at the same time admitting that it is "effectively invisible".[8] Referring to Heidegger's *Being and Time*, Weiser rightly stresses that in everyday, practical experience of the world, we perceive the objects we find within it not as objects with certain physical features, but as tools (the above also applies to non-symbolic applications). Perception attuned to a specific purpose disregards the matter an object is made of and focuses our

[8] Weiser M. "Creating the invisible interface". *ACM Conference on User Interface Software and Technology, (UIST)*, 1, 1994

attentions on that object's possible applications. In this perspective, that is within the domain of action, both the virtual space and its objects belong to the same category as their equivalents from the real world. Wieser takes the Heidegger reference even further, which leads him directly to formulating a specific strategy or design standard. Using the distinction between "at-handedness" (*Zuhandenheit*) and "on-handedness" (*Vorhandenheit*), he postulates the development of such devices and interfaces that will not only not undergo any process of rationalization and in this sense – will be ready to be used, but at the same time, in order to make that possible, technology must be perfectly – "seamlessly" – integrated with the practices of everyday life. The point, then, is not that the strategy of use should be "communicated" through the tool as suggested by Donald A. Norman, who developed a similar construction using J.J. Gibson's concept of *affordance*. In fact, Weiser's point is that the strategies of use of the objects in the virtual world should be analogous to those of the use of objects in the physical world, and the context of usage (i.e. everyday life space and practices) should be shared. Experiments on "tangible bits", conducted by Hiroshi Ishii[9] at MIT Media Lab, constitute a practical application of the above postulates. The objective of the experiments is to develop virtual objects which, in spite of their ontic status, seem to possess physical qualities – e.g. objects that one can move from one screen to another. Weiser's idea has been expanded theoretically in a (widely discussed) book by Paul Dourish, *Where the Action Is: The Foundations of Embodied Interaction.*[10] On the basis of the concept of embodied cognition, Dourish shows that the processes of interaction are founded in human biological make-up and sociocultural practices, although at the same time he moves dangerously close to an absolutization and idealization of the foundations upon which we set our actions.

In the end, I would like to formulate a thesis which must remain unresolved here, although it does outline an interesting area for analysis. It seems that while remaining within the Ubicom paradigm and acknowledging the direction appointed within the scope of this paradigm, one may also find useful the design strategies which emphasize the hybrid nature of the interaction space instead of attempting to eliminate it.[11] After all, modern cultural studies show that the everyday life space after which the computer technologies are to be customized, is heterogeneous by its very nature. What is more, it appears that

[9] Ishii H., Ullmer B., "Tangible Bits: Towards Seamless Interfaces between People, Bits and Atoms".

[10] Dourish, P. *Where the Action Is: The Foundations of Embodied Interaction.* MIT Press, 2001.

[11] cf. Chalmers M., Galani A.,"Seamful Interweaving: Heterogeneity in the Theory and Design of Interactive Systems", *Proceedings of the ACM DIS* 2004, pp. 243-252, August 2004.

it is not unification but diversity, confrontation, transposition and borrowing that give rise to the most creative and interesting solutions.

HYBRYDYCZNE PRZESTRZENIE INTERAKCJI CZŁOWIEKA Z KOMPUTEREM W PERSPEKTYWIE POSTULATÓW *UBICOMP* (streszczenie)

Celem tekstu jest przyjrzenie się heterogenicznej naturze przestrzeni interakcji w systemach mieszanych/hybrydycznych rzeczywistości (*mixed/hybryd reality systems*), tzn. systemach, w których nakłada się na siebie przestrzeń codzienna z przestrzenią wirtualną, tworząc tym samym środowisko, w którym obiekty fizyczne i cyfrowe mogą oddziaływać na siebie w czasie rzeczywistym. Systemy hybrydycznych rzeczywistości są analizowane przez autora w perspektywie założeń teoretycznych nowego paradygmatu badawczego w ramach Human-Computer Interaction (HCI), jakim jest "*Ubicomp – ubiquitous computing "*. Jednym z celów, jakie stawia sobie *Ubicomp* jest wnikliwe rozpatrzenie, zarówno teoretycznie, jak i pod kątem potencjalnych zastosowań praktycznych, możliwości "bezszwowej integracji świata rzeczywistych ze światami wirtualnymi. Odnosząc się to tego, szeroko zakrojonego projektu, autor próbuje wskazać jak pojęcie "hybrydyczności " jest definiowane i do jakich ogólnych strategii projektowanie może prowadzić jego analiza.

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EXPERIMENTS IN (SOCIAL) SOFTWARE CURATING: REPROGRAMMING CURATORIAL PRACTICE FOR NETWORKS

Abstract

The paper addresses the issue of new developments in the field of curating in the context of information technologies. It explores the emergence of an interdisciplinary approach that directly links the field of curating with computer programming and a relatively recent interest in software art. Although there is much contemporary critical work and practice that is described as art-oriented programming or software art, the paper responds to a perceived gap in the discussions about software curating. It is important to emphasise that in this context software curating is not to be understood as the activity of curating software art works (in other words the activity of bringing software artworks into public domain) but as integrating software and programming in the curatorial process per se. Furthermore, the paper reflects upon the recent rise of popularity of social technologies and their relevance for curating. The underlying suggestion is that curating responds to this by developing new forms that increasingly involve socio-technological networks and that can be characterised as socially driven and distributed over networks.

With the changing models of cultural production and the art-culture system in general, the notion of what constitutes curatorial practice has significantly evolved. The proliferation of curating (and curators) from the 1980s and 1990s onwards offers far more diverse descriptions of curating – with freelance curators, or those outside of institutions (independent curators) operating in multiple roles (such as publishing, collecting, installing, designing, etc), and developing idiosyncratic methodologies for curating.[1] This can be partly linked

[1] For example, the term 'tactical curating' is used by R. McDonald (of Arts Initiative, Tokyo) to describe operating independently making reference to 'tactical media' – a contemporary form of activism that is best characterised by the appropriation of mass media and current technology to challenge institutions of power.

Further references: (http://en.wikipedia.org/wiki/Tactical_media); (http://www.tokyoartbeat.com/ tablog/entries.en/2007/08/curating-from-outside-museums.html).

to an increasing demand for art-mediation on the part of artists in a system that places economic value on contemporary art production (Funken 2004: 23). In a general sense, curators assist in the production of economic and non-economic value. Other definitions of curating that have emerged in a more current context point to its understanding as a technology, or rather one of the technologies - a form of production and a creative activity in itself – used by cultural institutions to frame and juxtapose artworks. This position defines curating as "a collaborative practice that establishes connections, creating mashup and collage-work, a technology to reinforce the shift away from the focus on artwork as the work of individual genius" (Rehn 2007).[2]

Paul O'Neill notes that "the term *curator* as 'a form of creative production' already began to be applied to a few independent practitioners in the 1960s working beyond institutional posts. This also marked a moment when the curator-as-artist phemomenon began to gather pace. What differentiates discussions around exhibition-making after the 1960s from those preceding them is that they move beyond self-criticism by artists to include the praxis of exhibition organisers, gallerists, critics and curators, who not only generated alternative, innovative and critical forms of exhibition, but also questioned the traditional understanding of what constituted the boundaries of art's production. Through various adaptations of the exhibition form, the curator began to take on the artist's creative mantle, whereby the traditional roles of artist, curator and critic were collapsed and conflated" (O'Neill, 2007).[3]

This shift represents an understanding of curating as part of a wider field of cultural production that includes a range of other agents, including artists, critics, collectors, and so on. The expanded understanding of curating is further enhanced by curatorial engagement with emerging technologies such as the Internet and the Web in the 1990s and more recently social technologies such as wikis, lists, blogs, tagging, online social networking platforms and software more generally. As Susan Morris explains in her "Museums and New Media" (2001), the expansion of functions of museums, prompted by new media and new artistic practices, changes the role of curators too – from the "keeper" of art works to a more active role in commissioning and creation of new works; to the role of producer, critic, collaborator and facilitator (ibid.: 14-16). The extended curatorial practice involves a multidisciplinary approach

[2] Alf Rehn, posting to iDC list, thread title 'Kurating Keen', 25 August 2007 (https://lists.thing.net/pipermail/idc/2007-August/author.html), iDC list archive (http://lists.thing.net/pipermail /idc/).

[3] Paul O'Neill, posting to Curatorial Network List, 23 October 2007 (http://www.curatorial.net/ pipermail/ curatorial/2007-October/000142.html); further discussion (http://www.curatorial.net/ pipermail/ curatorial/2007-October/thread.html).

in which curators serve as "go-betweens" or mediators and demonstrates a more general shift of emphasis from creating content to filtering content and presenting a context for it. This runs in parallel to an increasing emphasis in art and culture on "distribution" and reflects the changing pattern of work and cultural production more generally. As a result, museums and art institutions can be seen to operate more and more as networks, and as part of networks. This is also the case with curating, in that the curator is part of wider networks that serve and contextualise content. The paper reflects on these changes and draws attention to the emergence of new curatorial forms that involve software (and more generally programming) as an integral part of the curatorial process that is increasingly dynamic, distributed over networks and is inherently social in character. Consequently, the paper situates curating within the broader context of software cultures and coding practices.

What is distinctive about this approach is how discussion shifts from the concept of programmability and the algorithm as an organising principle of artwork (in a functional and/or technical sense) to a consideration of programming and code as cultural and aesthetic expression – under the broader and more contemporary term "software art practice".[4] Central to the discussion is the more general idea that the act of computer programming itself can be considered *artistic activity* and software can be considered *an artwork* as opposed to the activity of programming and software in their functional dimension as a means to facilitate the *production of an artwork*. Such a differentiation between software as functional tool, and software as cultural production in itself, and as art form, is common to the software art scene. This is explained by Olga Goriunova and Alexei Shulgin in their introduction to the *read_me festival 1.2* catalogue, where they state that "artistic software is, first and foremost, software created for purposes different than traditional pragmatic ones. Such programs are not seen as tools for the production and manipulation of digital objects – from online bank accounts to works of art – they are works of art in their own right" (2002: 6).

Software represents both technical and cultural processes, and these two aspects cannot be disentangled.[5] In general terms, software is defined as a set of formal instructions, or, algorithms, a logical score that can be translated into a computer program and executed by a machine. It also includes associated

[4] Of particular relevance to this discussion are for instance Goriunova and Shulgin (eds.) (2004), or Fuller (2003).

[5] Adrian Mackenzie reiterates the point in his book *Cutting Code. Software and Sociality* (2006): "Despite appearing 'merely' technical, technical knowledge-practices overlap and enmesh with imaginings of sociality, individual identity, community, collectivity, organisation and enterprise. Technical practices of programming interlace with cultural practices" (2006: 3-4).

documentation concerned with the operation of a data processing system (e.g. compilers, library routines, manuals, and circuit diagrams). There is a distinction made between "system software" (the operating system and database management system) and "application software" (any program that processes data for the user such as a word processor, etc.). In *A History of Modern Computing* (1998), Paul E. Ceruzzi emphasizes the complexity of the relationship between software (the set of instructions that direct a computer to do a specific task) and hardware (a general-purpose machine on which software runs): "A computer system is like an onion, with many distinct layers of software over a hardware core. Even at the center – the level of the central processor – there is no clear distinction: computer chips carrying 'microcode' direct other chips to perform the processor's most basic operations. Engineers call these codes 'firmware', a term that suggests the blurred distinction" ([1998]/2003: 80).

Conventionally, with the installation of digital artworks, the work of the programmer is relatively hidden and under-acknowledged as a creative practice in its own right. This issue is emphasized by Florian Cramer, who states that "The history of the digital and computer-aided arts could be told as a history of ignorance against programming and programmers. Computer programs get locked into black boxes, and programmers are frequently considered to be mere factota, coding slaves who execute other artist's concepts. Given that software code is a conceptual notation, this is not without its own irony. In fact, it is a straight continuation of romantic philosophy and its privileging of aesthesis (perception) over poeisis (construction) cheapened into a restrained concept of art as only that which is tactile, audible and visible" (2002: 18).

The parallel can be extended to curating by considering how on visiting the traditional white cube of a gallery or museum, the work of the curator (or artist for that matter) is relatively hidden from the display of the artwork. Emerging curatorial practices (examples will be described later in this text) serve to demonstrate how the curatorial process is revealed, much in the same way as the work of the artist-programmer. What this paper aims to highlight is the emergence of an interdisciplinary approach that directly links the field of curating (often understood as an activity of artistic programming) with computing (more specifically with the activity of computer programming) in the context of software art. Although there is much contemporary critical work and practice that is described as software art (or art-oriented programming), the paper responds to a perceived gap in the discussions about software curating. The approach reflects the recent shift of attention to the cultural significance of software and programming, and extends its relevance to

curating. Analogous to the distinction between software as a tool to produce art and software as artwork, an underlying assumption of the paper is an understanding that software can not only be used as a tool for curating and a display platform but also, and importantly, that it can demonstrate *curating in itself*.

If, in a conventional sense, curating follows a particular model of selecting, organising, displaying, contextualising and documenting of art works, then emergent curatorial forms attempt to rethink this model for the context of networks. What these forms suggest are new ways of organizing the curatorial process, new presentation platforms and new conceptions for the involvement with users – artists, computer programmers and wider audience alike – exploiting and in keeping with the properties of socio-technological networks.

The history that led to the emergence of this distinctive approach to curating can be linked to number of parallel developments. Firstly, there is a long history of curators organising exhibitions of art that involves technology, such as *Cybernetic Serendipity* (ICA, London, 1968) or *Software* (Jewish Museum, New York, 1970). The *Cybernetic Serendipity* exhibition (curated by Jasia Reinhardt), although not the first computer art exhibition as such (earlier exhibitions and projects were held in US and Germany), is seminal in the history of computing and art.[6] The particular significance of the project was in that rather than focusing on computer-generated work it took a wider focus and drew attention to art in combination with cybernetics, a relatively new field of scientific inquiry concerned with – in Norbert Wiener's description – "the entire field of control and communication theory, whether in the machine or in the animal" ([1948]/2000: 11). It was organised in three distinctive sections: "computer generated work, cybernetic devices-robots and painting machines, and machines demonstrating the use of computers / history of cybernetics" (MacGregor 2002). Around the same time, the exhibition *Software, Information Technology: its new meaning for art* (curated by Jack Burnham) explicitly used the term *software* as a metaphor for ideas, processes and systems as opposed to the *hardware* of traditional object-based practices.[7]

[6] The exhibition was accompanied by the Press Release (currently in Tate Archive, VA Pub 179) and an independent publication coinciding with the show – a special issue of *Studio International* entitled "Cybernetic Serendipity" (1968) edited by the exhibition curator Jasia Reichardt. For further references see MacGregor 2002, Reichardt 1968, Gosling 1968, Brown 1998 (http://www.mediaartnet.org/exhibitions/serendipity).

[7] For further references see Gere (2005: 156-160), Burnham (1970) and Eddie Shanken's "The House That Jack Built: Jack Burnham's Concept of 'Software' as a Metaphor for Art", an essay published in *Leonardo Electronic Almanac* 6:10 (November, 1998) (http://mitpress.mit.edu/ejournals/LEA/ARTICLES/jack.html), full version also available online (http://www.artexetra.com/House.html).

The exhibition included an eclectic combination of art and non-art from technological applications and experiments (computing and electronic research applications) through to conceptual art works and those overtly dealing with technology.

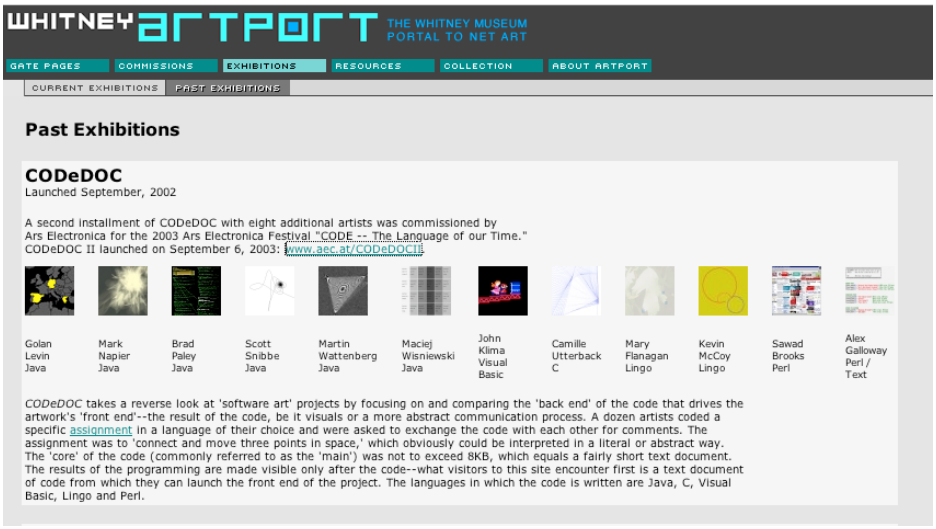


Fig. 1. *CODeDOC* (2002) screenshot,
http://artport.whitney.org/exhibitions/past-exhibitions.shtml

Other historically significant exhibitions and projects that dealt with an increaseing impact of communication technologies on art were: the *Art and Technology* project developed by Maurice Tuchman and Jane Livingstone at the Los Angeles County Museum in the period of five years (1966-1971), the *Information* exhibition curated by Kynaston McShine at the Museum of Modern Art, New York (1970); and the research projects by *Experiments in Art and Technology* (EAT) group (set up in 1967 by engineers and artists Billy Klüver, Fred Waldhauer, Robert Rauschenberg, Robert Whiteman) and by the *Center for Advanced Visual Studies* at MIT (founded in 1967 by György Kepes). A further example is the exhibition of computer-generated art *Tendencije 4* in Zagreb (1968) which, along with the magazine on aesthetic and media theory *Bit International* published at the same time, was recently revisited in a major "retrospective" *bit international: [Nove] Tendencije computer and visual research* curated by Darko Fritz in Neue Galerie am Landesmuseum Joanneum, in Graz (2007). More recently, the exhibition *CODeDOC* (2002) curated by Christiane Paul for the Whitney Museum's *artport* website (and later extended for Arts Electronica Festival in 2003) is

significant in shifting curatorial attention directly to the source code (displayed in the exhibition alongside its results as executed code).[8]

In parallel, there is also a history of the critical tradition of artists directly engaging with computational technologies and the openness of technological structures (Internet and software) – the artists essentially working like curators – that historically have made some of the most significant interventions in the field. The examples include: Alexei Shulgin's *Desktop Is* (1997-1998), Eva Grubinger's *C@C – Computer-Aided Curating* (1993-1995), and more recently, Robert Lisek's FACE (2007, in progress) and Pall Thayer*'s CodeChat* project (2007).[9]

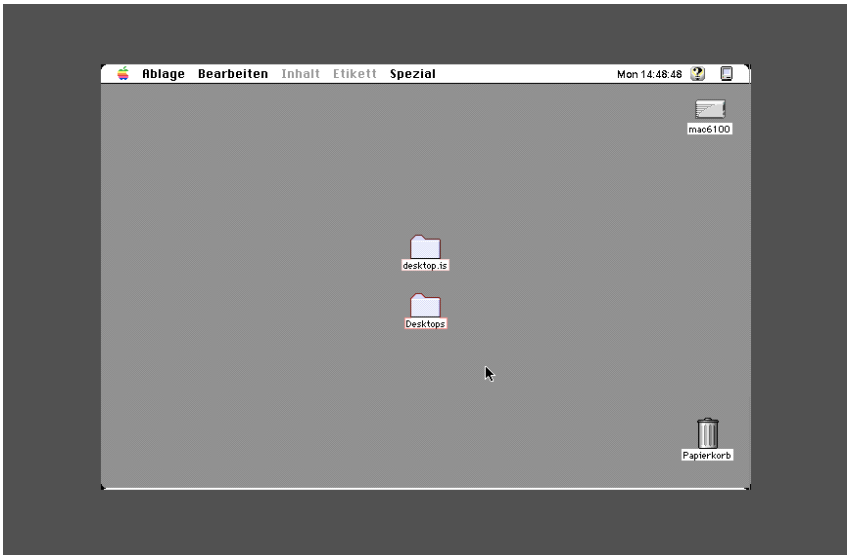


Fig. 2. *Desktop Is* (1997) screenshot http://www.easylife.org/desktop/

[8] Further references for the examples listed in this section are: *Art and Technology* (http://www.fondation-langlois.org/html/e/page.php?NumPage=706; http://www.fondation langlois.org/html/e/page.php?NumPage=706); *Information* (http://www.moma.org/research/ archives/ EAD/InfoExhibitionRecordsf.html); *Experiments in Art and Technology* (EAT) (http://www.fondation-langlois.org/html/e/page.php?NumPage=306; http://www.fondation-langlois.org/html/e/page.php?NumPage=237); *Center for Advanced Visual Studies* (http:// cavs.mit.edu/); *Tendencije 4* (*[Nove] Tendencije computer and visual research*, http://www. neuegalerie.at/07/bit/cover.html); *CODeDOC* (http://artport.whitney.org/exhibitions/past-exhibitions. shtml).

[9] The examples cited are: *Desktop Is* (http://www.easylife.org/desktop/); *C@C – Computer-Aided Curating* (http://www.evagrubinger.com; http://www.aec.at/en/archives/festival_archive/ festival_catalogs/festival_artikel.asp?iProjectID=8638); FACE (http://fundamentalresearch.org/ FACE/face.htm); *CodeChat* (http://pallit.lhi.is/~palli/codechat/codechat.php).

Desktop Is [Fig.2] was set up as a website displaying the images of computer desktops collected by the artists through an open public call; the artist set out the specific rules of public participation, collected and displayed the "works" sent by the public, thus acting in the manner of a curator. An even earlier example of a similar approach was *C@C - Computer-Aided Curating* [Fig. 3], a software-driven tool and a curatorial online system developed in collaboration with the computer programmer Thomax Kaulmann. The system not only enabled the artists to create their own works in online "art-studios" with built-in editing tools, but also provided a context for the presentation and selection of other artists' works, creating the structure of a social network. The website also included a discussion forum for the exchange of comments by the public and the curators, and spaces for art dealers to present and promote their activities. Christiane Paul comments on the project in her "Flexible Contexts, Democratic Filtering, & Computer-Aided curating" (2006) in the following manner: "In terms of curation, C@C proposed a fluid environment that did not separate production, reception and presentation, and ideally enabled the artists and the public to play a curatorial role to varying degrees. In this case, the software was mostly a supportive tool and framework and did not assume a curatorial function per se" (2006: 100).

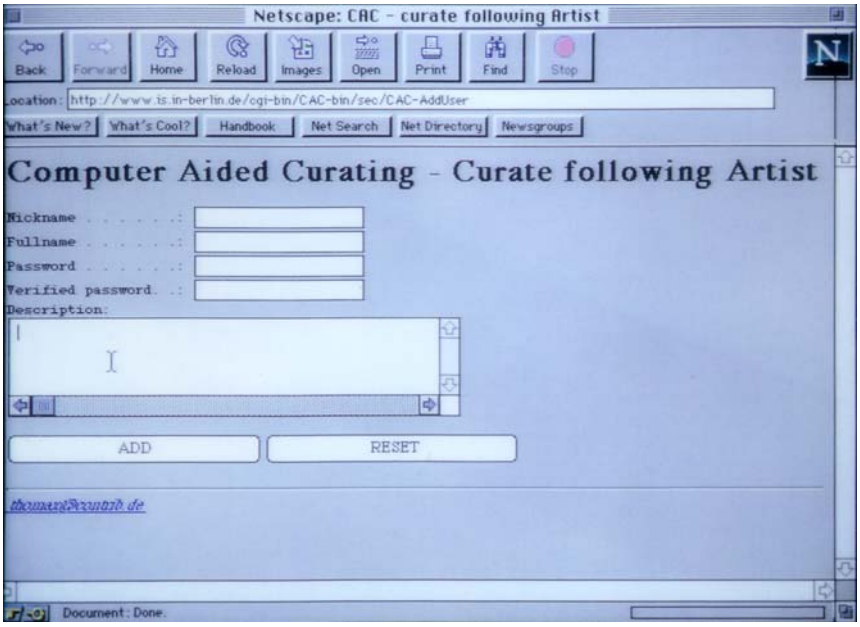


Fig. 3. *C@C: Computer Aided Curating* (1993) screenshot courtesy of http://www.evagrubinger.com

A more contemporary version of such an approach, both in terms of chronology and the technological system employed, is *FACE* (Free Artists Concepts Exchange) [Fig. 4]. The project can be described as a web enabled system for the exchange of concepts, the display of work, collaborative production and experimenting, and plays with "the meaning of media objects by creating, transforming the downloaded media objects, which are in a sense 'source code' to work with". It builds upon the technical system that uses the structure of nodes and DAG (directed acyclic graph). This allows the user to represent and manipulate concepts and projects and the system facilitates an online, flexible and collaborative platform. The emphasis is on the collaborative aspect in that the curatorial responsibility for the architecture of *FACE* and its structural parts (i.e. nodes) is distributed across its participants. Furthermore, the process of creation, organisation and dispersal of concepts is represented by the flow of graphs, where each concept has a dedicated node, or a configuration of several nodes in the graph. The project's website explains that while "the content published by participants is located at the edges of the graph, the nodes represent a system of tags used by participants for the indexing of content". Simultaneously, participants can control their own graph(s), as well as navigate through the system, exploring the graphs of other participants. The significance of this lies in the productive interrelation between local interventions by each of the participants and the network's global behaviour, and the social relations that arise from this.

Fig. 4. *FACE* (2007) screenshot of the project website (under development), http://fundamentalresearch.org/FACE/face.htm

There is an increasing tendency in this growing field of practice to emphasize the integration of the aesthetic and the technical aspects of the works that place the source code at their centre. A particularly interesting example in this respect is the *CodeChat* project, which is a code-based chat system developed as a means to discuss the conceptual and aesthetic implications of coding methods in art that involves programming [Fig.5]. The system is structured as a single Perl script to facilitate a database of text-based code files submitted as open source (or at least part of the submitted code has to be open source to allow public commenting). According to the project description, the Perl script automatically generates an html file with comment sections for each line of the submitted code. The commenting system is AJAX based, driven by Javascript, PHP and MySQL. The project is structured as an open dynamic system that entirely relies on public participation expressed in an active involvement in providing content (source code) and sustaining dynamic and transformative potential of the project through the function of public commenting. The project is particularly interesting for the context of this paper in that it combines the aesthetic potential of source code (essentially as an "artwork" that can be put on display for public viewing) with its technical and functional potential (demonstrated through public commenting on the specific lines of code in order to share more technical knowledge).

Fig. 5. *CodeChat* (2007) screenshot, http://pallit.lhi.is/~palli/codechat/codechat.php

Although in a general sense it is not new for artists to work like curators in organising public presentations of their and other artists' works, the interesting aspect of these examples is that they present an artwork that at the same time possesses attributes of an online curatorial system that relies on public contributions. Furthermore, these examples can be considered as symptomatic of a practice that deliberately confuses the firm distinctions between artistic practice, computer programming and curatorial practice extending what was described earlier as the process of collapsing and conflating of the traditional roles of artist, curator and critic.

The reverse of this holds too. Just like artists-programmers increasingly work like curators, more recently a similar tendency appears to be emerging from the curatorial field per se and there are growing numbers of overtly curatorial interventions in this respect. This tendency that emerged from the shared perception of the Web and the Internet as an increasingly independent and open platform for the production and presentation of art can be well instantiated in such projects as *Runme* (2003), *kurator* (2008), *unDEAF* (2007), *TAGallery* (2007) and *Hack-able Curator* (2007), to mention only a few prominent examples.[10]

Runme [Fig. 6] is a software art repository and an online presentation platform that further develops the idea of curatorial engagement with software processes (software-based filtering of software art projects).[11] The repository is structured through a taxonomy of categories, such as "code art", "conceptual software", "games", "generative art", and so on, as well as more intuitively through keywords that provide further descriptions of submitted projects. Both the "category list" and the "keywords cloud" are open for public modification through the identification and proposal of new terms. In this case, curatorial control is exerted on the level of setting the initial parameters of categories and through a review system that allows editors or so-called "experts" to highlight the perceived "best works" with short commentaries. The curatorial process is based on a relatively open, yet somewhat moderated, database that allows users to self-submit their works – an option almost embedded in the software.

[10] The examples cited are: *Runme* (http://www.runme.org); *kurato*r (http://software.kurator.org/v1/); unDEAF (http://undeaf.v2.nl), *TAGallery* (http://del.icio.us/TAGallery/); *Hack-able Curator* (http://www.hackablecurator.org.uk/).

[11] *Runme* (http://www.runme.org), launched in January 2003, is a collaborative project developed by Amy Alexander, Florian Cramer, Matthew Fuller, Olga Goriunova, Thomax Kaulmann, Alex McLean, Pit Schultz, Alexei Shulgin, and The Yes Men. Further members are Hans Bernhard and Alessandro Ludovico. The Runme.org website has been conceptualised and administrated by Amy Alexander, Olga Goriunova, Alex McLean and Alexei Shulgin; and was developed by Alex McLean.

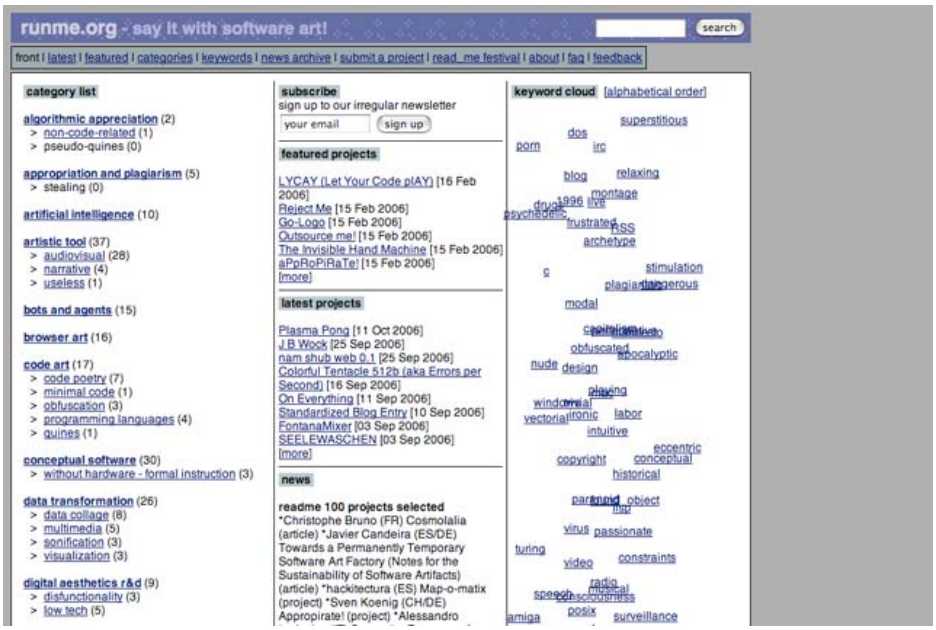


Fig. 6: *Runme* (2003) screenshot, http://www.runme.org

The description of collaborative and participatory platforms informs much of the current critical debate around the so-called social technologies, defined simply as platforms for connecting people or allowing for collaboration, and highlights how sociality goes beyond technology itself to the communities and individuals who use it.[12] The argument is that practices in art and technology are increasingly characterised in terms of their social impact, involving the

[12] The issue of how social technologies can be adapted for mainstream art galleries is demonstrated for example in the Saatchi gallery online project Your Gallery. It plays on the earlier popular online social platform Myspace (operating under the slogan "a place for friends"), and more recently YouTube (operating under the slogan "Broadcast Yourself"). It offers to "showcase your art to thousands of visitors every day", and the added attraction of displaying your work on Saatchi's online "gallery" is the possibility of being selected by invited "experts–critics" to the so-called "Saatchi Online top 10", or even more prestigious prize of being selected for shows in physical venues. This demonstrates that, despite the claims of many: "communities like this supplement rather than supplant: eBay created a new market and new opportunities for small businesses, but it has not replaced conventional retail", quoted in the iDC List posting from Chris Byrne, 17 August 2007, List Archive (http://mailman. thing net/ pipermail/idc/). References: (http://www.saatchi-gallery.co.uk/yourgallery/), (http:// www. myspace.com/), (http://www.youtube.com/).

[13] The description of social technologies and critical concerns that underpin the current discussions in this field is derived from the *Art & Social Technologies* research group (at the University of Plymouth, UK) (http://www.art-social.net).

processes of intensive cooperation and communication.[13] In this connection, Goriunova (2007) considers Internet platforms, such as collaborative and participatory art platforms for collective production, distribution, and presentation of works, as symptomatic of cultural production in late capitalism. The concept of a platform is explained as a website organized in a particular way, either as a relatively simple database containing artworks or a more complex portal built around a database. What is distinctive about a platform is the "creative, social, instrumental, educational and historical character it establishes and is involved with" (Goriunova and Shulgin 2006: 237). In functional terms, a platform provides a context and often tools to stimulate creative initiatives and experimental work, and furthermore acts as a space for presentation, exchange and discussion about the work. In this way art platforms can be considered "a successful system for production and management of an artistic trend, [...] something in-between a content management system, online web site, library and a club based on a networked platform". However, these online platforms can be regarded as expressions of creativity in a social context that in turn becomes the latest resource for capitalism to exploit. A particularly good example of these principles are online tools – the so-called social technologies such as wikis, lists, blogs, and online social networking platforms – that allow "open source" models of practice. With the current unprecedented rise of their popularity, curators increasingly attempt to engage with these systems testing their potential, developing new forms of practice, and providing critique.

For instance, the *kurator* project takes this idea further to implement an open curatorial system for collecting and displaying source code [Fig. 7][14] Designed as free software application that can be further modified by users, *kurator* follows the structures and protocols of conventional curating and implements a series of algorithmic processes that partly automates these procedures. It translates curatorial protocols into modular software protocols, breaking down the curatorial process into a series of commands or rules. The software opens up the curatorial process to the public by offering a system that is open to user input – in terms of submitting source code, arranging displays, commenting on these, adding functionality and modifications to the software itself. The project consists of an open, collaborative and un-moderated database of code and

[14] *kurator* (http://software.kurator.org/v1/) is a collaborative project developed by Joasia Krysa and Duncan Shingleton, with contributions from Hugo de Rijke, Geoff Cox, George Grinsted, Grzesiek Sedek, and Adrian Ward, with site design by Giles Macleay. This version of software was launched in 2008, and a demo of the *kurator* software can be viewed at (http://platforma. kurator.org/assets/video/kurator_demo/). An earlier version (beta 0.1) produced in 2005 was programmed by Grzesiek Sedek and is archived at (http://www.kurator.org/wiki/ main/read/ Kurator).

a display platform. The code collected through an open-submission process is indexed and stored in the project repository, and can be arranged into larger selections for public display. The displays are thematically organized selections of code from the project repository created by users, or automatically generated by the *kurator* software itself. In parallel to the activity of curating code into displays, the users – programmers, curators, artists and the general public – can make modifications to the *kurator* software itself. New versions of the software can be saved in the project repository for public display, comment and further development. The intention is to draw together the operations of software and curatorial practices, broadly understood as activities of collecting and organising materials for display and making meaning. The parallel is encapsulated by the ambiguity of the term *programming*, referring both to the work of the curator and the computer programmer – both programming source materials and codes. The online platform stresses the activity of programming and the importance of the sharing and modifying of source codes, and thereby the possibilities of producing curatorial software and rethinking the practice of curating as a "collective executable" beyond a singular closed proprietary model.

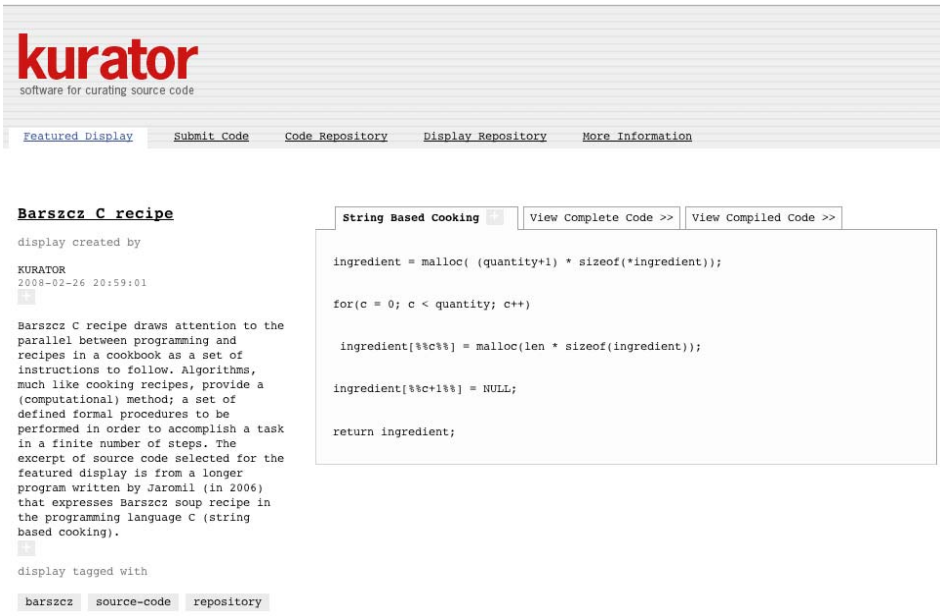
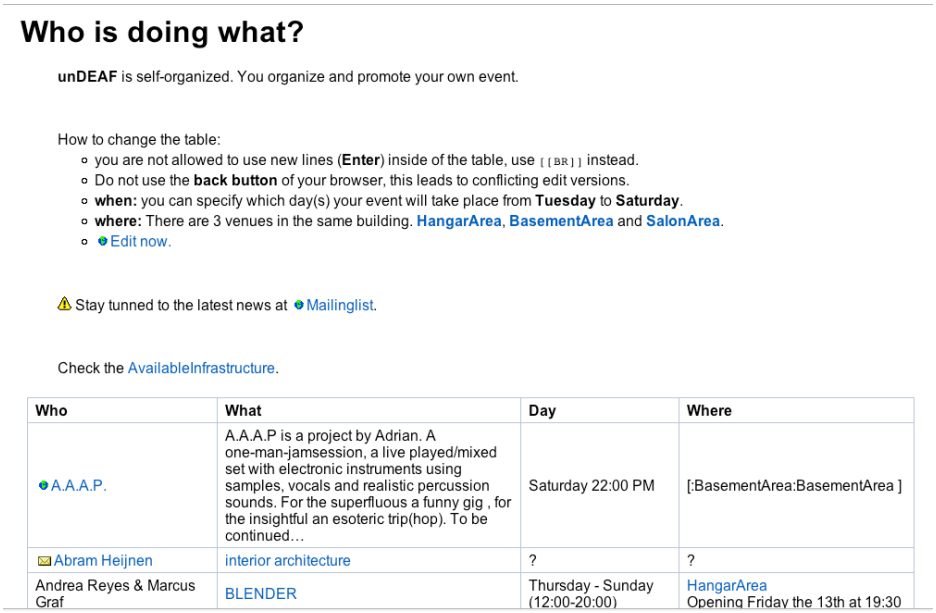


Fig. 7. *kurator* (2008) screen shot: Featured Display: "Barszcz C Recipe", http://software.kurator.org/v1/

Similalry, the curatorial project *unDEAF*, a satellite event of the Dutch Electronic Art Festival 2007 (DEAF) in Rotterdam, used an open and unmoderated wiki as a platform to facilitate and schedule an art event [Fig. 8]. It described itself as "an uncurated, unmoderated, self-organizational online and offline ecosystem where the content and development is driven and created by the participants". In this sense the project served to undermine the usual centralised and hierarchical organisational model of curating.[15] The screenshot emphasizes the more measured popular science description "self-organized", as clearly any claims to be unmoderated or uncurated is an act of moderation and a curatorial decision in itself.



Who is doing what?

unDEAF is self-organized. You organize and promote your own event.

How to change the table:

- you are not allowed to use new lines (**Enter**) inside of the table, use [[BR]] instead.
- Do not use the **back button** of your browser, this leads to conflicting edit versions.
- **when:** you can specify which day(s) your event will take place from **Tuesday** to **Saturday**.
- **where:** There are 3 venues in the same building. **HangarArea**, **BasementArea** and **SalonArea**.
- Edit now.

Stay tunned to the latest news at Mailinglist.

Check the AvailableInfrastructure.

Who	What	Day	Where
A.A.A.P.	A.A.A.P is a project by Adrian. A one-man-jamsession, a live played/mixed set with electronic instruments using samples, vocals and realistic percussion sounds. For the superfluous a funny gig , for the insightful an esoteric trip(hop). To be continued…	Saturday 22:00 PM	[:BasementArea:BasementArea]
Abram Heijnen	interior architecture	?	?
Andrea Reyes & Marcus Graf	BLENDER	Thursday - Sunday (12:00-20:00)	HangarArea Opening Friday the 13th at 19:30

Fig. 8. *unDEAF* (2007) screenshot, http://undeaf.v2.nl/

[15] *unDEAF*, Rotterdam (2007) (http://undeaf.v2.nl/) is a project by Rui Guerra. Other earlier examples of using wikis in curatorial process include *Open Congress*, 2005 (http://opencongress.omweb.org/wakka/HomePage) and *NODE.London* 2006 (http://nodel.org). While the curatorial process of *Open Congress* was facilitated through an online wiki that simultaneously served as a vehicle for documentation and the further distribution of a two-day public event, presented in a mainstream art gallery, *NODE.London*, the wiki website was "created to locate media arts in London by inviting practitioners to put themselves on the map and to describe their connections to other individuals, projects and venues". In this way the project "worked as an open organisation, using consensus decision-making and pooling ideas, resources and even people".

Much in the same way as exploring wiki as a collaborative system for curating, blogging can be thought of as a participatory curatorial activity in the broadest sense. For instance, the curator Luis Silva (2005) speculates on the idea of "curating as blogging" and asks: "What if a blog could be thought of as an exhibition? It would turn blogging activity into curating. The idea is not new at all, but it is still somewhat difficult to accept by those practising in traditional curatorial activities. (…) What has source code become? I (the blogger) am responsible for selecting works (and other relevant documentation for the purpose of this blog/exhibition), displaying them (their urls) and recontextualizing them from my own point of view. What I am doing in this process is basically what any curator does."[16] This line of thinking, which can be linked conceptually to montage techniques, informs the development of the exhibition *link.of.thought_thought.of.link* (2007) for TAGallery (an online curatorial platform established by CONT3XT.NET[17], where the format of the blog is applied to the idea of curating[18] [Fig. 9]. The curators of the project explain their interest in blogging as a curatorial model "where every thought leads to a new thread. Our technique takes inspiration from exquisite-corpse by the surrealists, but plays it by its own rules. Instead of concealing the part that was written we used it as some sort of chain-reaction (...) Therefore each collaborator adds sequentially a new choice of links."[19]

[16] For more information see (http://vercodigofonte.blogspot.com/2005/11/on-blogging-as-curating.html).

[17] CONT3XT.NET is a Vienna-based organisation founded in 2006 as a collaborative platform for the discussion and presentation of the issues related to (New) Media Art. The collective was founded by Sabine Hochrieser, Michael Kargl (a.k.a. carlos katastrofsky) and Franz Thalmair. (http://cont3xt.net/index.php)

[18] The project is described in the following way: "TAGallery by CONT3XT.NET extends the idea of a tagged exhibition and transfers the main tasks of non-commercial exhibition-spaces to the discourse of an electronic data-space. The method of tagging allows the attribution of artworks to different thematic fields. In TAGallery the act of selecting and recombining – besides chronologically ordered show-rooms, exhibition-titles in a semantically concentrated form and various ways of contextualizing the presented artworks – will be published as well: The continuous progression of curating can be followed by the public, using newsfeeds." The TAGallery is located online (http://del.icio.us/TAGallery). The first TAGallery-exhibition *dead. art(-missing!)LINKreSources* deals with the idea of a "link" as metaphor for networking, collaborating, contextualizing as well as with its reversed connotation: a missing or broken link. The link that is not working stands for the ephemerality of Web-based art-forms. The requested URL not found on the server emphasizes just as much the need for human care and maintenance as technology itself. References: Gallery (http://del.icio.us/TAGallery), Exhibition (http://del.icio.us/TAGallery/EXHIBITION_dead.art).

[19] Other examples of the use of blogs in relation to (public) curating, as listed in CRUMB List posting from 15 August 2007, include: http://www.curating.info (run by Michelle Kasprzak), http://museumtwo.blogspot.com/ (run by Nina Simon), http://curating-netart.blogspot.com (run by Ursula Endlicher and Ela Kagel), http://leisurearts.blogspot.com/ (run by an anonymous group). More generally in relation to new media art, examples of blogs listed in the same CRUMB posting were: http://www.we-make-money-not-art.com (run by Regine Debatty);

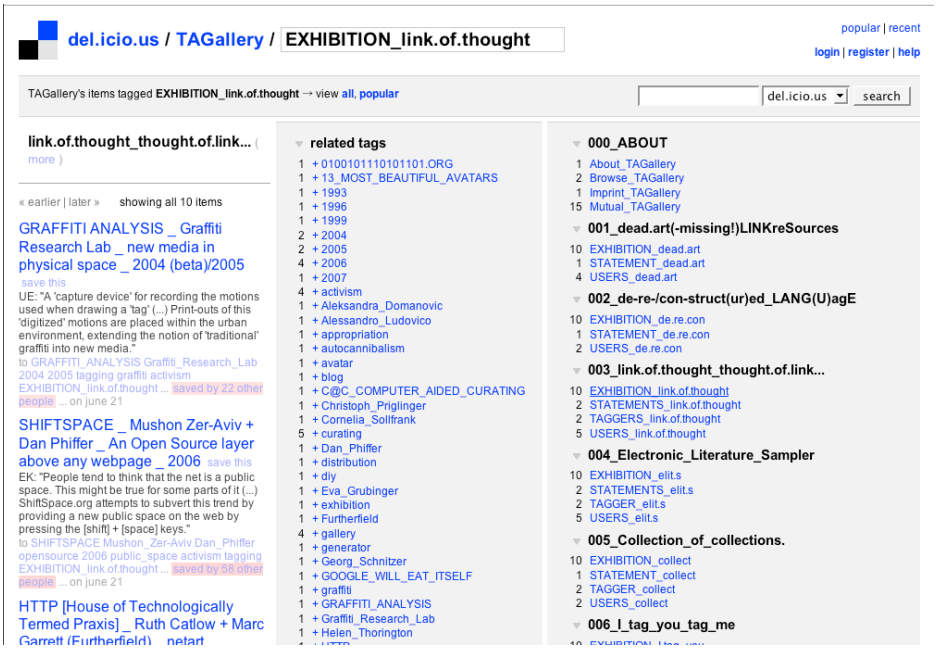


Fig. 9. *TAGallery/EXHIBITION_link.of.thought* (2007) screenshot, http://del.icio.us/TAGallery/EXHIBITION_link.of.thought

A similar speculative idea based on the aspects of social media is tagging as curating, making reference to web sites such as del.icio.us, a social bookmarks manager in which users can add bookmarks and categorise them through the use of tags to describe the bookmark in more detail.[20] This informs the development of another project by TAGallery, *I tag you tag me: a folksonomy of Internet art* (for TAGallery), where the method of tagging allows the attribution of artworks to different thematic fields [Fig. 10]. Luis Silva, the curator of this online "exhibition", describes it in the following way: "If tagging creates meta-data about pre-existing content, it can be seen as the creation of a discourse about it. And if that content happens to be an online artwork, tagging both allows for a subjective juxtaposition of art works and the elaboration of a critical discourse about it. Curating then. But this isn't new.

http://blog.furtherfield.org (run by furtherfield/http); http://www.test.org.uk (run by Matt Locke), http://www.eyebeam.org/reblog/ (run by a different person every two weeks), http://blogs.walkerart.org/newmedia/ (run by designers/producers), http://www.coinoperated.com/ (the site of artist Jonah Brucker Cohen). The CRUMB List Archive can be found online (http://crumbweb.org/discussionMenu.php?id=9&showList=1&ts=1199034774).

[20] For more information see (http://del.icio.us/).

This is regular curating done in a schematic way, using a different tool to get the job done. But since tagging is a social activity in its essence, giving birth to folksonomies, it allows for social curating, with social selection of works and social production of discourse about them."[21]

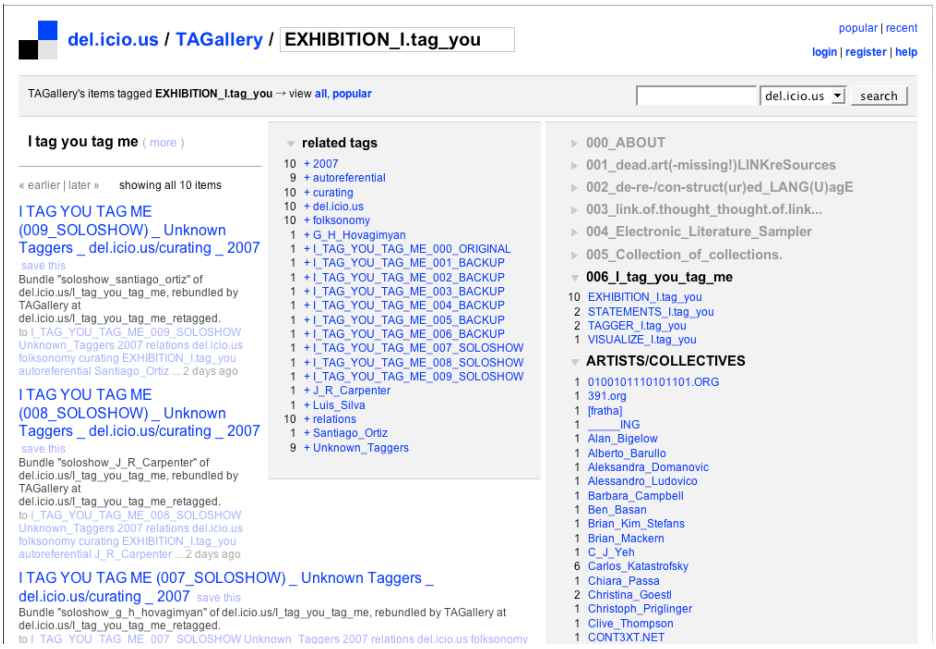


Fig. 10. *TAGallery/EXHIBITION_I.tag_you* (2007) screenshot, http://del.icio.us/TAGallery/EXHIBITION_I.tag_you

[21] Luis Silva further explains the idea of social bookmarking and its relation to curating: "Social bookmarking allows for users to easily store lists of resources (websites, for instance) and have them available to the public, allowing people with the same interests (or not) to share and have easy access to relevant information on a specific subject. But the most important feature of social bookmarking lies in the categorization of these resources by the users themselves. Tagging is the word that comes to mind. Tagging consists basically in the possibility these social bookmarking services have of allowing the users not only to bookmark something, but to informally assign tags (relevant keywords) to it, thus creating meta-data about the tagged resources in a collective way, rather than individually, something that can be seen as a second layer of meaning, but determined by the users rather than the original producer of the content. This is what is called folksonomy, a user-generated taxonomy used to retrieve and categorize web content." References: (http://del.icio.us/TAGallery/STATEMENTS_I.tag_you; http://del.icio.us/TAGallery/EXHIBITION_I.tag_you).

The *Hack-able Curator* project combines curating with robotics, social technologies and the practice of "hacking" to offer an experimental curatorial system that questions the singular subjective role of the curator and the possibility of democratisation of curating by hacking the curatorial process [Fig. 11][22] The robot curator is connected to the Internet so that it can expand the physical space into networks (both social and technological) and the entire system represents the figure of the curator. The curatorial processes involve: "a pre-selected set of tags, the tags to search the social platform Flickr for images for use in an imaginary show, creating a pool of images to choose from, presented these images on a computer screen nine at a time, making a selection of one or more images that fits its curatorial criteria by the robotic arm via a software algorithm, informing the owner of the image about the intention of including their image in the show giving them the opportunity to opt-out, and finally displaying selected images on the project website. Simultaneously, the robot prints label stickers for each of the tags associated with the chosen image."

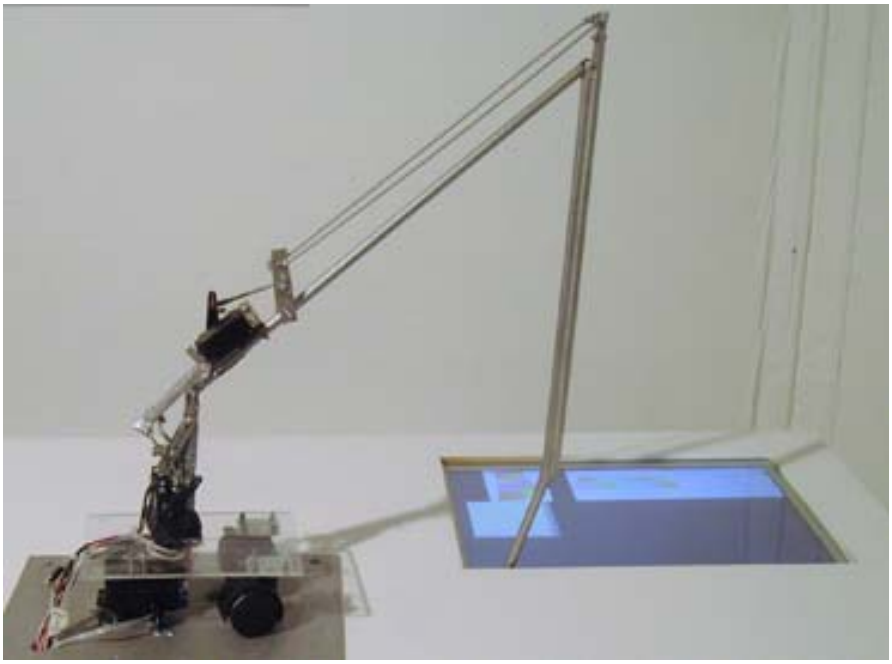


Fig. 11. *Hack-able Curator,* exhibition documentation shot, http://www.hackablecurator.org.uk/

[22] *Hack-able curator* (2007) is a collaborative project by students of masters programme in Digital Art and Technology (m-DAT) at the University of Plymouth (UK): Anita Barwacz, Lindsey Bedford, Andy Bennett, Anaisa Franco, Martha Patricia Nino and Richard Wilkes. It was first shown as part of *SLOW* exhibition (January – March 2007) at the Plymouth Arts Centre, Plymouth, UK (http://www.hackablecurator.org.uk/).

The intention behind this experimental work is not to replace the figure of human curator (with a machine) but to de-construct it and reflect upon the emerging social tools for curating in a collaborative context.[23]

The examples mentioned so far are by no means an exhaustive list in this field, but what they indicate is an increasing curatorial engagement with software and networks that facilitate a social dimension. Consequently, the suggestion of this paper is that the curatorial practice is now closely integrated with the dynamics of the socio-technological networks and with the software that is not simply used to curate but demonstrates the activity of curating in itself. Describing curating in such terms implies a state in which the curatorial system continuously interacts with the socio-technological environment: the system is opened up to the communicative processes of the producers/users and to the divergent exchanges that take place and that disrupt established social relations of production and distribution. Importantly, it is a network of users that constitutes the system, along with the technological apparatus in its broadest sense. An emphasis on the user in the curatorial system is particularly significant in this context, as it is the user who dynamically determines its openness. Thus, and importantly for an understanding of the power relations involved, the software opens up curating to the dynamic possibilities and transformations. What these emerging curatorial forms suggest are new ways of organizing the curatorial process, new presentation platforms and new ways of involving users – exploiting the properties of socio-technological networks and merging software and curating more explicitly. In this context, the emphasis is on the software used not only as tool and display platform but importantly as part of the curatorial process that is increasingly distributed over networks and is social in character. As a result, the term *software curating* necessitates an engagement with instructions (the program) and the writing of these instructions (programming) but also a networked system (an online software and a dynamic network of users) within which these instructions are executed.

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[All websites last accessed 16/01/08]

PRZE-PROGRAMOWANIE PRAKTYKI KURATORSKIEJ DLA SIECI: EKSPERYMENTY KURATORSKIE Z SYSTEMAMI OPROGRAMOWANIA (WERSJA 2.0) (streszczenie)

Wraz ze zmieniającymi się modelami produkcji kulturowej i kształtowaniem się rozbudowanego systemu sztuki-kultury, rozumienie tego, co stanowi praktykę kuratorską również ulega zasadniczym przemianom. Bezprecedensowe rozpowszechnienie działalności kuratorskiej (oraz kuratorów) zwłaszcza od lat 1980. i 1990. oferuje coraz bardziej zróżnicowane modele form i praktyk – z kuratorami działającymi niezależnie od instytucji, podejmującymi jednocześnie wiele ról, coraz częściej działającymi w oparciu o współpracę, wypracowującymi indiosynkratyczne metodologie kuratorskie.

Niniejszy tekst rozważa zmiany w tej dziedzinie, koncentrując się na rozwoju praktyk kuratorskich, które wykorzystują najnowsze osiągnięcia technologii informacyjnych (Internet, systemy oprogramowania, platformy online, etc). W szczególności, tekst proponuje interdysciplinarną koncepcję kuratorstwa, która bezpośrednio łączy je z dziedziną programowania komputerowego oraz relatywnie nowym obszarem działalności artystycznej określanym terminem „*software ar*t.”. Podczas gdy dorobek w tej ostatniej dziedzinie jest już dość pokaźny, zarówno w zakresie teorii (krytycznych opracowań), jak i praktyki, która definiuje się w kategoriach programowania komputerowego zorientowanego na sztukę (programowanie jako działalność artystyczna) czy właśnie sztuka oprogramowania (*software art*), to niniejszy tekst proponuje wypełnić lukę w dyskusji na temat praktyki kuratorrskiej i oprogramowania (*software curating*). Przy czym istotne jest w tym kontekście, że przedmiotem dyskusji (i samego konceptu „*software curating*”) nie jest praktyka kuratorska, która zajmuje się s*oftware art* (czyli pokazywanie, propagowanie, kontekstualizowanie, teoretyzowanie w odniesieniu do tego rodzaju działalności artystycznej), lecz integrowanie systemów oprogramowania i aktywności programowania komputerowego w sam proces kuratorski. Ponadto tekst wskazuje na obecny wzrost popularności serwisów społecznościowych oraz ich przydatność dla praktyki kuratorskiej. W tym kontekście autorka stawia tezę, że praktyka kuratorska odpowiada na te zmiany poprzez wypracowywanie nowych form, które coraz intensywniej wykorzystują społeczno-technologiczną sieć i oprogramowanie, form, które można zdefiniować jako zorientowane na kontekst społeczny, rozpowszechnione w sieci, otwarte, i oparte na współpracy systemy kuratorskie.

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She regularly contributes to publications, conferences and panels. Most recently she published a chapter in Software Studies: A Lexicon (edited by Matthew Fuller, MIT 2008), edited Curating Immateriality book (Autonomedia, New York 2006), presented at Computer Art Congress 2008 at the Tecnológico de Monterrey in Mexico, and organised the panel 'Curating in/as Open System(s)' for the ISEA 2008 (International Symposium on Electronic Art) in Singapore. Recent curatorial projects include an experimental online software kurator (http://software.kurator.org/v1/); and exhibition After TheNet curated for Observatori 2008, 9th Festival Internacional de Investigación Artística de Valencia (http://www. observatori.com/).

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MAN AS AN ELECTRO-MECHANICAL ART PROJECT

Abstract

The concept of the machine as an extension of the human body or a kind of prosthesis is rooted in European cultures (cf.. the mechanical dolls created in ancient times, which can be regarded as the prototypes of robots). The concept of cyborgs is part of contemporary imagery. A cyborg may be perceived as a creation of imagination, inhabiting s/f films and novels, but also as an element of modern reality, a hybrid who changes the relationships between nature and culture, by making technology indispensable to its life. Referring to this Janus creature in the present volume, I use the term *cyborg* in a double meaning: firstly when I talk about the creation of human imagination, futurological projections and speculations; secondly to refer to the modern man preoccupied with technology.

It is difficult to draw clear boundaries between fiction and reality; one is reflected in the other. Fiction and imagination allow us to perform a mental experiment of creating a different version of ourselves – for example a human as an electro-mechanical art project. This project is the subject of the article.

In the world of perfect imitations
art is born out of imperfect copying.[1]

BETWEEN AFFIRMATION AND FEAR

The motto above was taken from a modern science-fiction novel which presents a vision of the world/worlds in the 29th c. inhabited by post-humans. Due to the highly developed technology they are no longer dependent on basic biology, thus such categories of homo sapiens' life as birth/death, inside/ outside, male/female, physiological/mental become vague. However, the novel mentions other problems, all of them resulting from a clash of two perspectives: human and post-human. The imperfections of a copy from the

[1] Jacek Dukaj, *Perfekcyjna niedoskonałość*, Kraków: Wydawnictwo Literackie 2004, p. 137.

quote above are a metaphor for human identity and individuality – the imperfections of a human endangered by the processes of trans-humanism.

Assuming that literature (*science fiction* included) is not a lonely island separated from reality by a vast ocean, but is part of it, it should be noted that from the turn of the 20th century the motif of transgression (from a human to some sort of post-human order) appears with increasing frequency in literary works Why is that so? We might point on the one hand to the speculative factor (a dynamic technological development transforming reality and our internal lives makes us speculate on different scenarios for the future), and on the other hand to the metaphorical factor (within a complicated web of bureaucracy, science, and technology people seem to be robots, cogs in the machinery of civilization, outlaws, etc.).

There is something very attractive, but worrying about the network of relations between a human seen as a psycho-biological unity and a human who extends the borderline of this category using highly developed technology. From one side such perspective is a tempting one. Due to the merger between a human and technology we can be more beautiful (cf. plastic surgeries), more efficient (artificial electro-mechanic limbs replacing the ones lost in accidents), more fit and agile (cf. medicines supporting physical and mental activities), more operative (cf. modern means of transport and multi-media communication). On the other hand, not many people are happy in this electro-mechanical world. For some it is heartless, mentally strange; the others lacking the access to highly advanced technology are unable to make use of such facilities (due either to the lack of education, lack of financial means, or to the mental barriers existing within a culture with a limited access to technology). The paradox of such a situation is that it is self-leveling system. Even if access to the achievements of post-industrial civilization is not the same for everybody, globalization is. Both the excitement and the frustration connected with the marriage of a human and technology are played out within the same web.

That is why many philosophers, sociologists, psychologists, writers, painters, sculptors today notice the problem of the transformation of the humans. They do it not because they know the secrets of medicine, mechanics, electronic engineering. It is just the other way round. Neither the representatives of the human sciences nor artists know the first thing about the complicated electro-mechanical artificial body parts substituting for or improving human body parts, or the work on painkillers in the labs, or the work on the new systems of multi-media communication. Though the outcome of such research is commonly encountered – like it or not, as we all live in a world filled with computers, screens, advertisements, mechanics and bio-technology. If this is to

be treated as an important part of the modern post-industrial culture, the interest in such things on the part of human scientists is justified. We have discussed about what it means to be human for ages, and there is a whole world of ideas relevant for such discussion.

THE BODY AS A PIECE OF ART

Today one of such ideas is "the man of the future" – a human-technological hybrid, a cyborg. Such a man designs himself using highly advanced technologies, medicine, nano-technologies, cosmetology. The word *project* is highly appropriate in this context, as "the man of the future" is not satisfied with what he gets from nature, but he shapes nature according to his wishes. Basically, the attitude of this man towards nature is a reinterpretation of the concept presented 2500 years ago by Greek philosophers and sculptors.

Should one recall the ancient discussion on the relationship between art and nature, it brings to mind a whole spectrum of ambivalences. Nature is where you can find perfect beauty, and the perfect representation of it could be achieved by collecting all of its specific instantiations. Socrates claimed that it is difficult to find a man whose looks are perfect. Thus, the role of an artist is to search among many perfect examples of particular body parts and subsequently to join them into a perfect whole.

The ancients would be surprised to see the amazing reinterpretation of those ideas carried out in the era of highly developed technology and self-creation. The modern French writer Eric Emanuel Schmidt has published a novel, entitled *When I was a piece of art*, in which an eccentric artist offers to turn a young man into a piece of art. He only has to fake his own death, give up his freedom and have a surgery turning him into an exceptionally beautiful artefact. Since the young man is of a rather common appearance and suffers from the lack of sense in his life, he eagerly agrees. Then he loses the right to decide about his fate, he becomes an artefact, the property of the artist. To some extent the idea of the novel is based on Wolfgang Goethe's *Faust*, but here the young man gives away not only his soul, but also his body, tempted by the vision of greatness, perfectness and fame. Only after some time does he notice that he had been trapped by his own vanity and credulity, and he starts to be human again.

In reality, unlike in Schmitt's novel, the transformation of one's body into an ideal statue is not a curse but a real dream. Nowadays, at the turn of the third millennium, the role of a body shaper has been given to medical men who use science and technology to perform their magic. The dynamic development of plastic surgery and biotechnology creates the tools that allow the surgeons to shape bodies: correct, repair or change its particular parts to achieve a desired effect. Is this not basically turning a man into a piece of art? He is not God's creation any more, he is not only as he equipped by Nature. With the help of the modern body shapers or plastic surgeons and transplantologists one can create any body shape. The desired effect of this is the correction of the mistakes of nature (in extremes cases declaring war on it), but most of all the postponment of aging. A cyborg dreams about overcoming his/her biological status and turning his/her body into an unchangeable monument. In such a case, medicine begins to lose sight of its values. Its basic aim is effective treatment, not the change of healthy people into gods[2], as Francis Fukuyama put it; but modern expectations focused on medicine are connected not only with medical help, but also with correcting nature.

BEYOND THE BODY

Not a small role in the process of cyborgization is played by such new media as the Internet and virtual games. In recent years, there has been noticeable change in the approach to the body, mind, emotions, communication in the context of the electronic media. Firstly, carnality, which in the European culture was in turns elevated or diminished, is now basically treated with great seriousness by anthropologists and philosophers, and is also important in the reflection on biological sex and cultural gender. I have also mentioned above some reasons for the modern humans to maintain the vitality of their bodies. At the same time, this may require technological interference, including electronic engineering. Those relations are shown even clearer with the use of the modern media. That is why many critics of the modern culture treat the separation of carnality and technology as unnecessary. Gilles Deleuze and Félix Guattari agree with McLuhan, who sees as false the treatment of technology as something external to carnality; one should rather adopt the concept of a mechanical-carnal *assemblage* as a means of thinking about the meeting of bodies and technologies beyond binary oppositions.[3] We are being persuaded

[2] F. Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution.* Farrar, Straus and Giroux; 2002, p. 248.

[3] Cf. K. Loska, *Dziedzictwo McLuhana – między nowoczesnością a ponowoczesnością*, Kraków: Wydawnictwo Rabid 2001, p. 124.

to do it not only by philosophers, but also by artists, such as e.g. the Australian-based Stelarc, who sees the body not only as a human body, but also as a channel enabling communication with other bodies and electro-links.

In the complicated relations between nature and art, carnality is often treated as an annoying weight, which should be gotten rid of. This is true, for example, of the cyberpunk culture, where the physical body is viewed as an unwanted dead weight. Unlike the cyborgs which, by absorbing artificial body organs, want to turn the body into a monument, the monsters from the cyber-punk clan aim at separating carnality from consciousness. In this version of human-technology encounter, the unwanted body is "parked" outside. Only the mind matters as it is the trump card in the creation of a mechanical human. Though this idea is problematic and riddled with inconsistencies, it plays a major role in modern imagination. On the one hand, it is justified by European philosophy which, from the ancient times to the modern era, has stressed the dualism of body and soul (many of the philosophical approaches display distrust towards the human body, as it is evidence of our animal nature, which we should overcome), and on the other hand, electronic devices create a delusion of an attractive life (or rather functioning) without the mediation of a biological womb.[4]

One example of such thinking is the interactive virtual world of the game Second Life, where the inhabitants create their profiles-avatars. You can be anyone you want to there, because even though the authors offer certain solutions as regards your appearance, there are so many possible variants that you can create a cyber-person profile of your dreams. Besides the appearance, there is also the liberation from the laws of physics and the biological restrictions of the Homo Sapiens species. In the virtual world you can fly, travel across the mapped areas at an unusual speed. In this way, by putting on your cyber body (a helmet, a suit and gloves) we can be (literally) any person, and we may also treat the cyber world of visions and symbols in the same way as the real one. The illusion is possible – according to Margaret Morse – because our cyber skin (or interface) goes between ourselves and the virtual world but at the same time hides the go-between tool, blurring the boundaries of the symbolic area: according to a definition of a performative or declared act of speech, causing the symbol to act is the action.[5] By flying in the cyberspace, we do not symbolize flying, but we are actually performing the

[4] Cf. M. Bakke, *Ciało otwarte. Filozoficzne reinterpretacje kulturowych wizji cielesności*, Poznań: Wydawnictwo Naukowe Instytutu Filozofii UAM 2000, p. 165.

[5] M. Morse, "What Do Cyborgs Eat? Oral Logic in an Information Society". In G. Bender and T. Druckrey, eds. *Culture ona the Brink: Ideologies of Technology*, Seattle: Bay Press, 1994.

action. At the price of rejecting our natural body, we allow ourselves to be covered with a cyber skin and we make ourselves at home in the matrix. Here, we do not even have to pretend we are somebody else as we become "a different one." Putting on the mask of "the different one", we take on his features and become him. In this sensual matrix, we can be anybody and anywhere.

Meanwhile, we can see that the old connections between people – in the streets, in churches, coffee shops, party meetings (playing the social-political function of the Greek agora) – are being replaced by non-physical contacts. Today meeting people, political campaigning, getting into the public space and marking one's presence there takes place on the Internet and on television. Direct face-to-face contacts turn into interface contacts. In this reality, people from the world of politics become carefully crafted characters in both their appearance and their manner of presenting their causes in the media. We are witnessing what one might call a schizophrenic tendency – a separation of the reality we live in from the reality presented in the media, with the vividness of the pictures in the media causing many people to perceive them as real and trustworthy and sometimes even seemingly more important than real events. Not to mention the fact that many viewers are more involved with the lives of TV characters than the lives of their next-door neighbours. That is why famous actors persuade us to buy various goods, why Polish TV series feature cameo appearances of clothes, furniture or cars produced by the companies paying for this form of crypto-ads, and why political parties vie for "media appearances" which are aimed at enchanting reality.

The creation of reality by highly developed technology is also manifest in other aspects of modern life. Modern technology is used both in war and for the protection of peace. A group of well-trained specialists may replace a large army. A modern soldier is a human-machine: a perfectly equipped cyborg able to use modern arms. The fighters do not even have to be in physical contact, as computers, navigation and long-range arms limit direct confrontation. This situation creates a psychological distance towards the casualties of war, as they become only "targets" visible on a screen.[6]

Turning war, violence, and death into virtual reality is not only part of modern military training or real military conflicts. Virtual wars are fought by game-playing children in many modern households. Life is not valued much there as another one can be bought. Death, which is a borderline experience for human

[6] K. Robins and L. Levidow, "Socializing the Cyborg Self: the Gulf War and Beyond", in: *The Cyborg Handbook*, ed. By Ch. H. Gray with H. J. Figueroa-Sarriera & S. Mentor, New York & London: Routledge 1995, p. 120.

life, becomes situational and transitory. Thus it has nothing to do with the conceptions of entering a new dimension offered by some religions, as it is deprived of *sacrum*.

THE CHALLENGE OF THE CYBORG

The above review shows that cyborgization cannot be seen as an accident. There are different forms of cyborgization and various types of cyborgs. If we wished to find a common ground between them, it would be the highly developed technology. It seems to be the only (but vague) feature describing different forms of cyborgization. The vagueness provokes a search for the issues and interrelationships relevant for the technological-scientific world. They include scientific research with its financing and the implementation of its results, and advertising campaigns; there is also the question of political organizations and religious beliefs. Extraordinary discoveries of bio-technology and plastic surgery facilitate the transformation of our bodies and make them conform to our expectations; the media take part in this process, presenting how simple, efficient and salutary it is to the state of our mind and our self-esteem (e.g.: the TV show *I want to be a beauty*). The virtual reality is now not only a place for social encounters, but also for a modern economy and a virtualization of the capital; modern navigation systems let us see and search extremely distant areas, which is for some a curious detail of technological development, but basically is an important part of modern warfare strategies and a way of supervising the society.

Highly advanced technology is not only an external feature of man's life and the inventions cannot be treated as modernized tools for the improvement of everyday life. In the modern phase of the marriage between humans and technology, it seems more important that our bodies leave the biological frame and search for fulfilment in the techno sphere. In this way we may see our immersion in the media reality and an ever-growing dependence on technology. For the same reason, such expressions *cyber identity*, *cyber body*, *cyber gender* appear with increasing frequency in modern scientific debates. They underline the tensions between the image of a human as a psycho-physical entity and a new meaning emerging from a new perception of cyber culture and a post-biological era.

Within this context it seems worth analysing the new conceptions of subjectivity. Different suggestions were proposed, e.g. the post-symbolic

syzygy of body and machine as Stelarc, Fritjof, or Jaron Lanier see it. A cyber person is often associated with Jean Baudrillard's concept of simulacra. A world of mixed orders and artificiality is a dreamland for cyber identity creation. No human is mentioned here as a psycho-physical entity. The plurality of mental worlds is opposed to processuality and transhumanism. In feminist thought, the connection between man and technology gave rise to the deconstruction of the concepts of subjectivity present in the Western culture (e.g.: Sadie Plant's view). In *The manifesto of a cyborg* by Donna J. Haraway from 1985, we find that "a cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction (…) By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs."[7]. The border between the artificial and the natural is more and more difficult to spot. As Haraway says, destroying the homocentric opposition so important to the culture shall cause a displacement of many dualisms, deeply rooted in the Western tradition, like the ones mentioned below:

Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert.[8]

Today, from the perspective of twenty years, this text does not surprise us with the conception of many connections between organisms and machines, or with a vision of fuzzy sexual identity, or with the thesis of the dispersed and multi-dimensional existence of cyborgs. But in the 1980s, it was an important text, presenting social, political and economic conditions for the creation of subjectivity immersed in technology. In a bravado juggling of ideology with hidden irony, Haraway presents a marriage of man and technology as a monster, but still is far from escaping at the sight. The author thinks there is no retreat from cyborgization, and asks how we should learn to live in the new reality.

A cyborg identity, as Haraway shows, is characterised by a diversion from the origin and the purity of species, as it is defined by the fluidity of the human, animal and technological elements. For some it is a hideous creature, but for Haraway a cyborg is a hope for a new political organisation aiming at

[7] D. J. Haraway, *Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,* http://www.stanford.edu/dept/HPS/Haraway/CyborgManifesto.html.
[8] Ibid.

"excess", e.g. it could contribute to a real change of labs, as the embodiment and generators of technological tools for the apocalypse; the societies building forms of political activity which could put in a line witches, engineers, old men, perverts, Christians, mothers, and Leninists for long enough to disarm the state. However, the weak points of this utopia are clear to the author of the *Cyborg Manifesto*. Highly developed technology is not an invention of the outsiders, the weak, or the wronged ones, but is an element of the system which Haraway describes (militarism, capitalism, patriarchy).

Because of that, ten years later Haraway presents a cyborg as a figure of modern globalisation and universalization.[9] She thinks that though "the inventions" are dangerous, they are inevitable. Even if the access to the tools for creating "inventions" is limited, it must be a madness to think that the outcome will not influence us all. According to Haraway, a cyborg is a figure enabling the search for the connections, the study of who benefits from them and how they can be transformed.[10] Since the power balance, alliances and interests are changeable, the cyborgs are not static either. As the creations and at the same time hostages of the theorized, techno-scientific and globalized world, they are changing. Their power is both influencing and destroying. By saying we are all cyborgs, the researcher provokes us to look at ourselves as members of the clan who should take care of themselves.

For the same reasons, the changing conceptions of cyborgization and cyborg figures become an anthropological problem. We engage in successive attempts at the self-definition of a human, this time involving technology and the situations which are the consequences of introjection and the absorption of the organic and the non-organic. At the same time, however, as the editors of *Cyborg Anthropology* point out, "cyborg anthropology poses a serious challenge to the human-centered foundations of anthropological discourse."[11] This time the attempts at self-definition must refer to the mechanical and electronic, and this makes the talk about the uniqueness, independence and identity of a human being somewhat problematic. Seeing oneself as part of the world based on the clear dualisms between culture/nature, reality/pretence, entirety/partiality, working/created, active/passive is strange to cyborgs, as their essence is hybridity and mosaics. Man is not the centre of the world here nor a privileged form of life, as chimeras and hybrids in the search of a new

[9] D. Haraway, "Cyborgs and Symbionts: Living Together in the New World Order", in: *The Cyborg Handbook*, ed. By Ch. H. Gray, H. J. Figueroa-Sarriera and Steven Mentor, New York and London: Routledge 1995, s. XIX.

[10] Ibid.

[11] G. L. Downey, J. Dumit, S. Williams, "Cyborg Anthropology", in: *The Cyborg Handbook*, p. 343.

way of functioning in the world are part of this hierarchy. A cyborg is a challenge for the conceptions of humanity deeply-rooted in the European culture (broadly – the Western culture), stressing its uniqueness, unconventionality and a privileged position. Iconoclastic cyborgs – fighting various taboos about the human nature and culture provoke us to question again who we are, what defines our humanism. Are the answers to be found in biology, culture, or maybe in the creative acts and the ability to design the future? Alicja Kępińska states:

With great certainty, we aim at redefining the idea of "humanity", what we mean by *human*. This happens for example in post-structural philosophy and other spheres of culture. The problem of cyborgization is part of this process. When we ask what man is or is not, we should not run away from a mirror which does not show our reflection. We are afraid of this problem, we think we know what *human* means, but we have really never known it. We try to set various borders, and when we approach them, they vanish again so we go on and on.[12]

Aristotle (later the scholastics) claimed that man is a living and thinking creature. St. Augustine saw him as an image of God, but Pascal used to talk of a thinking reed. Descartes in fact noticed that he had a body, but he would claim that it is really the mind that is the essential locus of the human self. Nowadays many philosophers reject the concept of body/mind dualism, and some turn carnality into a leading category in defining man. Some emphasize that we never find "man" in nature, because he is gender-marked as a female or male. What is more, the aversion to dualisms is evident in the conceptions of the *queer*. In modern discourse, we also know the voices differentiating between *sex* and *gender* and stressing the cultural pressure on constructing gender. Today, being male or female is not only a biological fact, but a social, economic and political one.

Observing the problem of the self-definition of man from the perspective of power handling, one must also notice the frequent aggression against the "others" and the fact that the label of "man" was reserved only for the chosen ones. The excuse for the aggression was placed equally in nature and culture. One might just mention the persecutions of the aboriginal tribes of America and Africa due to the different colour of their skin and a different view on the world, ethnic cleansing, the Nazi projects of maintaining "the purity of the race", the exclusion of mentally and physically handicapped as not useful in

[12] "Dzieło sztuki czy nauki? O cyborgach słów kilka", in: *Klan cyborgów: mariaż człowieka z technologią*, ed. G. Gajewska, J. Jagielski, Gniezno: Wydawnictwo Fundacji Collegium Europaeum Gnesnense 2008, p. 116.

the organising of a modern society, not allowing women to be educated and government-employed due to their alleged natural limitations and the lack of organising abilities.

These examples evoke the spectre of ideological and historical ambivalences connected with the self-definition of man. A cyborg is another example of those ambivalences. The new thing in this approach is the possibility to investigate the relations between nature and the culture of highly developed technology, which involves new tensions and at the same time provokes us to search for the new visions of ourselves.

CZŁOWIEK JAKO ELEKTROMECHANICZNY PROJEKT ARTYSTYCZNY (streszczenie)

Koncepcja maszyny jako przedłużenia, czy protezy ludzkiego ciała jest mocno zakorzeniona w kulturze europejskiej (np. mechaniczne zabawki w starożytności mogą być traktowane jako prototypy robotów). Koncepcja cyborgów należy jednak do współczesnej wyobraźni. Cyborga można przedstawić nie tylko jako wytwór fantazji, ulubionego bohatera filmów i powieści *science fiction*, lecz także jako podmiot współczesnej rzeczywistości, hybrydę, która poprzez włączenie do swego życia technologii zmienia relacje i napięcia między naturą a kulturą. Nawiązując do tego janusowego oblicza, używam słowa 'cyborg' w podwójnym znaczeniu: po pierwsze, piszę o wytworach ludzkiej fantazji, futurologicznych projekcjach i spekulacjach; po drugie – pod pojęciem 'cyborg' rozumiem figurę określającą współczesnego człowieka zdominowanego przez technologię.

Trudno tu jednak mówić o wyraźnych granicach oddzielających fikcję od rzeczywistości. Jedna widzi bowiem swe odbicie w drugiej, a ta z kolei upaja się widokiem pierwszej. Co więcej, owo upojenie angażuje wyobraźnię i zachęca do konfrontowania człowieka z innymi wersjami siebie samego, pozwala pęcznieć, a następnie rozsadzać wyobrażenia o umyśle, ciele płci, duszy. Tak więc nasze spoglądanie na cyborgi można porównać do eksperymentu w "laboratorium naczyń połączonych: fikcji i rzeczywistości, którego celem jest spojrzenie na inną wersję siebie samego – np. jak na elektro-mechaniczny projekt artystyczny. Taki projekt jest tematem niniejszego artykułu.

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THE SEARCH FOR NEW MEDIA: EARLY AVANT-GARDE MOMENTUM FOR THE DIGITAL ART PIONEERS OF JAPAN

Abstract

The inspiration and momentum for pursuing digital art as concept in Japan may well have been incubated in the early avant-garde groups of the 1950s and 1960s. Early pioneers in digital media have evolved their conceptual ideas using digital technology and interactive media.

Recently, there has been a burgeoning interest in documenting the history of digital media within the international art and technology movement that is so prevalent today. What was once referred to as "computer art", has earned the new title "digital media" in the art world, but in the field of art history it is beginning to fade into the larger art category of "new media" which includes performance, installation, environmental art, and other ventures that do not necessarily include technology. In an effort to document the interest in technology within avant-garde art groups in Japan, the purpose of this paper is to show that the attitude toward the exploration of materials and processes of the 1950s and 1960s led to a continued search for new types of media. This attitude naturally led to experiments with technology and eventually opened the way toward the digital realm and the use of computer algorithms and interactivity in the fine arts in Japan.

AVANT-GARDE ART GROUPS

Eighteen years ago Janet Koplos, in an article in *Art in America* entitled "The Two-Fold Path: Contemporary Art in Japan," stated that "The Pacific War cleared Japan's esthetic ground as thoroughly as it did the nation's economy and urban landscape."[1] In the body of the article, Koplos noted a number of innovative artists who worked in the avant-garde groups of the 1950s and early 1960s. The groups included the Yomiuri Independents, the Gutai Art Association, Group Zero and Hi-Red-Center. One of the more interesting offshoots of

[1] J. Koplos, "The Two-Fold Path: Contemporary Art in Japan", *Art in America 78,* April 1990: 201.

these groups was the artist Ushio Shinohara, "famous for his Mohawk haircut and his 'Imitation art,' in which be blatantly copied well-known contemporary art works as a self-criticism of Japanese artists' dependence on the West."[2] Shinohara is an example of the tension in Japan in the 1950s over the well spread rumor that Japan's artists were simply followers of the West. Although these avant-garde groups were not renowned in New York and Paris, they were notorious for their unusual ideas and experimentation in Japan.

The withdrawal from the mainstream art circles did not begin with the end of World War II. The avant-garde groups of the early 20th century included the *Nika-kai* (Second Section Association) of 1914, which was founded in opposetion to the government salon in 1914; *Akushon* of 1924, who aligned themselves with the European avant-garde; and *Sanka Zokei Bijutsu Kyokai*, a Neo-Constructivist group that began in 1925. These were societies formed by groups of artists that did not want to conform to existing social institutions, and exhibit according to the existing exhibition categories. They formed societies that would work and exhibit together in order to lend support to each other's ideas. One could say, however, that many of these avant-garde groups were not exploring new territory, since they were following in the footsteps of the European avant-garde. One artist, Tomoyoshi Murayama (1901-1977), after returning to Tokyo from Berlin in 1924, chastised the participants of the Second *Akushon* (Action) exhibition by stating: "Throw away your albums. Stand up by yourselves. I beg you to stop acting like monkeys. Respect yourselves more … Most of it [artwork] is an imitation of spineless French imperial salon style boiled down from Picasso and Braque. There's nothing more shameless than this for the Japanese painting world."[3] These are harsh words indeed, but very revealing of the avant-garde attitude in the first half of the 20th century. Murayama is credited with initiating the group Mavo, which advocated art linked to life, in 1923.[4]

As ironic as it may seem, even when breaking away from mainstream traditions and defying the social standards of the day, Japanese artists follow societal norms through their membership in officially proclaimed associations or groups. Even as the group chooses a name and documents official memberships, new groups form from members withdrawing from other groups, or joining an already established group by uniting through common interests, or common

[2] Ibid., 203.

[3] J. Clark, "Artistic Subjectivity in the Taisho and Early Showa Avant-garde." In A. Munroe, ed., *Japanese Art After 1945: Scream Against the Sky*, New York: Harry N. Abrams, Inc. and The Yokohama Museum of Art, The Japan Foundation, The Guggenheim Museum, and San Francisco Museum of Modern Art, 1994, p. 42.

[4] G. Weisenfeld, *Mavo: Japanese Artists and the Avant-garde 1905-1931*. Los Angeles: University of California Press, 2003, p. 45.

disinterests as may be the case with the avant-garde. *The Yomiuri Independent* was not an artists' group, but an exhibition organized and funded by the Yomiuri Shimbun newspaper. The artists who participated in this annual exhibition did not have to submit their work to a jury, and the content of the shows evolved more and more toward nihilistic anti-art and anarchism. *The Yomiuri Independent* and the Gutai group exhibitions were both established in the early 1950s and ran parallel to one another. *The Yomiuri Independent* took place in Tokyo and the Gutai group was established near Osaka. The Tokyo avant-garde art scene, like that of New York, was not always willing to acknowledge or include activities from the areas that it might consider provincial. Therefore, when the Gutai group members attempted to hold exhibitions or activities in Tokyo, they did not have the impact that was hoped for by the participants. Ironically, it was that Osaka-based group which was embraced by artists outside of Japan. Other avant-garde groups that evolved from, contributed to, or paralleled the Gutai group include *Zero-kai* (Group Zero), Hi-Red-Center, Neo-Dada Organizers, *Jikan-ha* (Time-school), *Zero Jigen* (Zero Dimension, based in Nagoya), *Kyushu-ha* (Kyushu-school, based in Fukuoka), and Tokyo Fluxus. Four members of the Group Zero: Kazuo Shiraga, Saburo Murakami, Atsuko Tanaka and Akira Kanayama, joined Gutai. The earliest Gutai exhibitions in Osaka coincided with the *Yomiuri Independent* exhibitions in Tokyo. For the most part, their activities were held in Japan. Word did leak out to the West, however, via the *Life* magazine's pursuit of an article and the Fluxus international group's reenactment of the Gutai and Hi-Red-Center performance events in New York City. Even Jackson Pollock had knowledge of the activities of the Gutai Art Association, as we know from several issues of the *Gutai* journal that were found in the action painter's studio after his death.

Avant-garde activities in Japan were not limited to the visual arts. *Ankoku Butoh-ha*, known as "Dance of Utter Darkness" originated through the choreography and performances of Tatsumi Hijikata (1932-1986). Hijikata's first major performance called *Kinjiki* (Forbidden Colors), took place on May 24, 1959. Hijikata continued to carry out performances of Ankoku Butoh in Tokyo's Ginza district in the early 1960s. *Group Ongaku,* founded by Takehisa Kosugi, Yasunao Tone, and other musicians became active around 1960 by doing improvised concerts following the precedents set by John Cage. "(…) their happenings at the Yomiuri Independent caused them to be ejected by the museum."[5]

[5] Sh. Osaki, "Body and Place: Action in Postwar Art in Japan". In Paul Schimmel, ed.. *Out of Actions: Between Performance and the Object, 1949-1979*. London: Thames and Hudson and The Museum of Contemporary Art, Los Angeles, 1998, p. 142.

THE EXPERIMENTAL WORKSHOP

Jikken Kobo (1951-1957) was a society of 14 artists who collaboratively staged events combining musical, visual and performing arts. The events took place in the area of Tokyo and occurred several times each year. Although the artists were loosely affiliated without a physical address or permanent meeting place, they were united by an awareness of the values in traditional Japanese culture through Western learning. The composer Yuasa Joji recalled in 2002, "We were always thinking, 'What's the essential difference between East and West?'"[6] The painter Okamoto Taro wrote in 1951 that "the concerns of art are becoming internationally similar."[7]

One early member of *Jikken Kobo*, Katsuhiro Yamaguchi, "eventually became Japan's most lauded media artist."[8] Yamaguchi later recalled: "we were dealing with only one issue, the discovery of human vision and music through the use of machines: the automatic slide projector and the tape recorder" and "this experiment of expressing humanity with machines is a task artists must undertake as they advance into the latter half of the twentieth century."[9]

One avant-garde group that the West cannot possibly take the initial credit for is the *Bokujinkai* Association of calligraphers. *Bokujinkai* artists, including Shiryu Morita and Yuichi Inoue, published a journal called *Bokubi* in 1952. Calligraphy has been considered a high art form in both China and Japan since ancient times, but it is known for its traditional training requiring a great deal of self-discipline. Avant-garde calligraphy combines a lifetime of disciplinary training with the free style brushwork of action painting. The automatism of Abstract Expressionism is built into the tradition of calligraphy. When a calligrapher has practiced writing a character over hundreds of times, he/she is said to be able to write it without thinking or planning. The resulting aesthetic structure of the character is then considered an embodiment of the subconscious emotions of the writer. This is similar to the theoretical constructs of the action painters. Pollock would establish a personal rhythm moving around his canvases as he dripped and poured the paint without a preconceived plan. The question to consider here is whether or not one influenced the other, or whether there is a connection between them at all.

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[6] Thomas R. H. Havens, *Radicals and Realists: In the Japanese Nonverbal Arts.* Honolulu: University of Hawaii Press 2006, p. 54.

[7] Ibid.

[8] Ibid., p. 55.

[9] Ibid, p. 60.

This mentality and approach toward automatic processes and repetitive actions is one of the aspects of the Japanese art scene that lent an air of receptiveness to the use of technology for art making. Conceptually, however, there are more complex aesthetic issues that stem from the avant-garde attitude toward materials. It is important to address the questions concerning the uniqueness of the Japanese approach to technology as medium. The key to this unique approach begins with the exploration of non-traditional media in the avant-garde groups of the 1950s and the 1960s, a kind of search for a new foundation in art making.

GUTAI ART ASSOCIATION

The Gutai group was founded in the early 1950s and was led by the artist, Jiro Yoshihara (1905-1972). Their first major group exhibition was *The Experimental Outdoor Exhibition of Modern Art to Challenge the Mid-Summer Sun* in 1955. This was a daring exhibition composed of works of art that experimented with new materials like plastic tubing filled with colored water and strung between branches of trees, grid-like patterns made up of rows of plates, and plastic runners with inked-on footprints indicating the direction that people should walk. This group of artists went beyond the action painters of the New York school that were exploring new methods of applying the paint to the canvas. In this exhibition, the artists did away with paint and canvas altogether, and explored non-traditional materials for creating art: plastic, paper, functional pottery, etc. The Gutai artists were some of the first internationally to explore performance as a viable fine arts medium. Many of their exhibitions in the 1950s and early 1960s were held in theater-like places and were composed of staged performances before an audience.

Jiro Yoshihara published the Gutai Manifesto in *Geijutsu Shincho* art journal in December 1956:

> Gutai Art does not transform material. Gutai art gives life to material. Gutai Art does not falsify material. With Gutai Art the human mind and the material confront one another shaking hands. The material is not transformed by the mind. The mind does not make the material conform. When the material remains as is, and its characteristics are revealed, then it begins to tell a story, and even screams it out. To give life to the material is to make use of the mind. In raising the mind, we can transport the material to the same heights.[10]

[10] Author's translation of Gutai manifesto, originally published in Japanese in the art journal *Geijutsu Shincho* (芸術新潮), December 1956.

The excerpt from the manifesto was clear in its emphasis on the exploration of the material. In fact, in referring to the material, a personality or character was implied. It was this nature or substance that was enticing to the curiosity of the artist. The artists wanted to know more about the natural phenomena associated with the material: its metamorphosis over time, or the changes that naturally took place when the material was exposed to certain conditions. Furthermore, when the exploration of one material was nearly exhausted, the artists began looking for new materials to explore. In addition to materials, new processes for making art were also explored. A number of the Gutai artists were well-known for their own unique type of painting or artistic experimentation. Kazuo Shiraga, an ordained Buddhist Monk, was famous for painting with his feet. Shiraga would lay large sheets of paper on the floor and dance or slide along the surface using his feet as paintbrushes. He would even swing across the surface of his format by hanging from a rope and dangling his paint-bearing feet in broad sweeping motions. An infamous performance done by Shiraga was his *Challenging Mud* event. In this event, he began by emptying buckets of mud onto a hard concrete surface, and then "diving" into it and wrestling with himself (symbolically wrestling with his inner demons). In *Paper Tearing* events, Saburo Murakami, another artist of the Gutai group, would set up rows of paper screens made by stretching large sheets of paper over square wooden frames, face to face in a long line. Then he would rush headlong into them, breaking holes with his body and running through them one by one. These were done as performance pieces from 1956. Shozo Shimamoto, another artist of the Gutai group, would throw glass jars or balloons onto his painting surface so that the explosion from the shattered container would create the abstract design. In another event, Shimamoto shot paint from a toy cannon onto his canvases. Jiro Yoshihara was known for his extensive series of paintings of the *enso* or Zen circle, which coincidentally was an exercise that came out of the brush writing tradition in Zen Buddhism. Yoshihara would paint the *enso* with lacquer-based paint on a shiny black surface. Rather than the sketchy ink circles on paper from the Edo period *Zenga* tradition, Yoshihara's paintings took on a modern quality because of the slick newness of the materials and the strong contrasts of color. Atsuko Tanaka, another member of the Gutai group, was known for her electric light dresses. These were made from multi-colored florescent light bulbs strung together to form a dress. She would wear her electric light dresses and parade onstage during the Gutai performances. Tanaka is also famous for her electric bell installation. This piece was described as a primarily audio piece. When someone entered the gallery space, they would hear one bell, which triggered another, then another and another. Soon the beautiful sound of the electronically triggered bells echoed throughout the gallery space. Atsuko Tanaka's Bell piece was shown at the Kyoto Municipal Fine Arts Museum in April 1957. It was made up of twenty linked circuits of bells. The leader of the Gutai Group, Jiro

Yoshihara, recorded his impression of *Bell Piece*: "(…) when the arrangement of most of the works was finished, suddenly the piercing sound of a bell was heard everywhere all around the exhibition. Tanaka Atsuko's bell work was at last completed. We all stood stock still and pricked up our ears. The sound was like a living thing and flew around upstairs and downstairs."[11]

Alongside Tanaka, Akira Kanayama was a member of the Gutai group who also used electrical devices in his work. In 1958, his work was first shown at the Martha Jackson Gallery in a rare Gutai exhibition in New York. "He modified a model car that moved by radio-controlled motor, and with a can of paint on top had it run across a picture surface that has been laid out flat. The work was the accumulation of the countless lines made by paint which automatically flowed from the can."[12] In May 1957, the First Gutai Fine Arts Performance Exhibition held at Osaka's Sankei Hall included Akira Kanayama's large balloon performance where a giant balloon was inflated and deflated on stage, and Sadamasa Motonaga's smoke piece which sent the audience coughing and sputtering out of the auditorium. In October 1958, the Sixth Gutai Fine Arts Exhibition was held in New York's Martha Jackson Gallery, and subsequently toured in the USA. The group continued to be active in Japan until 1970, and formally dissolved in 1972, one month after Jiro Yoshihara died.

The Gutai group is most recently being recognized as precursor to performance art and happenings. Its activities from the late 1950s included open-air performances, on-stage performances, random actions turned into art, and everyday objects turned into art. These activities predate Allan Kaprow's *Happenings,* which began in New York in 1959.[13] The regular publication of the group, entitled *Gutai,* was sent abroad in 1955 and ended up in the hands of Jackson Pollock and Allan Kaprow.

GROUP ZERO

Four of the Gutai members – Kazuo Shiraga, Saburo Murakami, Akira Kanayama and Atsuko Tanaka, had established Group Zero in 1952, but dissolved the group and joined Gutai at the invitation of Jiro Yoshihara in February 1955.

[11] J. Yoshihara, 1985, quoted in *Reconstructions: Avant-garde Art in Japan 1945-1965*, Oxford: Museum of Modern Art with the Japan Foundation and the Yomiuri Newspaper Group, 1985, p. 21.

[12] Y. Yurugi, catalogue entry in *Reconstructions: Avant-garde Art in Japan 1945-1965,* p. 56.

[13] Arnason, H. H., M. F. Prather and D. Wheeler, *History of Modern Art.* New York: Prentice Hall, Inc., & Harry N. Abrams, Inc., 1998, p. 515.

Yoshihara felt that their activities were similar to the exploits of Gutai and felt that there would be more strength in a united front.

KYUSHU-HA

Kyushu-ha was a group of artists based in Fukuoka, active in the late1950s and the 1960s with occasional participation in the *Yomiuri Independent* exhibitions in Tokyo. Its members included Takami Sakurai and Mokuma Kikuhata. Their activities culminated in the 1962 *Mass Meeting for Heroes* held on the seashore of Fukuoka, which staged various performances including destruction of art objects and sacrificial rites. They published a group magazine entitled *Kyushu-ha* in September 1957.

NEO-DADA ORGANIZERS

In 1959 Shusaku Arakawa and Genpei Akasegawa, along with nine other artists from the Yomiuri Independents, formed a new group called the Neo-Dada Organizers. "They performed in studios, galleries and parks, lining up scrap and rubbish, reading statements, banging metal basins, playing jazz tapes, putting their heads in buckets and shouting, breaking beer bottles or chairs by karate, and generally being more provocative and scandalous than the members of the Gutai Group had ever been."[14] Neo-Dada Organizers dissolved when Arakawa left for New York in 1961, and their activities ended with an art-object destroying event in that year. They were one of a number of groups that represent the anti-art tendencies of the 1960s. Their "bizarre performance" activities may have lasted about a year at the most.[15] Ushio Shinohara is the member shown wrapped in Neo-Dada Organizer posters in the now often published photograph that promoted the groups' activities. One of the members, Genpei Akasegawa reminisced in 1985: "Neo-Dada was a lumpy excrescence of destructive energy that had been nurtured by the *Yomiuri Independent* Exhibition."[16] In an article written as journalistic memoir for *Reconstructions: Avant-garde Art in Japan 1945-1965*, Akasegawa quotes from Ushio Shinohara's draft of a manifesto for

[14] I. Hariu, "Progressive Trends in Modern Japanese Art", essay (trans. By Rebecca Salter) in *Reconstructions: Avant-garde Art in Japan 1945-1965*, p. 26.

[15] Y. Saito catalogue entry in *Reconstructions: Avant-garde Art in Japan 1945-1965,* p. 83.

[16] G. Akasegawa, "The 1960s: The Art Which Destroyed Itself: An Intimate Account", essay (trans by John Clark) in *Reconstructions: Avant-garde Art in Japan 1945-1965,* p. 85.

the Neo-Dada Organizers: "In whatever way we fantasize about what our future may be in 1964 – about the way that one atomic explosion will lightheartedly resolve everything – Picasso's fighting bulls move us now no more than the blood splattered from a run-over stray cat. We enter the ring on an Earth gone mad in the 20th century – the century which has stamped on serious works of art. The only way we will be spared the massacre is to turn on the slaughterers themselves."[17] Akasegawa also describes his own way of thinking about the art object:

> Let me give my own activities as an example: fascination with those kinds of object which were an extension of the paint on a picture surface had hypertrophied, and I looked hard anew at the things around me. When all of a sudden I tried to put oil paint aside, it was familiar objects which all became alternatives to paint and clung to me. One by one unobtrusive articles of daily life became redolent with new secrets. Rubbish in the street, worn-out tools unexpectedly found, were regenerated because of some previously unimagined possibilities (…) This rubbish, indiscriminately cut away from the space of the living, had a freshness and unexpectedness which already seemed to have gone far beyond the works I had made with my own hands. This astonished me and as I clambered up these mountains of rubbish I began to find in them objects which had an unmistakable character of their own. When I pulled something out of the mountain it began to take on the qualities of an artwork as I did it – a foretaste of the shift away from the importance of stable material form in art towards an emphasis on finding or making work.[18]

Akasegawa goes on to explain that individuality and originality had been exhausted, and that he was unable to reconcile this. "It seemed to come down to this: I, as a painter, wanted to paint the state of not having anything to paint."[19] It was this analysis of artistic logic that brought Akasegawa to the conclusion that bank notes (currency) were the most meaningless and mechanical images yet to be copied. Unfortunately, this is the activity that got Akasegawa arrested and convicted for counterfeiting. In a well-documented and scandalized court trial that became a stage setting for the reenactment of the "happenings" held by Akasegawa and his peers, the effort to provide evidence that the artist's activities were art rather than criminally intended, ironically, brought the artist full cycle in that he only proved to himself and the art world that the art object cannot be destroyed.

[17] Ibid., p. 85.
[18] Ibid., p. 87.
[19] Ibid., p. 87.

HI-RED-CENTER

In 1963 Jiro Takamatsu, Genpei Akasegawa and Natsuyuki Nakanishi founded the Hi-Red-Center Group. Jiro Takamatsu was famous for his string event held at the Tokyo Metropolitan Art Museum. By using yards of black string that led people from the platform of the Ueno train station, through Ueno park, up the steps of the Tokyo Metropolitan Art Museum and into the gallery space, Takamatsu aided in carrying out the desire of the group to abolish the boundaries between art and life. In Takamatsu's work, the audience would sometimes unknowingly participate. Natsuyuki Nakanishi's work *Clothes Pegs Assert Churning Action*, was made up of common clothespins attached en-masse to canvas, clothing and human flesh. The members of the audience could participate in Nakanishi's work by taking the clothespins off or putting them on. The artwork was interactive, crossing the boundaries between art and life. Nakanishi described his own work: "Clothes pegs are attached on white canvas just as if a bee had stopped there. They could also be removed; if one did so, the canvas would return to being simply white. Other people could also clip them on. My recollection is that the work was interactive where clothes pegs could be attached and lifted off from the picture surface like a magnet"[20]

The third member of the group, the aforementioned Genpei Akasegawa, created work that was interactive through peer participation. When the artist was arrested for "counterfeiting" his copies of the 1,000 yen note, his fellow artists witnessed for the defense in court. In essence, they were attempting to explain why Akasegawa's image production was a form of art. This interactive participation may or may not have been the intent from the beginning, only the eventual outcome. The original purpose of the 1000 yen note reproductions by Akasegawa was to produce repeated imagery on hand-made wrapping paper that the artists used to wrap ordinary objects like a coat hanger or briefcase. When introduced to the art of Christo, the Bulgarian artist who also wrapped objects but on a much larger scale, Akasegawa, after contemplating the vast possibilities of packaging, decided to package the cosmos. He did this by emptying a can of crab meat, removing the label from the outside of the can and replacing it on the inside, then sealing the can once again.[21] In this and other *koan*-like acts, Akasegawa explored the metaphysical nature of materials and space.

By exploring traditional materials in practical as well as metaphysical ways, the aesthetic content and rationale for the object was virtually exhausted by the

[20] N. Nakanishi, quoted by Yasuyoshi Saito, in *Reconstructions,* p. 74.

[21] G. Akasegawa, "The 1960s: The Art Which Destroyed Itself: An Intimate Account", essay in *Reconstructions: Avant-garde Art in Japan 1945-1965,* p. 89.

artists, but the thirst for the exploration of materials remained. Moving on from materials and process to new materials and new processes, the avant-garde artists in Japan were wide-open for new media, particularly that involving technology. Their attitude toward materials and processes naturally carried over to "new media" in digital form.

THE CTG GROUP

In Katsuhiro Yamaguchi's book, *Robot Avant-garde: 20th Century Art and Machine*, published in Japanese in 1985, the author lists Masao Komura as one of the pioneers of computer graphic art in Japan.[22] Komura initiated the first computer art group in Japan, entitled Computer Technique Group (CTG) in 1967. The members of the group consisted of three systems engineers, an aeronautic engineer, an electronic engineer, and an architectural engineer. Komura himself graduated from Tama Fine Arts University in 1969. The avant-garde nature of the CTG group's activities were explained in English by Jasia Reichardt in the exhibition catalogue *The Computer in Art* published in 1971: "Their attitude to computer-aided work is somewhat different from that of their colleagues elsewhere. They felt, for instance, that one of the major underlying possibilities of computer art is that the 'artist' actually designs a system – a method of producing a given repertoire of forms and generating patterns. The 'artist's' work consists largely of envisaging possibilities rather than producing individual works. It is the program itself that is the work of art."[23] One example of the work of the CTG group is the *Automatic Painting Machine No. 1*, which was triggered by sounds and lights from a sensitive area within the gallery where participants would casually pass through unaware of their own input. The interactive and performative nature of the CTG group's art and activities are like that of the Gutai group of the 1950s transferred to a technological medium. In 1970 the CTG group exhibited at the Venice Biennale.

DIGITAL MEDIA

Masaki Fujihata, a pioneer in digital media, approaches the mathematical universe of the computer as an abstract environment for philosophical examination. His

[22] K. Yamaguchi, *Robot Avant-garde, 20th Century Art and the Machine.* Tokyo: Parco Co., Ltd., 1985.

[23] J. Reichardt, *The Computer in Art.* London: Studio Vista and new York: Van Nostrand Reinhold Company, 1971, p. 81.

approach to creativity is concept-based and often contains irony and an attitude toward the virtual computer as the material to be explored for its own unique characteristics. Like the early Gutai artists who explored various possibilities with materials in the exhibition space, Fujihata explores abstract concepts in the computer's virtual space. Consistency in Fujihata's artwork is not found on the surface, it is in the conceptual nature of his work. Fujihata's earliest internationally shown work was *Mandala* of 1983. The imagery in Fujihata's computer animated version of a mandala began with a scanned image of a Heian period (792–1185) painting of the Womb World Mandala, which faded to a geometric representation substituting spheres for each manifestation of the Buddha. The computer- animated *Mandala* was a simple geometric visualization of the computer's abstract universe, just as the Buddhist mandala was a painted diagram of the meta-physical universe of Mahayana Buddhism. The computer-animated version revealed the concept of the computer as a virtual microcosm of the universe.[24]

Another body of work that played on the conceptual nature of the computer's virtual space is *Geometric Love* of 1987.[25] Fujihata used the computer algorithm to transform common utilitarian objects into art objects (objects of beauty without practical value). Using a digitally-generated object based on everyday utilitarian objects – a lacquer rice bowl and chopsticks, Fujihata transformed our concept of the bowl from one of functionality to a purely aesthetic existence, paralleling the way the Gutai artists used ceramic plates set out in rows and clear plastic tubes filled with colored water to transform a park-like setting into an exhibition space filled with art objects.

The work of the Hi-Red-Center group of the 1960s can be considered interactive because its purpose was often to draw in the viewer as an active participant in the metamorphosis of the art object. Two works that Fujihata exhibited as installations in 1996 utilized the interactive participation of the viewer in the virtual world of computer imagery. The first, entitled *Beyond Pages* was a computer visualization of a picture book in which surprising things would happen when the participant touched various parts of the projected image with a stylus. This raised questions about the reality of images when they have a real function. Is the image of a switch a real switch if touching it actually turns on a light?[26] Is an image of a door handle a real door handle if touching it actually

[24] J. M. Ippolito, "From the Avant-garde: Re-Conceptualizing Cultural Origins in the Digital Media Art of Japan", *Leonardo: Journal of the International Society for the Arts, Sciences and Technology* 40, April 2007: 149.

[25] M. Fujihata, *Geometric Love* , Tokyo: Parco Co. Ltd., 1987, p. 8.

[26] M. Fujihata, *Video Interview for the West Bank Gallery.* Savannah, Georgia: Savannah College of Art and Design, 1997.

opens a door? In another work from the same time period, Fujihata again questioned the interchangeability of the concept of reality.The *Global Interior Project* consisted of four kiosks for participants to interact in a digitally generated maze-like space that consisted of a number of stacked rooms with doors connecting on each side, allowing the participant to move from room to room, occasionally coming face-to-face with another participant via an avatar. A physical sculpture made of wood and plastic recreated, in physical form, the same computer-generated space. Fujihata titled the physical form the *matrix*. The rooms in the virtual maze were each represented by a box on the physical matrix identified by a unique object inside. Each box had a hinged door to show the viewers where the participants were located in the virtual matrix at a given time. The questions raised here concern the physical and the conceptual art object. Which is the "real" art object – the computer-generated one, or the physical sculpture?[27] *Global Interior Project* transformed the participant from a flesh-and-blood observer to a virtual consciousness moving around inside a computer-generated space, inadvertently meeting other virtual presences within the conceptual maze-like construct.

Fujihata's current work involves GPS technology in a conceptual mapping out of social movement and societal interaction over time. Fujihata recruits volunteer participants to record their activities, conversations, interactivity and movements using video, digital recording and GPS technology. Short documentary video clips and audio recordings are stitched together over a time-line to reveal their geography and chronologic relativity.[28] *Ars Electronicas* dubbed these works by Fujihata "collective memories", since the end product is a collection of recordings that represent the experiences of a group of individuals.[29]

The internationally renowned digital media pioneer, Yoichiro Kawaguchi focused on the algorithm as the artwork in his multifaceted computer-animated pieces from the late 1970s and early 1980s. The algorithm emulates the automatism of the self-disciplined calligraphers of Japan as well as the rhythms of the abstract expressionist painters like Jackson Pollock. Kawaguchi's approach to using the random character of the algorithm by plugging in variables through trial and error until producing an interesting result allows the

[27] M. Fujihata, "Global Interior Project: Networked Multi-User Virtual Environment Project", artist's statement in *SIGGRAPH 1996 Art and Interdisciplinary Programs* catalog, (New York: The Association for Computing Machinery, Inc., 1996), p. 26.

[28] *Art Meets Media: Adventures in Perception.* Exh. Cat. NTT InterCommunication Center, Tokyo: NTT Publishing Co., Ltd., 2005, p. 83.

[29] *Mersea Circles* (2004). Ars Electronicas. (accessed 13 July 2007). http://www.aec.at/en/archives/center_ projekt_ausgabe.asp?iProjectID=12773

tapping of the subconscious through the automated rhythms of the computer code. His most recent work, however, centers on the concept of performance. Using the *Gemotion* algorithm, he hires professional dancers to interact with motion detectors that trigger the movements and changes in computer imagery.[30] Through trial and repeated practice, the performer can get to know the features of the software until he/she can intuitively control its output.

NEW MEDIA ARTISTS OF THE 21ST CENTURY

For the recent new media artists of Japan, using the Internet and digital media enables them to reach people of every strata of society within and outside of Japan. This has been a major aim of avant-garde artists groups in Japan in the 20th century. Now in the 21st century, the Internet facilitates this on a universal scale.

The most recent collaborative groups of artists in Japan bring aspects of their own cultural traditions through aesthetic choices and provocative thought to the eyes of an international audience over the Internet. Such artists as Exonemo, doubleNegatives Architecture, and Maywa Denki use technology either in their art, or for the propagation of their art.

Many of the most recent new media artists of Japan are producing technologically curious objects that are purchased by consumers because they have popular appeal. These objects of art, recently dubbed *device art* (the term was coined by the art historian, Machiko Kusahara of Waseda University in Tokyo.[31]), are distributed via consumers at local electronic and hardware stores, but also over the Internet. This provides two different venues, which reach local and international participants in an interactive distribution method. *Maywa Denki* is a term used by the artists Nobumichi and Masamichi Tosa, and represents their art product company, which distributes devices over the Internet.[32]

Exonemo is an art phenomenon that carries out interesting concepts via the Internet. The people behind the name are Sembo Kensuke and Yae Akaiwa, two concept-bound artists who met as university students and continue to collaborate

[30] Y. Kawaguchi, personal communication, 2006.

[31] M. Kusahara, "Device Art: A New Approach in Understanding Japanese Contemporary Art Media", in Oliver Grau, ed. *MediaArtHistories* (Cambridge, MA: MIT Press), pp. 277-308.

[32] Maywa Denki website (accessed Nov. 13, 2008) http://www.maywadenki.com.

on Internet based projects that include art and technology objects, programs, installations, performances and even pilgrimages.[33] The latter concept was realized via a bus trip documented in an interactive map on the Web. The Internet audience can participate by downloading and printing out an *origami* version of the bus for their own use.[34]

DoubleNegatives Architecture is a group of architects and system programmers founded by Sota Ichikawa and includes Akos Maroy of Hungaria, Max Rheiner of Switzerland, Kaoru Kobata, Satoru Higa and Hajime Narukawa of Japan. The group integrates new media with concept architecture in innovative ways. In the 2008 piece entitled *Corpora in Si(gh)te*, sensors are used to detect changing environmental conditions like temperature, wind direction and velocity, light levels, etc.[35] The data is utilized to create a virtual architectural construction that is computer generated and changes as the data is processed. In this way, the architectural construct acts like a living, breathing organism, growing up and out, and contracting over time. The site-specific nature of this work is built into its design and applies wherever the piece is installed and generated.

CONCLUSIONS

The early exploratory attitude toward the abstract concept of the computer's virtual environment among the digital media pioneers of Japan, and the inclination to see the algorithm as the process of art may have its roots in the experimental avant-garde currents of the 1950s and 1960s in Japan. This may give some insight into the nature of non-narrative interactive and performance art in the digital media realm of Japan. Furthermore, the artists' search for new media and processes in art led to an open curiosity toward technology that created an environment ripe for experimentation in digital media. Japan's 21st century artists continue to collaborate on projects that link art with the universal, the popular, and the people, in the tradition of the early avant-garde groups, by creating conceptual or "device" art and propagating it over the Internet.

[33] Vicente Gutierrez, Interview with Exenomo, Régine Debatty edit, We-Make-Money-Not-Art website (accessed Nov. 13, 2008), http://www.we-make-money-not-art.com/archives/2007/10/here-is-the-tex.php.

[34] exonemo website (accessed Nov. 13, 2008) http://exonemo.com/RM/index.html.

[35] doubleNegatives Architecture website (accessed Nov. 10, 2008) http://doublenegatives.jp and Yamaguchi Center for Arts and Media http://doublenegatives.jp/CiS_release_venice_en2.pdf.

POSZUKIWANIE NOWYCH MEDIÓW: WCZESNOAWANGARDOWE ODDZIAŁYWANIA NA PIONIERÓW SZTUKI CYFROWEJ W JAPONII (streszczenie)

Inspiracje oraz energie napędzające rozwój koncepcji sztuki cyfrowej w Japonii dojrzewały w znacznym zakresie już we wczesnym okresie rozwoju grup awangardowych w latach 1950. i 1960. Ówcześni pionierzy w dziedzinie mediów cyfrowych formowali swoje konceptualne idee, posługując się technologią cyfrową i mediami interaktywnymi.

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ART AS TECHNOLOGY

Abstract
How does the young generation of artists, shaped by electronic media, perceive the world? How do art universities react to the changes of culture, caused by widespread application of the, so called, information technologies? How does the media reality (mediated experience) influence perception? Which new competences does new operational perception, necessary for establishing a relation with the artifact, require from the artist and the interactor? The author's educational experience, acquired in recent years, is the basis for reflection on Polish art after the change of political system, and above all after massive emerging of communication technologies on the cultural market.

The new generation, shaped by the electronic media, is characterized by a specific perception of reality: the world and reality are perceived through the lens of the media. Reality, in the eyes of the young generation of artists, has lost its autonomous status; what is more, sophisticated modern technology is capable of conjuring up an artificial, non-existent, virtual reality, which remains closely connected with "real" reality. These two realities complement each other, are dependent on each other Neither of them is better than the other: they have equal rights. Mediality – or, to put it more precisely, multi-mediality – is understood here more broadly, of course, than the multi-media capabilities of computer technology: it concerns every sort of impact on the senses and consciousness of the human being.

The *Student Multimedia* shows that have been presented for several years at the BWA Gallery in Krakow are an important part of the educational process at the Multi-Media Studio of the Faculty of Sculpture at the Cracow Academy of Fine Arts. This process is based on the experience of contemporary art, and is deeply connected with the transformations of perception that have resulted from the impact of new technologies. The program we propose is designed to give the students freedom to choose their own path of development. They

follow their own individual course of study; and this, too, allows for the manifestation of their actual interests. Traditional curricula are constructed according to the doctrine which holds that "everything must be separated out": image from sound, word from touch, odor from taste, taste from image, and image from understanding. Given such an assumption, it is convention that becomes the most important thing, and going beyond convention is often understood as going beyond the boundaries of art. For us, however, art is precisely that form of creativity which consists in surpassing one's previous experience, and in this sense overcoming convention as well. The work of art in the age of the media is a process of organizing elements that have been shaped by a specific context, rather than a vehicle which initiates this process. The work of art only begins to function as a result of an initiative from without; this is why art today is in a certain sense similar to a television advertisement, which, according to Adam Smith, "seldom has to do with the characteristics of the object, and more often with the character of the consumer." What the artist needs is not so much the skill to create a work as the knowledge of the laws of perception and of the context within which the work will be received. It is not the form of the work that is important, but rather the way in which it is "used", since there is no such thing as the "right" meaning of a work of art. In education, then, the most essential thing seems to be learning what art is and what it can be, even at the price of groping about, searching on one's own for the best means of expression. Art is thus a form of philosophical reflection, rather than the skill of creating a work according to some specific convention. It seems to be essential, therefore, to expose the students to the entire gamut of factors which create art, and which are as important as the process of creating an art object: thus our shows at the professional BWA Gallery, which are a form of contact with the reality of art. The full realization of the curriculum sketched above is not possible exclusively within the walls of the Academy, which, as a closed structure, is not able to generate a real context for art, since it does not offer real audience and real criticism; there is also no reference to current trends in art. The shaping of the students' artistic awareness also depends on subjecting their projects to the complicated mechanisms of interrelations in the field of art.

Our exhibitions make it possible to observe the specific sensitivity of the new generation, which is of no small importance for further education. They have revealed that the experiences of the present generation of students are markedly different from the experiences of their predecessors, e.g. from the 1980s. There is diminished interest today in the instrumental treatment of art. The Polish art of the 1970s had a marked social inclination; the artists believed that reality could be changed by means of art. Their works made direct reference to social and political facts, and were appreciated for their

informational value (the work as a message), as well as their heterogeneity and openness. There appeared translations into Polish of the most important texts of the "open art" movement, such as the books of Umberto Eco, and those of the theoreticians of mass communication, e.g. Alvin Toffler and Marshall McLuhan. The development of civilization had taken place at the cost of the natural environment, and so artists set their art in opposition to civilization, and in particular to industrial technologies. This movement contributed to the development of art, understood as a romantic weapon in the struggle for a new reality. In the 1980s, art became one of the primary battlefields of political struggle, and a tool of that struggle. More general values were forgotten. The struggle was against the System. Anyone who fought against the regime was a good artist; anyone who collaborated was excommunicated. Art in Poland once again lost sight of its own proper goals.

An awareness shock came at the beginning of the 1990s, when art lost its power as a tool, and in fact it still has not succeeded in finding itself in the new reality. Even well-crafted works seem to have lost contact with the important values. Literature has became boring, cabarets have ceased to be amusing, pictures are empty, and sculpture seems battered and worn out. This is the time when the majority of artists are feeling the discomfort of the lack of significance, the lack of recognition for what they are proposing as art in a free country. They know what we have all been set free from, but it is still unclear what we are now free to do. Certain artists, inured to the struggle, are still looking for some sort of enemy; but every enemy, even the industrial degradation of the natural environment, turns out to be too banal. The time has come for reflection: art cannot be a tool, it must be autonomous, it needs to be set free, not only from the strait-jacket of politics, but also from the limitations of culture as we have known it. The great opportunity for art is presented by technology, and more specifically new technologies. The young generation is rejecting the old habits of instrumental art, and is proposing cool, minimalist installations, appealing more to an individual, subjective interpretation than to the cultural addictions of the viewer The young artists do not set art in opposition to civilization: on the contrary – new technologies are eagerly assimilated to artistic actions as new means of expression. Access to many highly sophisticated solutions does not now constitute a problem. The blessings of the "technological revolution" are put to use, such as the computer, the video, electronic recording, artificial lighting, or the mechanics of electrically driven motion.

Art has ceased to formulate ready models of value; it merely presents the possibilities which reality has at its disposal in a period of rapid technological development. The young generation of artists display a perceptible tendency to

combine “real” and artificial reality in one work. Real and virtual space seems to be identical; it may be perceived as alternately real or artificial, just as in modem physics light is sometimes seen as particles of matter and sometimes as a concentration of energy, depending on the manner in which we identify this phenomenon. In just the same way, the influence of technology on our consciousness is now becoming apparent: there is no single objective reality! Reality is the experience of various conceptualizations of the same phenomenon or event. This “media” way of seeing and expressing reality is the sign of our times. It is characterized by lightness, immediacy, ease of transformation, and openness to association and interpretation. The virtual world is changing our way of understanding the real world; the concepts of time, space, distance, and topography are taking on different meanings. What has become essential is the contrast of permanence and transience, slow and fast operation, substantiality and illusion. The values of one reality cannot be used to evaluate another: they are governed by separate laws. Every medium requires its own definition; thus today’s art also needs redefinition. Art is more or less directly dependent on technology, and its reactions to the dramatic growth of technology need not be only negative: indeed, it can use the new technical capacities for its own growth. The art of recent years seems to be treading along this non-antagonistic path. It should be remembered that until quite recently artists denied that computers were of any use to them. Of course, they were of little use for traditional art. But when art becomes capable of redefining its goals, computer technology can offer unimaginable creative possibilities. The power of new art has already ceased to lie in the esthetic form of the work; it is now to be found in the possibility of rejecting old habits in favor of the free choice among possible aspirations, exceeding the bounds of culture, the possibility of betraying one’s own profession in favor of one’s own growth. Modern man is defined by the nature of the operations he performs, rather than by the set of his characteristics or cultural behaviors. It seems that culture, from this point on, can only be regarded as a network of references and relations, and not as an assemblage of obligatory behaviors. Permanence has been replaced by fluidity, given its context by the memory of previous experience. But memory is not the helmsman of behavior; it is only the communicative background to which we may appeal in the event of misunderstandings. Changes occur with increasing frequency and have a global character: everything is connected to everything else, and only highly developed technologies can deal with information on this scale. Only thanks to technology have we not lost our bearings in the sea of magnitudes.

Many artists have chosen distance, and indeed often hostility, towards the achievements of technology. Art has become an asylum for the “backward” and the “maladjusted”, proposing an escape from reality, and holding out the

illusion that the old values can be preserved. Various and sundry theoreticians have suggested that the age of technology will end with disaster to be followed by a return to the old culture, good because familiar. To frighten us, they invoke the spectre of dehumanization and the dependence on the "thinking machines". Anyone who understands the inevitability of the dominance of technology in the electronic age is called a "technocrat without culture". The mechanisms of inertia are so strong that only technology can effectively resist them. Of course there will always be "cultural enclaves": clubs of watercolor artists, anglers, portraitists, and canary lovers – but they will not set the trends for development in contemporary world. The art of the 21st century, using high technology, will perhaps be able to make contact with the major part of human intelligence, to use those capabilities which cannot be used at the moment, due to the opposition of aspirations and isolation.

Reality today is still perceived in terms of division and specialization. There is a growing awareness, however, of the inevitability of adopting the integrational approach. It is an "ecological" approach to reality, in which one significant change overturns the whole system. I propose just such an integrational model of education. Up to this point we have been inclined to believe that changes come about when we succeed in convincing the general public that they are needed (rationalism and pedagogy); it is clear, however, that today change will be driven by technology and its applications. Those who master the use of technology will be the elite.

SZTUKA JAKO TECHNOLOGIA
(streszczenie)

Jak młode pokolenie artystyczne kształtowane przez elektroniczne media postrzega świat? Jak uczelnie artystyczne reagują na zmiany w kulturze spowodowane powszechnym stosowaniem tzw. technik informacyjnych?

Jak rzeczywistość medialna (zapośredniczone doświadczenie), wpływa na percepcję? Jakich nowych kompetencji wymaga od artysty, ale i interaktora nowa percepcja operacyjna nieodzowna w kontakcie z artefaktem? Doświadczenia edukacyjne autora z ostatnich lat posłużyły do refleksji nad sztuką w Polsce, po zmianie ustroju politycznego, ale przede wszystkim po szerszym wejściu na rynek technologii komunikacyjnych w obszar kultury.

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INTERACTIVE ART: ASPECTS, HISTORIES AND STRATEGIES

Abstract

The author takes into consideration the problems of interactive art. He analyzes the subject matter in a double context of social interaction and HCI, and examines the structure of interactive situations, their actors, forms of interaction and interfaces, presenting numerous examples of interactive artworks. Using as an example the oeuvre of Myron Krueger, the author then presents the development of interactive art, the conflict between artistic experience understood as contemplation and that understood as interaction, the development of the forms of interactive art understood as interpersonal interaction/communication in the technological context, the interaction with the responsive environment, and finally, the merger of both. He then presents some models of interactive art and models of the proces of interactive artistic communication. In the end, the author presents an open typology of interactive artworks, analyzing in turn an instrument work, a game work, an archive work, a labirynth work, and a rhizome work.

INTRODUCTION

New media art, which can be practically equated with digital media art[1], has certainly proved to be the most dynamically developing fragment of the art

[1] The presence of digital technologies in the realm of contemporary artistic practice is of dual nature, creating two zones of influence. The first one is defined by the coexistence of traditional artistic structures and the new technologies. The latter encroach on the field of artistic endeavor undertaken in the classical domains of art, such as painting, drawing or sculpture, to a certain extent transforming their character and contributing to the (often quite extensive) development of the employed tools, but without seriously undermining the basic categories defining the artistic and aesthetic status of the emergent works (such as form, representation, expression, materiality of the artifact). Such phenomena can be exemplified by Joseph Nechvatal's paintings produced with the aid of computer software, viruses, the Internet and robots (fig. 1), Jochem Hendricks' drawings accomplished by means of a system which traces

Fig. 1. Joseph Nechvatal, *andrOID luxe*, computer-robotic assisted acrylic on canvas, 2004, 60 x 60 cm

scene over the last few decades: a fragment of paramount importance for art's general image, one that infuses it with the largest number of revitalizing (albeit often troublesome, and therefore unwanted) issues and that connects it to the

eye movement, or Karin Sander's sculptures, requiring the use of scanners determining the forms of created sculptures as well as digital technologies preempting manual work on the final artifact. The second area of art shaped by digital technologies is composed of new artistic disciplines, sprung from new artistic media made possible by those very technologies, such as computer animation, net art or virtual reality. Perceiving this dual role of digital technologies in art, Christiane Paul proposed naming the first of the described cases "digital technology as artistic instrument" (resulting in traditional artistic objects) and the second "digital technologies as artistic medium" (cf. Ch. Paul, Digital Art, Thames & Hudson, London 2003, p. 8). It is this understanding of the digital medium category that is referenced in the equation of new media art with digital media art. Other attempts at defining new media art, apart from the aforementioned equation, can also be found in the literature on the subject: it is often referred to as interactive media art, less commonly as electronic media art, or, finally, as network media art (cf. M. Lister, J. Dovey, S. Giddings, I. Grant, K. Kelly, *New Media: A Critical Introduction*, Routledge, London 2003.

greatest extent with contemporaneity (as its most profound analysis, the thoroughness of which results from its capability of reaching the levels of social organization which usually fail to evoke much interest in other artistic fields), creating the most challenges to its institutional structures, and – last but not least – incurring, as a consequence, the most repercussions in miscellaneous areas of social practice. If, indeed, we are now able to speak of a genuine formation of new artistic tendencies[2], if we can maintain that contemporary art involves the phenomena that may only be talked about in terms of innovation[3], if we are at present able to discuss the problems of artistic avant-garde and treat it as a living phenomenon rather than a merely historical one[4], then it is all made possible by the artistic practice evolving around digital technologies. It is their presence in the realm of art that engenders new phenomena, affects the processes which transform existing forms, introduces the qualities which are entirely new to these regions, and, in consequence, generates new questions, new issues, new research goals.

New media art, or digital media art, is characterized first and foremost by the qualities deriving from its digital foundation. Some of them, such as multimediality or virtuality, can be said to characterize all of its instantiations (on condition that we choose from among several parallel definitions of multimediality one that allows such diagnosis). Others, such as telematicity, hypertextuality or interactivity, which are only characteristic for certain media (albeit, arguably, those most representative for current artistic practice), appear, as a result, only in certain areas of digital art. The network of interrelations between all the aforementioned attributes defines the internal dynamics of new media art and determines the interrelations between its miscellaneous varieties. Furthermore, it delimits the perspectives of research, analysis and interpretation of digital media art in all of its diversity.

Interactive art, which will constitute the main focus of the following remarks, is a unique phenomenon in the area of digital creativity: it is cross-border, cross-generic, cross-medial. After all, its defining attribute – interactivity – can be found in various domains of digital practice: in CD-ROM / DVD-ROM art, hypermedia installations, net art, or virtual reality art. This means, therefore, that interactive creativity combines the characteristics of diverse arts involving

[2] Software art is a possible example. Cf. *Do It Yourself. Art and Digital Media: Software – Participation – Distribution*, ed. A. Broeckman, S. Jaschko, Transmediale 01, Berlin 2001; *About software art. Read_me 2.3 Reader*, ed. O. Goriunova, A. Shulgin, NIFCA, Helsinki 2003.

[3] Innovative phenomena in contemporary art can be exemplified by the Open Source-based network activities, presenting the notion of artistic collaboration in a new form.

[4] Cf. E. Kluitenberg, *Transfiguration of the Avant-Garde. The Negative Dialectics of the Net*, www.debalie.nl/dossierartikel.jsp?dossierid=13636&articleid=13798.

interactive digital media. Certain theoretical approaches also identify its instantiations outside of the domain of new media. Together with its characteristic definitional disparity (arising from the multiplicity and diversity of the research perspectives it provokes), and the numerous terminological aporiae related to it, the aforesaid wealth and diversity of correlated phenomena imparts to the category of interactivity the quality of indeterminacy, openness, perhaps even hybridity, and the interactive art defined by this category label assumes a scope that is far from precise, as well as obtaining an equally vague character.

THE PARTNERS IN THE INTERACTION

The fundamental difficulty concerning the definition of interactivity is the question of the participating parties – the subjects of interaction[5]. The ongoing discussion surrounding this issue has polarized researchers of new media art into two extreme, opposing parties.

The first one states that interaction develops exclusively between human subjects. Gene Youngblood, a representative of this concept, describes the interactive work of art as "conversational", arguing that interaction in art can be equated with communication – transpiring via technology and within the environment formed by it – between the artist and the recipient[6]. Margaret Morse adopted a similar stance[7]. Perceiving this view as too extreme, Grahame Weinbren proposes instead an interaction between the viewer, the artist and the network, comprising the apparatus (hardware), the software and the material employed in the work's program (audiovisual data). However, he also assumes that the work ought to represent the artist by imposing on the recipients certain restrictions, which will prevent them from fully (freely) exploiting the interpretive possibilities[8]. This is synonymous with the weakening of the position of technology and subjecting it to the authorial perspective. Thus, Weinbren, paradoxically, considerably diminishes the role of the techno-

[5] The essential element among those included in the sociological definition of an interactive situation is the partner in the interaction.

[6] Youngblood introduced this position during a conference devoted to interactive video ("Continuity and Interruption"), which was held at The Kitchen Center for Video and Music, New York, in January 1988; cf. G. Weinbren, "An Interactive Cinema: Time, Tense and Some Models", *New Observations* 71, ed. Regina Cornwell, 1989, p 15.

[7] M. Morse, "Art in Cyberspace: Interacting with Machines as Art at Siggraph's 'Machine Culture – The Virtual Frontier'", *Video Networks* 1993, no. 5.

[8] Weinbren, op. cit., p. 15.

logical network in the overall system involved in an interactive situation, once again practically reducing interaction to the area of human relations. Perhaps the most radical position within this camp is that of Don Foresta, Alain Mergier and Bernhard Serexhe[9], who hold that interactivity can only mean interpersonal communication, human dialogue. According to them, all the proposals which perceive the element of interaction in the processes involving humans and previously prepared software, digital procedures or sequences composed of previously collected data, should be rejected as false. Thus, these authors negate the possibility of communication between man and machine, or any digital environment[10].

The advocates of the rival attitude claim that the interaction occurs precisely between the human (user, participant, interactor, guest – all of these labels describe the various positions assumed with regard to interactive art by the former viewer/recipient) and the digital element. Roy Ascott[11] is one proponent of this thesis. In his opinion, the only task of the interactive artist is the creation (as his own work) of the environment for the creative activities undertaken by the recipients-interactors. It is on account of this role that the interactive artist is called "designer" in the theory at hand; what he/she designs is the field of creative (interactive) behavior of all the participants. In this way, the multiform environment (hardware, software, interface, various data) becomes an interactive partner for the recipient/interactor. This is also the key to understanding Timothy Binkley's answer to his own question: with what does one interact in an interactive installation? The unequivocal reply states that our interactive partner is the computer, the hardware/software system, which communicates with us on the level of ideas[12].

This conflict demands a solution. Nevertheless, instead of joining in the discussion outlined above in order to give support to one side of the dispute (it is worth noting that the realm of art abounds in examples of interactive works confirming both theses, which obviously does not incline the researchers towards radical declarations), I shall attempt, in the following part of these observations, to formulate a stance which will unify those antagonistic attitudes to form a coherent model of interactive art.

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[9] D. Foresta, A. Mergier, B. Serexhe, *The New Space of Communication, the Interface with Culture and Artistic Creativity*, A Study for the Council of Europe, September 1995.

[10] Ibidem, p. 13.

[11] R. Ascott, "From Appearance to Apparition: Communication and Culture in the Cyber-sphere". *Leonardo Electronic Almanac* October 1993.

[12] T. Binkley, "Paradoxes of Interactivity", *New Observations* 71, ed. Regina Cornwell, 1989, p. 21-23.

FROM INTERACTION TO INTERACTIVITY

Reflection on interactive art, and particularly the reflection which tends towards the theoretical resolutions concerning the understanding of interactivity in the domain of artistic practice, analyzing the circumstances of its occurrence as well as its variations, is always primarily determined by the manner in which one defines the relations between its foundational aspects: the social and technical on the one hand, and the artistic – variously embedded in the former two – on the other. I am convinced that those aspects, their hierarchy and interrelations, are particularly important, possibly essential, for determining the significance of the category of interactivity in art. By granting priority (greater significance) to one of the former aspects while defining artistic interactivity, we are in fact determining the perspective from which to view the issue.

The first of the above-mentioned aspects – the social one – situates the reflection on interactive art in the context of social process analysis, deriving artistic interactivity from social interaction and characterizing it in terms of this general category. The second – technical – aspect introduces the context of IT and communications, emphasizing the relation between the human and the machine, the computer, the complex cybernetic systems. Lastly, the third, artistic aspect – depending on the treatment of the two previous aspects and interrelated with them, as well as confronted with the system of the institution of art – determines the set of qualities characterizing interactive art and defines its history.

It follows from the above that the category of interactivity (as distinguished from interactionality, and understood as a feature of art founded on the phenomenon of interaction) bears both a lexical and a definitional relationship to the notion of interaction. The comprehension of interactive art depends on the manner (as well as the context) of understanding the latter.

The general definition of interaction developed in the field of social studies describes it as an action occurring when two or more entities – subjects conscious of their actions (the factor of intentionality[13]) – exert a mutual influence, treating one another as objects of their actions. Within the various research disciplines concerning social practices this definition assumes slightly different forms, adjusted to the specificity of the field in which it appears.

[13] Thus, the treatment of interactivity embedded in social interactions as just feedback is excluded.

In sociology, interaction is defined as a dynamic, varying sequence of social actions occurring between individuals or between groups who modify their actions and reactions in response to the stimulus coming from their partner (partners). The concept of interaction, which is of particular interest in connection with the topic at hand, comes with the theory of symbolic interactionism, which views all events in which the partners interpret the meaning of one another's actions as symbolic interactions.

According to that theory, symbolic interaction, apart from being a communication process, is also performative in character – it is a form of action. Symbolic interactions can be divided into two groups, namely unintentional and directed; the latter can be further subdivided into task-directed and identity-directed[14]. Regardless of the type, symbolic interactions – according to Thomas P. Wilson[15] – do not assume permanent forms shaped by ready-made conventions or rules, but acquire an unpremeditated shape, negotiated in the course of the interaction. All of the above qualifications and distinctions ascribed to interactions by symbolic interactionism can be also applied to the analysis of those interactions which form the basis of interactive art. Particularly advantageous for an analysis of interactive art is the manner in which symbolic interactionism perceives the object of its research. Erving Goffman states that symbolic interactionism is interested not so much in the individual and his/her mental states, as in the syntactic relations between the actions undertaken by the participants of the interaction. The analysis is focused on the very system of actions, the interaction itself, i.e. the interrelations between the participants' actions, rather than those actions in isolation[16]. The interactive artistic events may certainly benefit from precisely this sort of approach.

The classical communication theory, called by John Fiske[17] the process school, which develops the model proposed long ago by Claude Shannon and Warren Weaver, does not contribute essentially new declarations to those already established by sociology (the discipline justly perceived as one of the most relevant methodological contexts for this kind of communication theory): it perceives interaction as a situation in which senders and recipients, swapping

[14] R. H. Turner, "The Self-Conception in Social Interaction", [in:] *The Self in Social Interaction*, ed. Ch. Gordon, K. J. Gergen, Wiley, New York 1968, p. 101 onwards.

[15] T. P. Wilson, "Conceptions of Interaction and Forms of Sociological Explanation", *American Sociological Review*, vol. 35, 1970.

[16] E. Goffman, *Interaction Ritual. Essays in Face-to-Face Behavior*, Aldine, Chicago 1967, p. 2.

[17] J. Fiske, *Introduction to Communication Studies (Studies in Culture and Communication)*, Routledge, London and New York 1990.

their roles, interchangeably transmit messages between them, negotiating their meaning and values.

These two research disciplines co-determine the social aspect of interactivity in art: they emphasize the interaction between human subjects and insist on perceiving the contacts with a computer or a sophisticated IT system as interaction with human software developers and interface designers. The interactive art theory, with its analogous privileging of the social aspect, is similarly inclined – as seen, for example, in the aforecited remarks of Margaret Morse or Gene Youngblood – to model artistic interactivity as interaction between recipients and artists, occurring in a digital environment.

Fig. 2. Jeffrey Shaw, *The Golden Calf*, 1995

Information technology, on the other hand, focuses on the interaction between man and machine; therefore, it is concerned with the direct exchange of information between a computer (software, website) and a human. The adoption of this perspective, which constitutes the technical aspect of the reflection on interactive art, makes it necessary to define both the standards of human-computer interaction and the attributes of digital interactive systems.

Interactive systems are defined as accommodated to maintaining a dialogue with their human users (or perhaps collaborators), i.e. to receive data entered by humans and to react to their commands.

From the technical perspective, interactivity emerges as the ability of an intricate system to detect and recognize human behavior, as well as react to it. A system's interactive behavior may occur as a result of:
(1) physical manipulation,
(2) body movement or body language,
(3) alteration of mental states,
(4) verbal utterances

In the field of computer science, interaction manifests itself in the software which allows human interference in the order of data input or commands. Interactive software includes such user applications as word processors, spreadsheets, graphics software, etc. By contrast, non-interactive software, e.g. compilers or batch files, does not require permanent contact with a human – it only needs to be launched in order to work.

Each type of the system's interactive responses to human behavior, described above, is associated with a specially adjusted range of usable interfaces. This is no less true of interactive art.

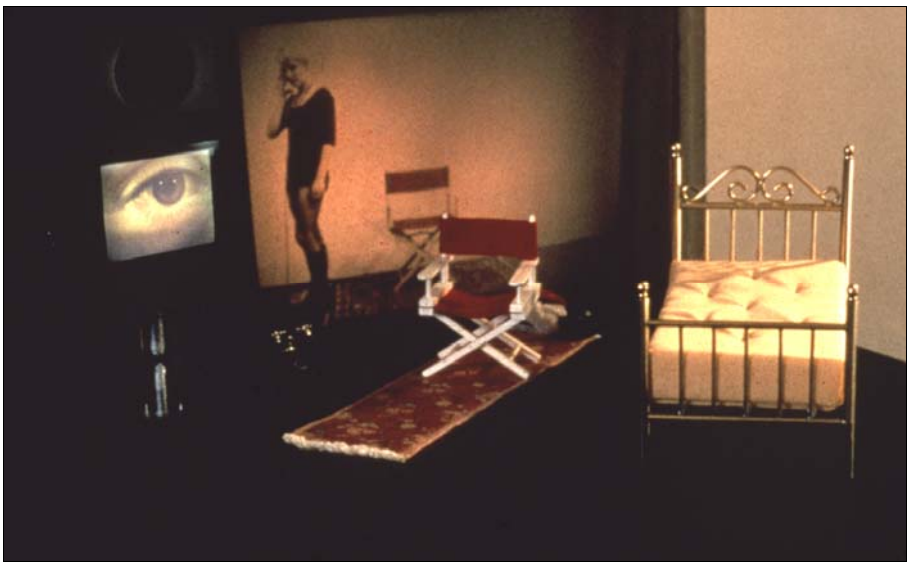

Fig. 3. Lynn Hershman, *Room of One's Own*, 1990-93

Examples of the first type (physical manipulation) may include Jeffrey Shaw's installation *The Golden Calf* (1995), in which manipulating a hand-held LCD display allows for a constant transformation of perspective from which to view

an object located in virtual space, visible on the display (fig. 2), or Lynn Hershman's *Room of One's Own* (1990-1993), where maneuvering a periscope allowing a view into the object activates interactive video sequences (fig. 3).

The second type (body movement) may be exemplified by Miroslaw Rogala's *Electronic Garden/NatuRealization* (1996), in which the sensor-controlled movement of the recipients/interactors (the sensors react to a change of temperature) in the space of the installation activates the accompanying sequences of recorded statements made by historical personages, concerning freedom of speech (fig. 4), or another work by the same artist – the interactive environment entitled *Lovers Leap* (1995), in which the changes in the viewer's position (localized by signals sent from a transmitter attached to the unwitting person) trigger the transformative processes of the projected images (fig. 5).

Fig. 4. Mirosław Rogala, *Electronic Garden / NatuRealization*, 1996

To exemplify the third manner in which the system's interactive responses may be stimulated – in this case by means of modifying mental states – we may consider briefly Ulrike Gabriel's installation, *Terrain 02* (1993), where

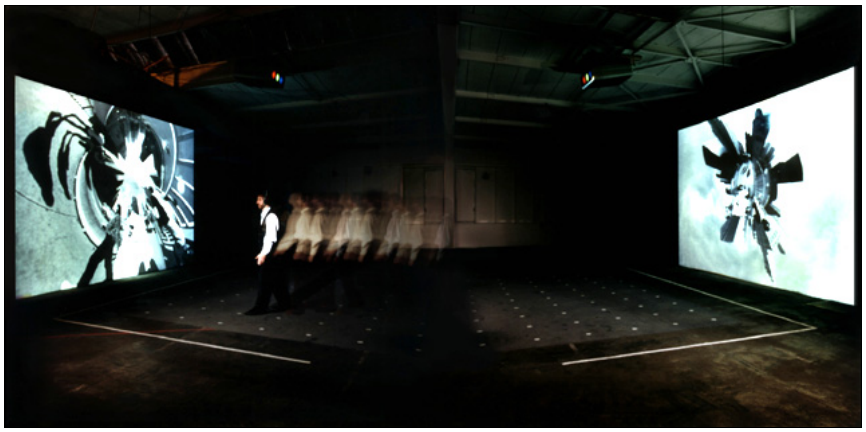

Fig. 5. Mirosław Rogala, *Lovers Leap*, 1995

the modulations of the frequency of brainwaves generated by the recipient/ interactor and transformed into light waves steer the movement of robots, or the installation exhibited by Christa Sommerer and Laurent Mignonneau, *Interactive Plant Growing* (1992), in which the system reacts to the parameters of an electric field emitted by the viewers, strictly speaking, to the interferences between the fields generated by humans and plants (fig. 6).

Fig. 6. Christa Sommerer, Laurent Mignonneau, *Interactive Plant Growing*, 1992-93

The fourth type of interface appears in the works which make use of speech recognition systems. This may be exemplified by such installations as Ken Feingold's *Sinking Feeling* (2001) or Luc Courchesne's installation of 1997 *Landscape One* (fig. 7) and *The Visitor: Living by Numbers* (2001).

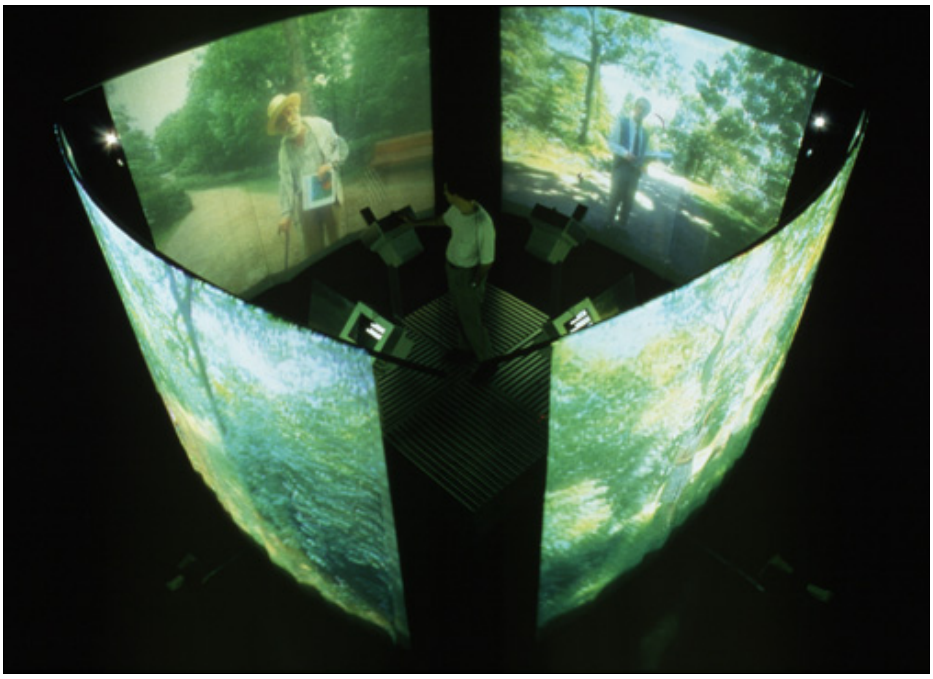

Fig. 7. Luc Courchesne, *Landscape One*, 1997

Therefore, as the above observations demonstrate, interactivity involves – in this case – the relations between digital IT systems and their external environment. In accord with such an approach, Andy Cameron maintains that interactivity in art is tantamount to a possibility of considerable interference with the internal structure of representation as such[18]; hence, he discusses specific external relations between the work and its audience. I would suggest that interactivity also involves analogous intervention in the non-representing structures: the simulacric, performative structure of the work-as-self-presentation or the work's material structure. In both cases we are also dealing with the external relations between the work and the audience (users, interactors,

[18] A. Cameron, "Dissimulations: The Illusion of Interactivity", *Millennium Film Journal* no. 28, Spring 1995.

participants, etc.). Jean-Louis Boissier, however, emphasizes that interactivity as an aesthetic phenomenon is not limited to the external relations, but also constitutes an internal ingredient of the work, dynamizing its structure. I shall return to the question of the work's internal interactivity in the context of net art; for the time being, let us remark that, seen from the combined, dual perspective, interactivity embraces both the external and the internal relations determining the work's structure.

Concluding this fragment of the discussion, I would like to observe that an analysis of interactive art which is limited to the perspective of social interaction not only situates it, as outlined above, solely in the realm of interpersonal communication, but also locates its origins in such artistic phenomena as the happening, performance, techno art, situationism, or the Fluxus movement[19]. However, if we employ the second of the presented perspectives, thereby linking interactivity with digital IT systems and considering it in the context of human-computer interaction (HCI), then taking into account possible earlier – (BC: Before Computer) – examples of interactive art appears to be rather pointless. This also means that the beginnings of the history of interactive art, the process of shaping its paradigm, can be traced no further than to the experiments, both individual and collective, performed by Myron W. Krueger in the late 1960's (*Glowflow*, 1969) and the early 1970's (e.g. *Metaplay* (1970), *Psychic Space* (1971) and *Videoplace* (1974-1975).

Nonetheless, it is worth mentioning that the "technical" origins of interactive art, thus defined, had been preceded by numerous inventions in the fields of hardware and software, such as Ivan Sutherland's Sketchpad (a 1963 prototype of the light pen, enabling the user to produce interactive drawings directly on a CRT display), or his HMD system (Head Mounted Display – a virtual reality technology). This fact bears testimony to the problematic status of every beginning; in this case, depending on whether one considers the social or the technical aspect, or focuses on the necessary hardware, the history of interactive creativity has various beginnings. What is more, one should not forget the artistic aspect, shaped not only by the two previously mentioned ones, but also conditioned by art institutions (and their own determinants), as well as by the development of artistic ideas, which co-shape the notions about art in a given period.

As stated in the introduction, while presenting the two aspects (and contexts) of artistic interactivity – the social and the technical – I have no intention of privileging either of them. It seems more beneficial, both for an accurate de-

[19] Cf. E. Huhtamo, *Seven Ways of Misunderstanding of Interactive Art.*

scription of the history of interactive art thus far and for an analysis and interpretaation of particular realizations, to propose a model in which artistic inter-activity is shaped by the coexistence of both of those aspects. After all, from the very beginning, the category of interactive art has been quite heterogeneous, one or the other aspect dominating in some of the works, while in the others they are variously interrelated. Such interrelations define the dimensions of the territory of interactive art, and it is in this manner that interactive art ought to be perceived. Combining all those perspectives within one model allows us to observe not only the dynamics of the transformations which interactive art undergoes, but also the dynamics of its development. In this way, history can be viewed as several histories and particular works can be analyzed as positioned in a network of paradigmatic references.

FROM SPECTACLE TO INTERACTIVE ART

The necessity of considering Myron W. Krueger's work from the late 1960s and early 1970s has already been signaled in this paper. His artistic beginings and the works he created or helped create are noteworthy not only from the perspective adopted by the historians of interactive art, but also from the point of view employed by the researchers of contemporary artistic practice. His first realizations, involving responsive environments, not only helped shape one of the crucial paradigms of interactivity, but also challenged the traditional norms of art.

The responsive environment entitled *Glowflow* (1969), a collaboration with Dan Sandin (a visual artist and inventor in the field of electronic systems, famous at the time for designing the visual synthesizer, who would later become known as the co-author of the CAVE project), Jerry Erdman, and Richard Venezsky, is an ideal example (since it occurs within a single work) of the previously mentioned challenging of aesthetic norms and artistic principles. On the one hand, the work possessed the quality of an audiovisual spectacle, demanding a composed, contemplative reception. On the other, however, on account of the responsive technologies (a set of sensors feeding data into a computer, which in turn configured the audiovisual spectacle on the basis of the received material), *Glowflow* is an interactive environment, maintaining an interactive dialogue with the recipients.

Nevertheless, the responsive character of the work – its interactive potential – became a source of an ambivalent attitude towards the project even for some of its creators. The majority ultimately decided that real-time interaction would disturb the contemplative nature of the work and, in consequence, they decided

to curtail the interaction and – most importantly – to make the recipients unaware of the work's potential. This was achieved, firstly, through allowing multiple recipients to interact with the system simultaneously, which blurred each participant's awareness of the direct relationship (causal link) between his or her actions and the reactions of the environment. Secondly, the authors took advantage of the inertia of the hardware, which reacted sluggishly to the delivered stimulus. Lastly, the system's efficiency was additionally decelerated on the level of software[20]. In effect, the recipients, who actually activated the processes determining the work's audiovisual dimension, were unable to observe, experience and – consequently – recognize their own contribution as such. As a result of this complex temporal dissociation of the system's input and output (action and response), the interaction did not develop in real time, and the whole realization appeared to be an almost entirely autonomous spectacle.

Glowflow eventually became a battlefield between, on the one hand, the traditional conception of art, in which the audience obtains a spectacle composed in accordance with the accepted notions of visual structure (resulting from a traditionally understood creative process), and, on the other hand, the conception of interactive art, where the creative process preceding the experience of the work finds its extension in the process of its creative reception. It is these potential qualities of *Glowflow*, ultimately rejected by the project's authors – the system's immediate, real-time response perceived by the recipients and their resulting awareness of the occurring interaction – that form the foundation of the experience of interactive art. Rather than inviting the audience to contemplate an audiovisual spectacle, it offered them a chance to co-create it, and consequently experience both the result of this creation and the creative process itself. This aspect of *Glowflow*'s interactive potential – drawing attention to the very process of interaction/communication/creation – met with severe opposition from some members of the authorial group. Namely, they held that focusing on the interactive aspects would introduce noise into the purity of the aesthetic experience. Finally, in Krueger's own evaluation of the project's results, the visual concept limited the interactive potential of *Glowflow*, which was consequently more successful as a kinetic spatial sculpture than as a responsive environment.

The conclusions drawn by Krueger from the collective work on *Glowflow* led him directly towards interactive art. He became convinced that interactivity ought to become the focus of the works, that the emphasis should be placed on

[20] M. W. Krueger, *Artificial Reality II*, Addison-Wesley Publishing Company, Reading, Mass., 1991, p. 12-16.

the relations between the participants (Krueger's term for the recipients of his works) and the environment, rather than on the processes occurring among the participants themselves. The latter should be aware of the rules of the system's response to their actions, the system ought to offer a broad array of conceptual relations, while the aesthetic judgment on the work should depend upon the quality of the proposed interaction.

FROM INTERPERSONAL COMMUNICATION TO INTERACTION WITH A DIGITAL ENVIRONMENT

Subsequent works by Krueger – individual efforts this time – wholly belong to the paradigm of interactivity. Nonetheless, they are not homogeneous in character.

In 1970 the artist showed an interactive environment entitled *Metaplay*: in a video projection, the images of the participants, registered by a camera, are combined (blended) with "live graffiti", drawn or written directly on the computer display by the artist, located in a remote studio (evoking the aspect of telepresence). Thus, Krueger created a possibility of interaction, which – from the perspective of the participants – occurred between the images of themselves and the digital drawings. Seen this way, *Metaplay* appears to have been Krueger's attempt to implement the principles of his artistic program, including the wish to activate the interaction between the participants and the environment (rather than the between the participants themselves). That notwithstanding, liberated from the participant's optics, the perspective reveals a slightly different image, perceived also by Krueger himself, who described *Metaplay* as computer-enhanced human interaction. Therefore, we should regard the work as a kind of realization of Youngblood's concept, making possible the interaction between the artist and the recipients/participants in a technological environment.

Krueger's next work, *Psychic Space* (1971), is different in character. Here, we are already faced with the form of interaction, which the artist deemed most appropriate, namely that between human and machine. The participant's actions triggered immediate reactions of the interactive environment, while the strategy, which organized the course of the interaction, had the structure of a game. Moving in physical space, the participant maneuvered his symbol/ avatar; his movement in the gallery space corresponded to the movement of the avatar in virtual reality (Krueger himself uses the term "artificial reality"). Telepresence became an essential ingredient of the participant's interactive

experience. Concurrently, the interactive environment also functioned as a musical instrument. Hence, spatial movement had dual significance: firstly, it allowed action in the virtual environment of a game, and secondly, it made possible the performance of musical compositions. The resulting complexity of interactions has certainly contributed to the value of the work.

To bring this overview of Myron Krueger's interactive realizations to a close, let us briefly consider the project entitled *Videoplace* (1974-75). It can be said to combine the experiences afforded by *Metaplay* and *Psychic Space* in that it constructs a virtual meeting place, where the participants interact with others (*Metaplay*) or with the environment (*Psychic Space*). As regards the former variety, Krueger made use of his observation that people have a tendency to identify with the images which represent them; whatever happens to the images, happens to the people, so when images encounter one another, a new type of social situation is engendered.[21] Since people's feelings for their images and for their bodies are analogous, when they see their images meeting the images of others, they will interact as if they were occupying the same real space. Krueger makes use of this observation, programming the circumstances and possible forms of those encounters. As regards the other type of interaction offered by *Video Place*, i.e. communication with the environment, Krueger designed the scripts of numerous interactions, which the environment (system) could initiate, or to which it could react.

In the first case, the work supplies the participants with an opportunity of a telematic experience, i.e. the experience of existing simultaneously in different spaces. In the second case, the work creates a possibility of experiencing Mixed Reality, or, to put it differently, Augmented Reality.

It is no coincidence that the first phase of Myron W. Krueger's artistic activity is discussed here in such detail. Over the span of a mere five years, his artistic output proved extremely eventful: he had defied the dominant aesthetic schemata and subsequently substituted them by the idea of interactivity; he had outlined the theory of interactive creativity; he had promoted the game to the rank of artistic strategy; and he had contributed to the development of all the basic forms of interactive art: interpersonal interaction, interaction with a digital environment, as well as the hybrid form, combining both types of interaction and offering what was, in effect, a particularly complex, heterogeneous and valuable experience.

[21] Ibidem, p. 37.

Fig. 8. Rafael Lozano-Hemmer, *Body Movies*, Rotterdam 2001, photo Arie Kievit

The significance of Krueger's project in the context of the history of interactive art is also confirmed by the range of its influence: many artists have, often unconsciously, adopted his ideas in their works. Douglas Davis' television performances (1974-1977), Sanja Iveković's *Inter Nos* (1978), Paul Sermon's telematic works (1992-1999), Scott Snibbe's screen installations (2000-2005) or Rafael Lozano-Hemmer's interactive environment *Body Movies* (fig. 8) are only a few selected examples of interactive works which may be perceived as borrowing from, expanding on, or continuing the projects once undertaken by Krueger.

FROM *MISE-EN-SCENE* TO *MISE-EN-OEUVRE*

The traditional work of art is regarded as a finished whole, its various dimensions permanently integrated. In an interactive work, however, these dimensions are separated from one another, and, moreover, at least some of them lose their finality, obtaining in return the status of a process, a series of ephemeral events, a potentiality of many diverse states. Nevertheless, the dissociated and liberated dimensions do not achieve full autonomy, or even

limited independence, because all the dimensions, levels, or elements of the work exist within a network of relationships.

According to Annick Bureaud[22], an interactive work may be regarded on three levels:
(1) the work as concept (*l'oeuvre conçue*), which comprises the idea, the apparatus, the system and the software, all organized by the artist;
(2) the work as percept (*l'oeuvre perceptible*), where the interface is a physical form of information;
(3) the work as execution (*l'oeuvre agie* ou *perçue*).

The last level may also be described as *mise-en-oeuvre*, because it is a specific executive unification of the previous two. It involves a disjunction/dissociation and relocation of the decision-making center from the traditional authorial realm to the domain of creative reception. The author's *mise-en-scene* is replaced with the recipient's *mise-en-oeuvre*.

The notion seems related to – perhaps even correlated with – the thesis put forward by Eric Zimmerman[23], who distinguished between four modes of interactive narration, identifying four types of interactivity:
(1) cognitive interactivity, occurring on the level of mental operations and leading to the interpretation of a work/text;
(2) functional interactivity, occurring on the material level of the work, manifesting itself in the structural and functional operations, which can take the work/text as an object;
(3) explicit interactivity, encompassing the activities resulting from the non-linear or hypertextual qualities of the work/text and exploiting the possibilities of choice and chance;
(4) meta-interactivity, developing in the cross-textual cultural space.

As mentioned above, the approaches of Bureaud and of Zimmerman appear to be structurally compatible. The level of the work as concept distinguished by Bureaud corresponds to the mental quality of cognitive interaction in Zimmerman's approach, the level of the work as percept matches the materiality of functional interactivity, while the level of the work as execution parallels explicit interactivity. Furthermore, Bureaud's list may be supplemented – without any difficulty – by the fourth, meta-interactive level from Zimmer-

[22] A. Bureaud, *Les Basiques: Art "multimédia"*, www.olats.org/livresetudes/basiques/basiques.php

[23] E. Zimmerman, "Narrative, Interactivity, Play, and Games: Four Naughty Concepts in Neeed of Discipline," [in:] *First Person. New Media as Story, Performance, and Game*, ed. N. Wardrip-Fruin, P. Harrigan, The MIT Press, Cambridge, Mass., London, England.

man's theory. Nonetheless, despite the observed analogies, the conceptions of Bureaud and of Zimmerman reveal two divergent attitudes towards the issue of artistic interactivity. Zimmerman's approach identifies four varieties of interactivity in art, whereas Bureaud's theory discusses the levels of a single interactive system. From the perspective afforded by Bureaud's approach, only explicit interaction among Zimmerman's varieties deserves the name of actual interactivity. The remaining variants either merely accompany it, or are only attributes of a work which is, in essence, non-interactive. Therefore, only the proposition of Annick Bureaud supplies the researcher with the tools necessary for investigating interactive art[24].

FROM DISTRIBUTED AUTHORSHIP TO THE IMPLIED ARTIST

Bureaud's approach appeals to me also because of its affinity with the thesis which I once formulated myself[25], postulating a distinction of two levels within the structure of an interactive work:
(1) the work as an artifact;
(2) the work produced by recipients/interactors.

I described the work on the first level – the product of the artist – as the context for the second level, where I perceived the work proper: a product of the recipient's interaction and, simultaneously, the object of his productive/ receptive experience. The duality of the recipient's interactive attitude, thus defined, is well represented by the term *(v)user*, offered as a name for the new role of the (former) recipient by Miroslaw Rogala and Bill Seaman. The difference between the conception of Annick Bureaud and the model proposed by myself consists in the fact that my approach focuses on the interactive communication rather than the structure of the work. A multi-level interactive work is thus inscribed into a broader, dynamic communicative context, which results in revealing the processual character of the work. In this model, the interaction occurs between the interactor and the network – comprising the interface, hardware, software and the material (data) – which I had called the *artifact*. Today, I would substitute the original concept of artifact with the

[24] Bureaud's model is marred by one weakness, albeit one easy to eliminate, namely a vague distinction between the first two levels, which appear to overlap somewhat in the author's explanation.

[25] Cf. R. W. Kluszczynski, "The Context Is the Message. Interactive Art as a Medium of Communication", in *Seventh International Symposium on Electronic Art Proceedings*, red. M. B. Roetto, Rotterdam 1997.

notion of the dispositive[26], which better represents the complexity of the network. Therefore, let us reiterate the amended formula: interaction occurs between the interactor and the dispositive. The material is given a database structure, which means, among other things, that the data are only contained and not represented. They may temporarily acquire the structure of a representation (of varied durability), only as a result of the recipient's interactive behavior. The interaction between the recipient and the dispositive engenders the executed work, an equivalent of the third level in Bureaud's model of the interactive work. The remaining two levels identified by Bureaud, the work as a concept and the work as a percept, are combined here within the dispositive. With regard to certain works, in which the dispositive represents the artist[27], striking a balance between the freedom of interaction and their systematic restrictions (Umberto Eco would see this is as a balance between the intention of the work and the intention of the recipient), yet another factor comes into play – the implied artist. In this case, the word *implied* denotes the artist's submission to the interactor, who establishes the (artist's) position and role as a result of a unique, personal interpretation of the interactive process experienced by him-/herself. As for the interactive works in which the artist's position is not established (implied), we are instead faced with diffuse (shared) authorship.

THE TYPES OF INTERACTIVE ARTWORKS / INTERACTIVE STRATEGIES / MODELS OF EXPERIENCE

As a conclusion to the discussion at hand, I wish to present an open typology of interactive works. An outcome of the reflection on the history of interactive art thus far, it lays claims neither to systematicity nor to definiteness. Each type is associated with a particular repertoire of interactive strategies and leads to particular range of experiences. If it should happen – as it often does in interactive art – that the work becomes equated with the interaction, and the latter is, at the same time, the only form (dictated by the logic of interactivity) in which the work may be experienced, then the relationship between the three aspects is of paramount importance. I wish to emphasize that certain qualities which help us to distinguish the particular types are also frequently encountered in the works belonging to other categories, where they do not

[26] The dispositive comprises the network described above, which also includes processes (both technical and mental), their arrangements and contexts (also institutional), all of which combine to form the circumstances of the work's perception and reception.

[27] Cf. Weibren, op. cit.

have, however, a defining role, i.e. they do not determine the work's affiliation with a given group. For example, variously understood instrumentality or game structure are features which occur routinely in interactive works.

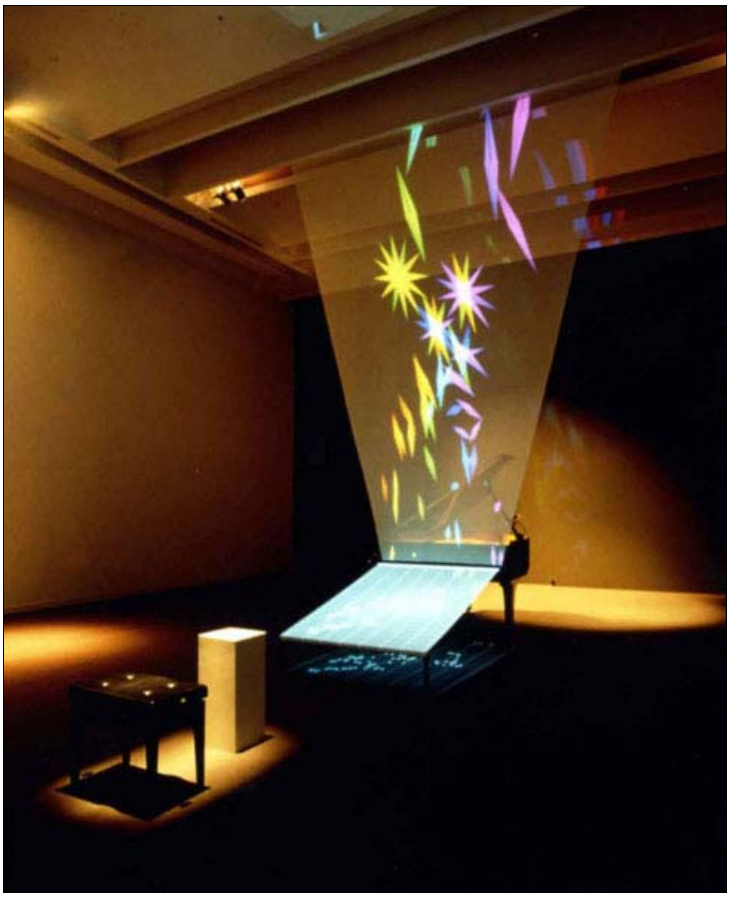

Fig. 9. Toshio Iwai, *Piano as Image Media*, 1995

1. The instrument work

Works of this type do not offer the recipient an experience of a previously established form; what is more, they do not even offer him an experience of navigating a structure, which is hypertextual (and hence, in a way, established as ontologically preceding the experience). The nature of the experience is totally executive. The interface allows a series of determined activities, performed in order to realize the set task, as exemplified in *Telegarden* (a 1995

telerobotic installation authored by Ken Goldberg and Joseph Santarromana), *Portrait No. 1* (Luc Courchesne's 1990 work which allows the recipient to hold a conversation with a digital partner), *Sinking Feeling* (2001, Ken Feingold) or *Piano as an Image Medium* a 1995 example of visual/audiovisual performative installation by Toshio Iwai (fig. 9).

2. The game work

This type of work invites the recipient to an experience with a game-like structure (not infrequently, such works employ the processed versions of games already available on the market). The participants have at their disposal the rules, the gear and a fixed location. The space of the game is often virtual reality, as, for instance, in Feng Mengbo's *Ah_Q – A Mirror of Death* (2003), or, perhaps even more interestingly, a network of cross-border relations is activated, and the game develops in the spaces between the different worlds. An example of the latter may be a project *Can You See Me Now?* (2001), a collaboration between the Blast Theory group and the Mixed Reality Lab (University of Nottingham), a work situated between the virtuality of the Internet and the materiality of the real world (fig. 10). Works like these, exploiting hybrid reality as game space, appeared at the very beginning of the history of interactive art, as evidenced in *Psychic Space*, the previously discussed work by Krueger.

Fig. 10. Blast Theory, *Can You See Me Now?*, 2001

3. The archive work

The works belonging to this category organize structures of data into a lucid hypertextual structure as the space of the experience. The experience consists in navigating the territory of the hypertext with the help of a map, supplied by the work. Therefore, in this case, the structure of the experience's virtual space does not determine the work's significant quality (or value). This function is performed first and foremost by the material gathered in the archive, and also, to a lesser extent, by the relations shaped within the material by the user's navigational choices. The type may be exemplified by George Legrady's CD-ROM work entitled *An Anecdoted Archive from the Cold War* (1994). Occasionally a work from this category will offer the interactor an opportunity to enrich the archival resources, as in the case of Antonio Muntadas' *The File Room* (1994–), a realization involving gallery space and the Internet (fig. 11).

Fig. 11. Antonio Muntadas, *The File Room*, 1994-

4. The labyrinth work

The labyrinth work's hypertextual structure is similar to that of the archive work, but, contrary to the latter, the interactor does not possess the knowledge of the experience's virtual structure. What is more, this structure may change in the course of the experience (the so-called "dynamic mapping"), rendering the obtained knowledge useless. An example of such a devious realization is

Miroslaw Rogala's interactive environment *Lovers Leap* (1995). Since the recipient is ignorant of the space in which the experience occurs, the very exploration of this space, the induced emotions and sensations (as well as intellectual behavior), his astonishment, unease, a sense of being lost mixed with a sense of challenge, his decisions and actions such as searching, analyzing, etc., become the essential attributes of the work. This type of work is particularly popular among interactive artists, the upshot of which is the staggering number of works offering the labyrinthine experience. Other possible examples might be Jeffrey Shaw's *Legible City* (1988-1991) and Grahame Weinbren's interactive cinema installation *Sonata* made in 1991-1993 (fig. 12).

Fig. 12. Grahame Weinbren, *Sonata*, 1991-93.

5. The rhizome work

The works belonging to this group represent one of the most remarkable forms of interactive art. While sharing numerous traits with the previous type, the rhizome works differ from it primarily in that they develop in the course, and as a result of the interactive experience. Additionally, they employ

miscellaneous strategies; they may retain the memory of its initial shape (which means that the interactors are able to experience both the original form of the work and the phases of its transformation; such is the case with Piotr Wyrzykowski's installation *The Gallery of Polish Kings*, 1993), or they are open to constant mutability (e.g. Douglas Davis' *The World's First Collaborative Sentence* installed in the Internet in 1994 (fig. 13). Works of this type are mostly encountered on the Internet, the architecture of which is particularly conducive to the rhizome work projects. While the structure of the labyrinth work, the archive work and the game work is hypertextual in character (seen from this perspective, the instrument work can be characterized as a generator of textuality), then, employing Espen Aarseth's concept[28], I shall describe the structure of the rhizome work as cybertextual[29].

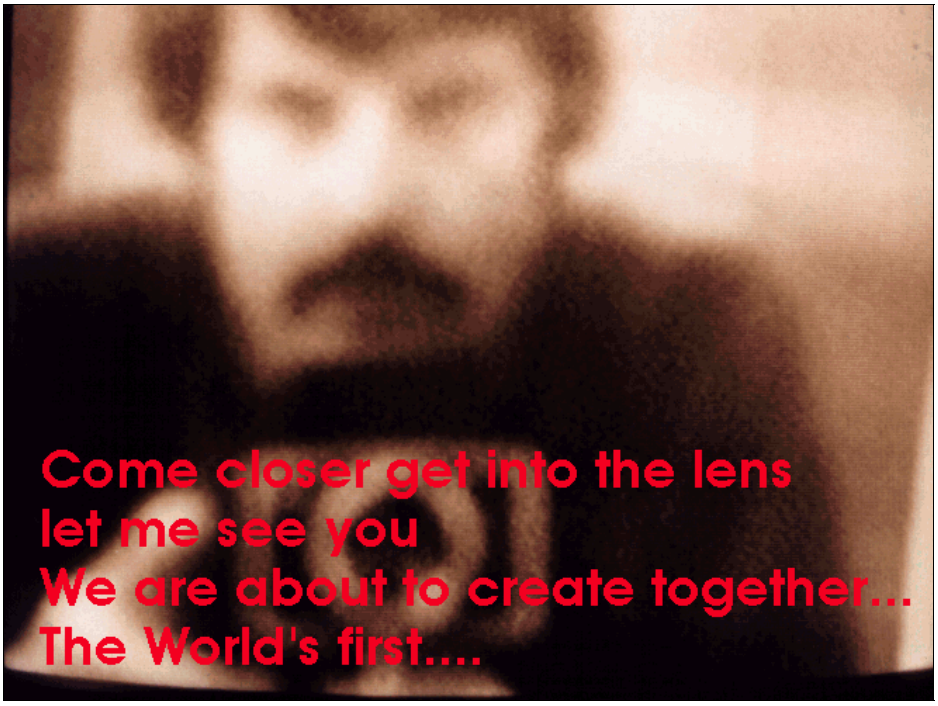

Fig. 13. Douglas Davis, *The World's First Collaborative Sentence*, 1994

[28] Cf. E. J. Aarseth, *Cybertext. Perspectives on Ergodic Literature*, The John Hopkins University Press, Baltimore 1997.

[29] The hypertext allows multidirectional navigation within a fixed structure, while cybertext enables the user to create new routes and spaces. The name of the category refers to this quality: a rhizome is a metaphor of multidirectional, unpredictable development.

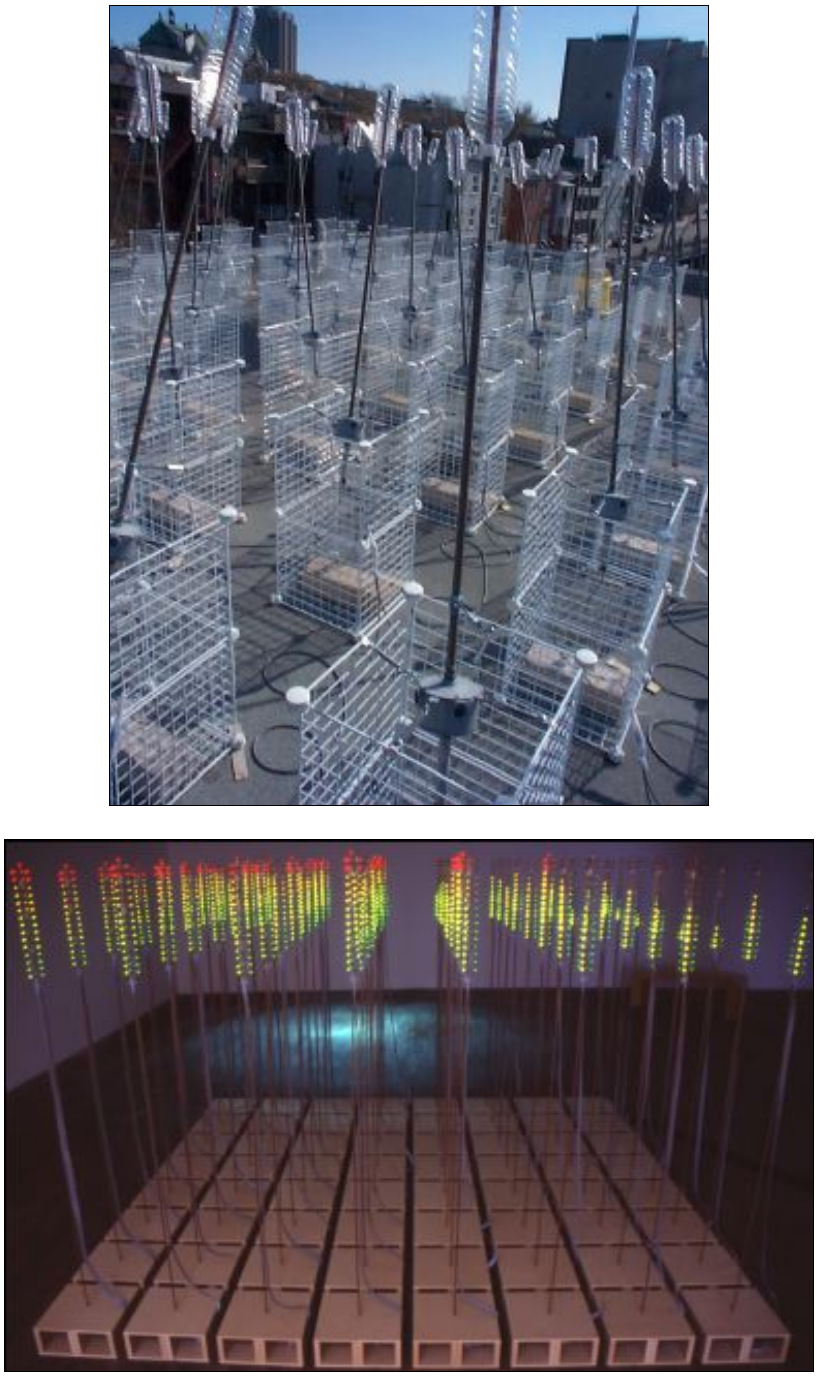

Fig. 14. Steve Heimbecher, *POD (Wind Array Cascade Machine)*, 2004.

The suggested typology of interactive artworks is – as previously stated – a proposal of a preliminary nature. More discoveries may result from the development of new tendencies in this field of artistic creativity, or even from a more rigorous scrutiny of the existing achievement. To conclude, I wish to point out that one of the most common tendencies at the moment is category crossing (numerous works are situated on or near the borderlines of the types), and also to draw the reader's attention to the surfacing of works that resist interaction with humans. As seen, for instance, in Steve Heimbecker's 2004 work entitled *POD (Wind Array Cascade Machine)*, these projects develop their interactive dynamics by building network structures which function solely in technological contexts (fig. 14).

SZTUKA INTERAKTYWNA: ASPEKTY – HISTORIE – STRATEGIE (streszczenie)

Autor podejmuje rozważania nad problematyką sztuki interaktywnej. Rozpatruje ją w podwójnym kontekście: interakcji społecznych oraz HCI – interakcji między człowiekiem a komputerem. Analizuje strukturę wydarzenia interaktywnego, pozycje i role jego aktorów, formy interakcji, struktury interfejsów, odwołując się przy tym do licznych przykładów interaktywnych dzieł sztuki. Następnie, na przykładzie wczesnych wirtualnych dzieł Myrona Kruegera, przedstawia rozwój sztuki interaktywnej, zwracając uwagę na konflikt pomiędzy koncepcją doświadczenia artystycznego jako kontemplacji a koncepcją doświadczenia interaktywnego, analizuje formy sztuki interaktywnej pojmowanej jako interpersonalna interakcja/komunikacja w środowisku technologicznym, jako interakcja z re-aktywnym otoczeniem, bądź – finalnie – jako połączenie ich obu. W dalszej części pracy autor przedstawia otwartą typologię dzieł interaktywnych, która jest zarazem typologią strategii interaktywnej komunikacji artystycznej, wyodrębniając następujące typy dzieł sztuki interaktywnej: dzieło jako instrument, jako gra, jako archiwum, labirynt oraz kłącze.

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THE ARCHIVISATION, PRESENTATION, AND DISSEMINATION OF CYBER ART ON THE WEB

Abstract

One of the most important problems concerning the dissemination of cyber arts is the "variable" and "unstable" character of that kind of art. The Web offers the possibility to create archive platforms for digital works of art. Yet perhaps instead of archives, we should rather talk about expanded virtual museums. The goal of such institutions would be the archivisation, presentation and dissemination of digital data about such types of artistic activity as, for example, interactive installations, genetic art, software art, virtual art, net art, transgenic art, telematics, etc. The Database of Virtual Art, Media Art Net, ArtBase, netzspannung.org and the archives of the international festivals for new media art (Ars Electronica, transmediale, DEAF) – are examples of the different strategies of the preservation and dissemination of digital art on the Web.

A conference devoted to digital archives took place during the Ars Electronica Festival in Linz in 2005. The conference was held by the newly founded Ludwig Boltzmann Institute for Digital Culture and Media Science. The Institute is based on the active cooperation of three institutions located in Linz: the Ars Electronica Center, the University of Art and Industrial Design and the Lentos Art Museum. One of the primary tasks of the Institute is to document, describe and protect digital art and the objects of new media art which are collected in the Ars Electronica Festival archives. The number of works that have been gathered since the first festival in 1979 is estimated to be around thirty thousand. Since 1987 the Ars Electronica Festival has been accompanied by Prix Art Electronica – the most prestigious new media art competition. The aim of the event is to consolidate the achievements of artists, technology experts, and scholars in order to work out a long-term strategy of cooperation for the most significant world-wide institutions dealing with the issues. The basic tasks of the institute are: 1. the scholarly description of digital works of art in the context of art history; 2. the archivisation and preservation of the works and making them accessible to the public; 3. the development of

computer tools and heightening the standards of unified net-related interchange of the data gathered by different institutions; 4. the popularization of historical and theoretical treatises on art by means of a multidimensional system of Web dissemination; 5. the furthering of the exchange of information, dialogue and mutual network communication between artists, scientists, technologists and institutions. The field of the documenting activity includes computer graphics, animation, computer and digital music, interactive art, internet projects, software, mixed reality, the applications of virtual reality, media performances, biological, cybernetic and genetic art, robotics, video art[1].

The representatives of several leading online platforms (Media Art Net, the Database of Virtual Art, The Exploratory Media Lab MARS – only the representatives of ArtBase, which functions under the auspices of Rhizome.org were missing) were present at the conference. It is also worth mentioning here that in 2005 *Refresh!*[2] – the first international conference on the history of media art, science and technology – was held at the Banff New Media Institute (Canada). The conference gathered a great number of new media historians and theorists, researchers, and lecturers who were debating in fourteen sections devoted to a wide spectrum of issues connected with historiography, methodology, documentation, guardianship, media art collecting and various relations that are established between art, science and technology. The topics included: "Database / new technological tools", "Collecting, protection and archiving of media art", "Art as research / artists as researchers", "High art / low culture – the future of new media science?", "What lessons can be learnt from the history of science by the history of new media?" Those two events show that new media art and cyberculture have not only become an extremely important element of contemporary culture understood globally, but also that their development has already gone beyond the period of "infancy" and is now in the phase of stabilized functioning. There has emerged a need to protect, consciously and with dilligent care, the works of art prone to falling into oblivion due to their "unstable" nature, the constantly shifting recording formats and, most of all, the unusual speed with which changes occur. Everything that concerns the Web happens as if at a double speed; net art itself is the best example of this. The first online realizations are commonly believed to have appeared in 1994. At the turn of 1995 and 1996, Vuk Ćosić (as is often claimed) introduced the term *net.art*, which applied to the early works signed

[1] Cf. "Ludwig Boltzmann Institute for Digital Culture and Media Science in Linz", in: *Hybrid. Living in Paradox*, G. Stocker, C. Schöpf (eds.), Hatje Cantz, Ostfildern 2005, pp. 386-387.

[2] See: http://www.mediaarthistory.org/, url: 25.12.2005 and http://www.banffcentre.ca/bnmi/programs/archives/2005/refresh/, url: 25.12.2005.

by Ćosić, Antonio Muntadas, Alexei Shulgin, Natalie Bookchin, Heath Bunting, Olia Lialina, Jodi or etoy – to mention only some of the pioneers and "classics" at the same time[3]. In fact, the history of the term *net.art* does not stem from the e-mail written by Shulgin to Ćosić, where an incidental sequence of signs "J8~g#|\;Net.Art{-^s1" appeared and was to have provoked Ćosić to name the new artistic trend in this way. As explained by the Slovenian net artist and Web activist – the creator of ASCII Art and many Internet projects, who also represented Slovenia at the Venetian Biennale in 2001 (the event seems to be the consecration of the whole trend) – the term was used for the first time by Pit Schultz in 1995[4]. Schultz is a net artist, but also a critic and the co-author of Nettime, one of the best known and most influential discussion lists devoted to online communication and cyberspace issues (McKenzie Wark called it "the European counterpart of *Wired*"). Yet, quite soon, at the beginning of 1998 Tilman Baumgärtel stated that "a certain era is coming to a close. The first form-shaping period of Web culture is over". A year later Alex Galloway wrote: "Net-dot-art is dead" [5].

And indeed the canon of net.art, which had been popularized several years before for instance by an important event *Net.art per se* organized by Ljubljana Digital Media Lab in Trieste in 1996 was replaced by net art. The exhibition *net_condition*[6] organized by ZKM (the Center for Art and Media Technology) in Karlsruhe in 1999 can be said to be a symbolic moment. Around one hundred projects created by net artists were presented there. The artists were chosen by a board of curators headed by Peter Weibel (the director of ZKM). It may be stated, without any exaggeration, that it was the greatest manifestation of the new art, although it was during documenta X (1997) in Kassel that net art appeared for the first time at such an important event. Weibel said then: "nowadays net art is a great power which radically transforms a closed system of object aesthetics into modern art – into an open system of postmodern (or new modern) space of activity" [7].

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[3] This pioneering period is well characterized by post-manifesto signed by Bookchin and Shulgin, *Introduction to net.art 1994-1999*, http://www.easylife.org/netart/, url: 15.04.2002. See also the chronological description prepared by Bookchin, http://www.calarts.edu/~line/history.html, url: 02.07.2006.

[4] See: *Interwiew of Vuk Cosic*, http://www.we-make-money-not-art.com/archives/008056.php,url: 05.07.2006.

[5] A. Galloway, *net.art Year in Review*, http://switch.sjsu.edu/web/v5n3/D-1.html, url: 04.06.2008.

[6] See: P. Weibel, T. Druckrey (eds.), *net_condition: art and global media*, The MIT Press, Cambridge, Massachusetts, London 2001 and http://on1.zkm.de/netcondition/start/language/default_e, url: 15.01.2001.

[7] P. Weibel, *Art/Politics in the Online Universe*, http://on1.zkm.de/netcondition/curators/weibel/default_e, url: 07.07.2006.

Only a few years after the first experiments and activities performed by the artists using the new art territory – the Internet, curators and museum workers have tried to form programs and work out methods of presentation and preservation of both net art and art on the net. Peter Weibel[8], experienced in organizing net exhibitions, mentioned several basic criteria to be met by the curator of such undertakings. Firstly, the works which adequately use the attributes of the Web itself as a medium should be appreciated. They should be able to function in the same space as the audience, outside their original space. Till then, it was assumed that the work and the viewer must come into direct contact in "common space", but the Web introduced a huge change due to spatial separation – the dislocation of the audience and the work. Secondly, the process of selection is very important – just as in the case of traditional art and traditional means of displaying it – it is the curator that somehow authorizes the works of art for presentation. This might seem to contradict the frequently emphasized "democratization" of reception enabled by the Web; however, the vision of an unlimited access to a huge number of projects, works of art, and artists, however splendid, is, of course, utopian. The third characteristics of the proper attitude to presenting art on the Web is the conscious treatment of new technologies as tools and not as a goal in itself. The fourth one is the need to search for new formats, i.e. new forms of presenting art on the Web.

The thorough knowledge of the theoretical background of the media and new media art is the *differentia specifica* of the curatorial practice related to such art. Theory serves as a tool, or a map which enables the travel in a highly complex universe of art using new digital technologies. This knowledge is absolutely necessary; the knowledge of art history, consciousness or aesthetic sensitivity are no longer enough. The fact that in this case theory is very often intertwined with science brings the requirements of the curators even higher. Apart from this – as Weibel claims – the role of a curator of new media art may be compared to the role of a producer (a film producer, for example). (Virtual) museums should not only be "repositories" for works of art, but they should stimulate artists as well – hence the need to rethink the functions of culture and art patronage. A modern museum, present in both physical and virtual space, should fulfill the function of a production studio, thanks to which artists could carry out their projects supported not only in a financial, but also in a technical and scientific way. The curators-producers should become the coordinators of various activities which aim at creating new values and art objects.

[8] See: S. Cook, *Interview with Peter Weibel*, http://www.newmedia.sunderland.ac.uk/crumb /phase3/pdf/intvw_weibel.pdf, url: 08.07.2006.

THE DATABASE OF VIRTUAL ART

I shall begin the presentation of the four online platforms with the description of the Database of Virtual Art[9] initiated by Oliver Grau. This project was created at the Humboldt University, the Department of Art History, in Berlin in 1999 and has been sponsored by Deutsche Forschungsgemeinschaft (German Research Foundation) and the Federal Ministry of Education and Science. At present the Database functions under the auspices of the Danube University in Krems (Austria), where Grau has moved. It cooperates with many European, American and Japanese institutions and brings together the most significant researchers, theorists and historians of new media art. It is worth mentioning at least some names, as they guarantee the high level of the texts published here: Roy Ascott, Tilman Baumgärtel, Andreas Broeckmann, Edmond Couchot, Florian Cramer, Dieter Daniels, Alain Depocas, Sara Diamond, Monika Fleischmann, Rudolf Frieling, Jean Gagnon, Ken Goldberg, Erkki Huhtamo, Jon Ippolito, Anne-Barbara Ischinger, Christina Jacoby, Ryszard W. Kluszczyński, Machiko Kusahara, Herbert Lachmayer, Andreas Lang, Tim Lenoir, Roger Malina, Lev Manovich, Gunalan Nadarajan, Frieder Nake, Joseph Nechvatal, Christiane Paul, Xavier Perrot, Daniel Pinkas, Itsuo Sakane, Christine Schoepf, Christa Sommerer. The "localization" of this platform is important, because it is a distinct proof of new media also entering traditional academic institutions. This is not accidental, as Grau consistently develops such a model of research on new technologies of art in his texts (for example in his famous book devoted to virtual art[10]). Such a model is rooted in history and tradition. Although in one of his interviews the author clearly states that he does not claim that "the new technologies of images, such as for example CAVE, have existed before in these or other forms"[11]; yet his version of "the archeology of media" presented in the above-mentioned book is based on searching the past for the phenomena which foreshadowed the present artistic and aesthetic currents. This attitude has a rich tradition presented in

[9] http://www.virtualart.at/common/info.do, url: 10.07.2006. Grau indicates the pioneering character of this enterprise, yet it is probably not so important which of the described phenomena was really the "pioneering" one. It is a fact that plenty of similar initiatives were undertaken in different places almost at the same time. See: O. Grau, "Database of Virtual Art", in: *Hybrid...*, op. cit., p. 404.

[10] O. Grau, *Virtual Art. From Illusion to Immersion*, The MIT Press, Cambridge, Massachusetts, London 2003.

[11] O*liver Grau Interview. The Image – from Real to Virtual*, http://switch.sjsu.edu /nextswitch/switch_engine/front/front.php?artc=273, url: 05.06.2004.

numerous publications by such researchers as Siegfried Zielinski[12], Erkki Huhtamo[13] or Norman M. Klein[14].

The issues connected with new media must be studied in the context of historical research, although there is a tendency to use the expression "digital revolution". It is important to remember that the digital era was preceded by a long-term evolutionary process of discoveries in technology and media. The past should be investigated in order not to erase significant achievements from cultural memory. The Database of Virtual Reality tries to store new art and make the information on it available to the public. This new art would be impossible without such inventions as the panorama, the cyclorama, the magic lantern, or the diorama, deriving from the culture of picture and imagery. The two aspects – communicative and informative – are equally important. *Image Science* (*Bildwissenschaft*) is a project stemming from "imagery science", going back to the history of visual media evolution, to the ideas of Aby M. Warburg and his unfinished *Mnemosyne-Atlas*, and to Erwin Panofsky's iconology[15]. Warburg's *Atlas* may be treated as a peculiar anticipation of inter- and transdisciplinary activities aiming at protecting new media art. This very interesting project was realized in the 1920s and it preceded and foreshadowed the subsequent ideas of hypertextuality, searching for new kinds of nonlinear navigation and creating new ways of collecting visual, photographic materials which referred to the so called *visual clusters*. *Visual clusters* are connected with searching for complex networks of mutual semantic tensions composed and reconstructed by an actively co-participating viewer (or rather – according to contemporary terminology – a user).

„The Database of Virtual Art documents the rapidly evolving field of digital installation art. This complex research-oriented overview of immersive, interactive, telematic and genetic art has been developed in cooperation with established media artists, researchers and institutions. The Web-based, cost-free instrument – appropriate to the needs of process art – allows individuals to post materials themselves. Compiling video documentation, technical data,

[12] S. Zielinski, *Deep Time of the Media. Toward an Archaeology of Hearing and Seeing by Technical Means*, The MIT Press, Cambridge, Massachusetts, London 2006.

[13] Huhtamo wrote many texts on the archeology of media. He is now preparing a book devoted to the 19th century moving panoramas as a forgotten medium. See, e.g.: E. Huhtamo, "Elements of Screenology", in: *Screens. 9th International Media Art BiennaleWRO 01*, V. Kutlubasis-Krajewska, P. Krajewski, A. Kubicka-Dzieduszycka (eds.), Open Studio/WRO, Wrocław 2001.

[14] N. W. Klein, *The Vatican to Vegas. A History of Special Effects*, The New Press, New York, London 2004.

[15] See: O. Grau, *Art History as Image Science*, http://www2.hu-berlin.de/Grau.pdf, url: 18.03.2004.

interfaces, displays, and literature offers a unique answer to the needs of the field. All works can be linked with exhibiting institutions, events and bibliographical references. Over time the richly interlinked data will also serve as a predecessor for the crucial systematic preservation of this art"[16] – this declaration, found on the Database's website is a concise description of the essence of its activities. Of course, to become its co-author, according to the brief note directed to the potential contributors, one has to undergo the "legitimizing" procedure, which allows for the verification of his/her competence and substantial preparation. It is one of the possibilities to implement the ideas of openness and collaboration.

Nowadays the interests of the founders of the Database go far beyond digital installation art. To make this more evident, it is worth analyzing the genre category in the structure of Database search, which is divided into four main areas: aesthetics, genre, keywords, technology. The second catalogue contains such terms as bio art, computer graphics and animation, database art, genetic art, net art, immersive environments, interactive art, sound installations, telematics, telepresence, transgenic art, virtual reality, robotics. In a kind of manifesto which presents the methodological presumptions of the virtual art platform Oliver Grau claims that the aim of a base "which is the first step towards the systematic collection of the newest art forms" is "to document works of art together with the comprehensive data connected with them; it is equally important at the same time to enable users to acquire the searched information in an easy and quick way".[17] To make the information exhaustive, each record undergoes "expanded documentation", containing: bio- and bibliographic data referring to an author's work – such as his/her main achievements and awards, the register of places where the works have been exhibited (with a title, place, date and the organizers of the exhibitions), the drawing of the installation structure and scheme, digital images (in different file formats – JPG, GIF, TIF), the details on software (programs, file size) and hardware. Video documentation, if available, is another important element (different formats: VHS, DVD, NTSC, PAL are adapted to Quick Time format), as are technical instructions, the types of interface and display screen, audio documents, interviews, viewers'/users' comments, the links and literature on the artists, the information on the technical teams and institutions of media art, an index and copyright.

The users of the base are able to acquaint themselves comprehensively with the specificity, the characteristics and the rules of operation in the case of

[16] http://www.virtualart.at/common/info.do, url: 10.07.2006.

[17] O. Grau, *For an Expanded Concept of Documentation: The Database of Virtual Art*, http://www2.hu-berlin.de/grau/database.htm, url: 16.10.2004.

multimedia installations of works of art thanks to such descriptions. Grau writes: "this useful system can be applied to other art forms such as installations, films or video. Thus documentation, as a unilateral activity based on filing only the most important data, turns into an active knowledge transfer process"[18]. Such a profiled platform seems interesting not only for new media researchers or experts, but – as its creators put it – also for teachers, students and researchers in different branches of humanities, librarians, archivists, museum workers, architects, photographers, writers, designers, journalists, publishers, media designers and technicians, and all those who are fond of contemporary art and culture.

ARTBASE

Rhizome.org[19] is an online platform which serves the global community of new media art. Its founders, headed by Mark Tribe, aim at supporting the creation, presentation, discussion and protection of contemporary art that uses the emerging technologies in significant ways. Rhizome.org was founded by Tribe in Berlin in 1996. The artist, curator and lecturer then moved to New York (in 1998). Tribe sees his project as a kind of "social sculpture"[20], which integrates different forms of activity of new media artists, curators, critics and archivists. Since 2003 it has been affiliated with the New Museum of Contemporary Art, which paradoxically is one of only a few institutions in New York that devote a lot of attention to digital art, video experiments and audio projects. In its beginnings Rhizome.org functioned mainly as a discussion list, a kind of weekly newsletter (*Rhizome Digest*) and a newsletter updated three times a week (*Rhizome News*). The platform gradually broadened the scope of its activities. In contrast to the Database of Virtual Art, the aspect of fast and frequent updating is very significant in the case of Rhizome.org. The very name – which stems from botany – alludes to the famous concept by Giles Deleuze and Felix Guattari – not only often mentioned in the context of postmodern debates, but also widely used to describe the Internet as a reality resembling a rhizome (or rather a hyper-rhizome). The name emphasizes the nonhierarchical or rather antihierarchical structure of the platform – which evidently reflects the similar nature of the Web.

[18] Ibid.
[19] http://rhizome.com, url: 11.07.2007.
[20] Quoted after: R. Greene, *Internet Art*, Thames & Hudson, London 2004, p. 57.

ArtBase[21] was created in 1999 within Rhizome.org. It is an online archive of new media art now (i.e. in the middle of 2008) containing over 2110 art works (the number is still growing) encompassing a vast range of creative activities: from net art, computer games as artistic objects, to the documentation of media performances and multimedia installations. After signing on to the website, one is able to participate in conversations in the discussion section and to add one's own works to the database, provided that the work or its documentation meets the criteria of "potentially historical significance". The work's aesthetic innovation, conceptual sophistication, or political impact is taken into consideration, as well as its relevance to the discourse of new media art. Any discussion of the work itself on Rhizome.org or other relevant networks or publications is equally important. Moreover, the work should be important in the artist's oeuvre and it should have been exhibited or be part of a collection.

The works assembled by ArtBase can be divided into two categories: cloned objects, which consist of an archival copy of the relevant artwork, accompanied by some basic information, and linked objects. In the second case, such information about the artwork („metadata"), as the artist's name, the date on which the project was created, the project's title, the original URL, the key-words, the technologies used and the artist's statement is included. The managers of the base present the artists who are willing to submit their artworks with a quite detailed description of their "rights and obligations". The design of the agreement was introduced by Rachel Greene, who has been involved with Rhizome.org (she is the author of a well-known book about the Web I have mentioned above). The agreement is in accordance with the American law and it has to be accepted by the artists.

Richard Rinehart – a digital media artist, lecturer at many American universities, exhibition curator and director of the digital media department at Berkeley Art Museum/Pacific Film Archive – is the author of a kind of manifesto[22], which describes the assumptions of the ArtBase. The network was primarily supposed to gather net art objects, but it soon became open to other forms of new media art as well. Rinehart writes: "The term ArtBase refers to both the tools and system used to document the artworks as well as the artworks themselves"[23]. The basic strategy that influences the methods of protecting and documenting the artworks in changeable and unstable media is the effective use of emulation. To make things short, it depends on the re-creation of the works from the past with the help of modern tools used in the

[21] http://rhizome.org/art/, url: 11.07.2006.

[22] See: R. Rinehart, *Preserving the Rhizome ArtBase*, http://rhizome.org/artbase/report.htm, url: 03.06.2004.

[23] Ibid.

present time. It is not about a descriptive reconstruction, but about the possibility to "run old, obsolete software and documents on new systems"[24]. Rinehart describes it in this vivid way: "if one wanted to run a piece of software from 1999 (say a work from the ArtBase) on a computer in 2050, then one would write a piece of software called an 'emulator' which would cause a 2050-era computer to appear to all software as if it were a computer from 1999. The original software would run because it interfaces to the computer itself through the emulator which translates all the requests of the original software into contemporary terms for the computer hardware and vice versa"[25].

It seems an easy and obvious task only in theory; in practice it is very complicated. Generally, emulation is a strategy used not only in the context of new media art. Rinehart had formerly co-created another project: *Archiving the Avant-Garde*[26], whose aim was to develop the universal methods of archiving variable media art. Rinehart himself was particularly interested in "the formal notation for scoring works of digital and variable media art"[27]. The above quotation is also the title of one of Rinehart's texts, in which he focuses on the issue of implementation practice, and outlines the concept of a notational system parallel in a way to musical notation. The system would allow for the recording and preserving digital art works and objects which use new technologies and new media, and which are ephemeral in themselves. Developing the standards and models of archivization is a fundamental task in the process of creating a scientific basis for gathering and elaborating digital art materials. Some of such projects cannot be "stored"; media performances cannot be compared in this respect to painting or sculpture. However, a significant part can be not only preserved, but also recreated in the future due to the systems of emulation. It should be emphasized that the elaboration of standards is a process. "It took centuries to evolve a system of notation for musical scores," Rinehart observes. "We need to create that same kind of consistency and invent a form of standardization that is to digital art what notation is to music"[28].

[24] Ibid.
[25] Ibid.
[26] http://www.bampfa.berkeley.edu/about_bampfa/avantgarde.html, url: 27.11.2004.
[27] R. Rinehart, *A System of Formal Notation for Scoring Works of Digital and Variable Media Art*, http://www.bampfa.berkeley.edu/about_bampfa/formalnotation.pdf, url: 12.07.2006. http://www.bampfa.berkeley.edu/about/formalnotation.pdf, url: 5.08.2008
[28] Quoted after: K. Mayfield, *How to Preserve Digital Art*, http://www.wired.com/news/culture/1,53712-1.html, url: 13.07.2007.

ArtBase uses a special questionnaire to gather the information necessary for presenting the artworks on the platform. Its task is to elaborate the metadata („data about data") on the original works, the software and the technologies required to activate them. Each of these two areas can be divided into three levels: descriptive (concerning the artist, the type of the object, etc.), administrative (the copyright, the place where the work is stored, the basic requirements for making a reconstruction of the object possible in the future), technical (the technology necessary for a work to function). In fact, so far the ArtBase has been realizing only the first postulate – that of creating descriptive metadata on the collected works. It is worth remembering that the word *collect* is used in a figurative sense, as the platform does not collect physical artifacts.

Although plenty of methodological suggestions, some of which stem from the practical solutions of particular platforms and curators, have appeared in recent years, there are several rules that are accepted by all involved, including ArtBase. The four basic strategies of presenting ephemeral new media art make one set of such rules. It encompasses documentation, migration, emulation and reinterpretation. Mark Tribe[29] explains their functioning using simple examples. Documentation is the only strategy common to digital art and the art of traditional artifacts – it may be a recording in the form of a film, an interview with the artist, the author's statement, etc. Migration involves a shift from an old to a new format of notation. "Let's suppose that something was written in HTML 2.0 and most of the tags do not work in Netscape 6. They are obsolete and useless. The only thing to do in this case is to use Perl script and to replace the obsolete tags with the new one"[30]. I have elaborated on emulation above, but on the simplest level it is, for instance, adapting an Atari game to the PC environment. Reinterpretation is the most complex and radical strategy, because the original work may not always have been described or documented in details, and if it has, there are problems with the adaptation (which is a kind of reinterpretation) of net art works e.g. to a completely new technological environment. To successfully complete this task, ArtBase artists fill up a detailed questionnaire, so that a cloned object could preserve the most significant features of the original work. Obviously in many instances this is

[29] M. Tribe, *Presentation*, http://www.newmedia.sunderrland.ac.uk/balticseminar/tribe.htm, url: 13.07.2006. The strategies are also used in the famous project *Variable Media Initiative* I wrote about in another text. See: P. Zawojski, "Wirtualna sztuka, wirtualne muzea – realne problemy", in: *Muzeum sztuki: od Luwru do Bilbao*, M. Popczyk (ed), Muzeum Śląskie, Katowice 2006. It is also worth reading the text written by one of the co-authors of the Project. See: J. Ippolito, *Introduction to the Variable Media Initiative*, http://variablemedia.net /e/preserving/html/var_pre_ippolito.html, url: 08.05.2005.

[30] M. Tribe, *Presentation*, op. cit.

impossible and then only documentation in the form of a metadescription can be prepared.

It is worth mentioning that ArtBase, apart from functioning online, has also held exhibitions in physical reality since it became an affiliate of the New Museum of Contemporary Art. One may question the exhibiting of net art in particular, and of all new media art, in galleries or museums, yet every exhibition is doubtless a creation resulting from the curator's preferences and choices. I have mentioned earlier that the curator "authorizes" the collection[31]. The exhibition *Rhizome ArtBase 101* (2005) is an example of such a project – it presented net art in the museum as a phenomenon which could introduce innovative solutions to contemporary art. Forty ArtBase projects were exhibited – each project was presented on a separate computer – and they were divided into ten sections: *Dirt Style*, *Net Cinema*, *Games*, *E-Commerce*, *Data Visualization and Databases*, *Online Celebrity*, *Public Space*, *Software Art*, *Cyberfeminism*, *Early net.art*. It was, however, a special event; usually exhibittions are held on the platform website and they are prepared by both invited guests and the artists who are members of the ArtBase community.

NETZSPANNUNG.ORG

Another platform I would like to discuss is netzspannung.org[32]. It was initiated by Monika Fleischmann and Wolfgang Strauss, who have been the *spiritus movens* of the platform and have been working (together and separately) for years using new media technology in the area of artistic activity and of scientific research. They were co-founders (in 1988) of a well-known and influential team of designers, artists, scientists and technicians, ART+COM. At present Fleischmann is the head of MARS (Media Arts Research Studies, whose "physical" headquarters is located in Bremen), which is one of the four main segments of the Frauenhofer Institute of Media Communications. The Exploratory Media Lab is the section of MARS which deals with the issues of media art, design and information, and the work aiming at creating an online platform started in this section in 1998. Netzspannung.org appeared on the Internet in 2001. MARS supervises a number of research projects concerned with the aspects of electronic culture (eCulture), and problems of art are only

[31] Different online and connected with the web curating strategies are discussed in: S. Dietz, *Curating (on) the Web*, http://www.archimuse.com/mw98/papers/dietz/dietz_curatingthe web.html, url: 05.06.2008 and P. Zawojski, "'Muzea bez ścian' w dobie rewolucji cyfrowej", in: *Muzeum sztuki. Antologia*, M. Popczyk (ed.), UNIVERSITAS, Kraków 2005.

[32] http://netzspannung.org/index_flash.html, url: 15.07.2006.

one of the many areas of its research. Fleischmann and Strauss' interests are focused mainly on "the new forms of communication and the interaction among the human body, art and technology as a means of developing multimodal interfaces as 'tools for the art of tomorrow' and as the cultural technology of mobile life[33]

The main area of research is the art and media making use of scientific knowledge and searching for the solutions and technologies which would be able to completely change our communication and environment. In order to make the changes positive, one vital concept is integration – transdisciplinarity, cooperation of designers, artists and scientists, as well as matching social needs are the necessary conditions for developing technoculture in an effective way. The Internet is one of the means and areas where these processes occur – therefore netzspannung.org plays a significant role in the widespread activities of MARS. Since the very beginning of the platform, the educational aspect was very important, and a great emphasis was placed on the creation of tools to effectively "visualize knowledge"[34]. The platform contains numerous records devoted to particular artists and their projects – which is in tune with its documentary profile. However, its creators claim that there is one aspect that distinguishes netzspannung.org from other online platforms – the continuous search for new and more adequate *e-learning* applications. The idea is to help people develop the skills of "reading media art", so that the realized projects could reach the audience. In fact, a lot of attention is paid to those issues, and it is what makes the platform unique.

In the context of the discussion on the different means of archivizing new media art on the Web, the most important part of netzspannung.org is the publicly accessible database which collects information on artistic projects. An interesting solution introduced by the platform's designers is the possibility of searching the base with the aid of four interfaces, four different ways of finding information. They are: 1) the "classic" interface of the database, which allows for the exploration of its content according to a table of contents, but various criteria can be used (the date, the projects, the tools used); 2) the

[33] M. Fleischmann, W. Strauss, "The MARS Interactive Experience Lab at the Fraunhofer Institute of Media Communications", in: *Hybrid...*, op. cit., p. 406.

[34] See: W. Strauss, M. Fleischmann, J. Denzinger, M. Wolf, "Knowledge Spaces: Cultural Education in the Media Age", in: *E-Education Applications: Human Factors and Innovative Approaches*, C. Ghaoui (ed.), Idea Group Publishing, Hershey 2004. The detailed assumptions of netzspannung.org are presented in the text from the platform founders' perspective. The discussion also includes MARS various research initiatives in the field of popularizing knowledge thanks to innovative educational ideas that use new interfaces, tools, workshops and telelectures.

browser of the archives which uses mainly the key of the authors and the particular works, texts, lectures (presented in a streaming form; it is possible to download them); 3) the "randomizer" which automatically generates thirty random images, each of which, after being clicked on, links a user with a casually chosen object in the data base; 4) a semantic map.

The fourth interface is worthy of elaboration, because it introduces an innovative means of searching the platform – visual navigation that allows for the different types of linking of relevant phenomena by the agency of semantic associations and references. The linguistic map of hyperlink navigation is designed in two versions – German and English. It is crucial that all the data gathered in the base are placed in one "space", without the division into theory and practice, historic compilation and projects realized at present – thus aesthetics may be juxtaposed with technical issues and art may be juxtaposed with science etc. within MARS and in other places. The graphic map enables free movement without the necessity of following the rules required by a linear reception. The immanent features of network environment are used in this case as a structural model of the base. In order to construct the interface in this way, its designers had to precisely catalogue all the documents collected in the base, and to classify them according to their semantic specifications, referring e.g. to the keywords of a given document/record. Then they had to transcribe the whole base graphically into a network of interconnected data focused around the basic central notions, which at the same time were visual centres. Therefore, the map resembles a neural network. The exemplary notions are: space, sound, knowledge, art, user, image, communication, information, culture, interactivity, virtuality. After using a special zoom, the user of the map can see the keywords connected with a given notion laid out around the basic centres of meaning; after he chooses a particular record, a short informative note about the project is also displayed on the right side of the screen. Roger Malina aptly compared this interface to "a telescope used for browsing and assessing the cosmos of data"[35]. One may move from this location to the database, where detailed data of the given project can be found together with the URL link to its official website. The primary advantage of such an interface is a possibility to contextualize, also visually, the data collected on the platform. The navigation (its creators call it "sniffing") with the aid of a map is to help the user to discover sundry links, interrelations and contexts.

[35] Quoted after: ibid, p. 295.

MEDIA ART NET

The origin of the Media Art Net[36] can be found in the conviction that, paradoxically, in most cases the contact between the audience and (multi) media art is possible only in book form. Exhibition catalogues, books, online texts – all of them are based on the ideology of a linear text as a medium of conveying messages, and thus they seem to be completely inadequate as the means of teaching and popularizing the knowledge on the topic. It is crucial to create totally different conditions allowing for the contact with media art. These conditions have to comply with a new artistic and communicative situation introduced by the media. The platform aims at presenting 20th century art whose history is significantly influenced by the tendencies in the development of media technology. Searching for new media through art is a *signum temporis* of contemporary art defined in a broad sense. The platforms discussed above place new media in the center of attention; yet in the case of Media Art Net, a broader context of (multi)media art is taken into consideration. The concept has two authors: Dieter Daniels and Rudolf Frieling – both associated, among others, with the Center for Art and Media (ZKM) in Karlsruhe, and the project was commissioned by Goethe-Institut and the Academy of Visual Arts in Leipzig, with the funding from the German Ministry of Research and Education.

Daniels and Frieling began their work connected with creating the platform by formulating four theoretical hypotheses referring to the possibilities of participation in media art events[37]. 1. The processuality and interactivity of time dimension in media art imposes the usage of multimedia forms. 2. Media art necessitates a theoretical discourse combining art theory, media studies and media technology. 3. The multimedia character of the presentation implies the need to communicate with and to relate to other platforms and studies. The three hypotheses result in the fourth one: 4. In order to successfully present media art it is inevitable to use the Web in a broad sense and the idea of online cooperation of many institutions.

Creating a platform in cyberspace is not tantamount to a radical abandonment of traditional (in book form) publication of the collected materials, although "the online book" is the most important. Therefore, as a reference to the academic ethos, several books have been published – they include the materials prepared exclusively for Media Art Net or those which were adapted

[36] http://www.mediaartnet.org/, url: 15.07.2006.
[37] Cf.: R. Frieling, D. Daniels, "Medien Kunst Netz", in: *Hybrid...*, op. cit., p. 400.

by the authors of the platform[38]. This type of cooperation of two different means of conveying knowledge creates a multiperspective approach to media history, and offers a lesson on the potential of the Web for the readers of the books and the users of the platform. The online hyperessays use dynamic links, images, photographs, film documentation. To get acquainted with the hypermedia essays it is advisable to visit the section called *Milestones of Media Art*[39] – the materials collected there are devoted to the innovatory works representing different disciplines of media art, for example the intermedia (Nam June Paik), installations (Peter Weibel), immersive environments (Char Davies), net-activism (etoy), net art (Cornelia Sollfrank) or video (again Nam June Paik). The intention of this dual approach is to give the traditionally oriented readers an access to *hard copy*, i.e. a physical book which might be read while referring to the online materials presented on the platform, and, on the other hand, it may also function as an indication for the "Google generation" (to use the term mentioned by Frieling and Daniels) that not all information can be found online. An important point for the media researchers (and others) has been made here. As Frieling and Daniels write, "net culture and book culture can combine their respective potentials instead of functioning as mutually exclusive alternatives"[40].

Media Art Net is distinguishable from the platforms discussed above because of the scope and the high standards of its theoretical and historic research on media and new media art. Besides a very interesting compilation of over 1400 works (of almost 1000 artists), which are presented in a competent way with the use of a variety of dynamic links and references to other works, literature, genre categories – the platform includes eight thematic modules compiling elaborations and essays written by the specialists in different disciplines of media studies. They refer not only to artistic practice, though it is, of course, the dominant area of interest. Selection is very important here – in the context of both particular works and thematic modules. The authors point out that "Preference is given neither to pure quantity, nor to the detailed case study, but to presenting judiciously-selected, meaningful connections that make it possible to grasp the material in both an intuitive and an intellectual way and methodically offer a number of different perspectives in terms of content"[41].

[38] See for example: *Media Art Net 1*: *Survey of Media Art*, R. Frieling, D. Daniels (eds.), Springer, Vienna/New York 2004 i *Media Art Net 2: Key Topics*, R Frieling, D. Daniels (eds.), Springer, Vienna/New York 2005.

[39] http://www.mediaartnet.org/themes/overview_of_media_art/milestone/1/, url: 15.07.2006.

[40] See: R. Frieling, D. Daniels, "Medien...", op. cit., p. 401.

[41] R. Frieling, D. Daniels, *Introduction. Media Art Can Only Be Conveyed by Multimedia*, http://www.mediaartnet.org/themes/overview_of_media_art/editorial/, url: 16.07.2006.

The first problem-module appeared on the platform in 2004 – it was a kind of introduction to media art studies (*Overview Of Media Art*) with (hyper)texts (later published in the book mentioned above[42]) which had mapped out the research area for the modules and records presenting artistic realizations added afterwards. Up till now not every entry has been elaborated on, but most of the works are described and presented through photographic and video documentation. There are also links to original websites (if they exist), genre categorization (e.g. interactive environment, video, installation, sculpture, film, virtual reality, television, computer graphics, performance, action, photography), references to thematically related websites and keywords. The acknowledged authorities in media disciplines have accepted the invitation to support the platform and thus, besides the documentation and presentation of 20th century media art, Media Art Net meets all requirements for a scholarly elaboration. The particular modules were prepared by acknowledged experts representing leading European (and one American) institutions, who independently chose their collaborators and compiled a set of publications. It is worth to briefly describe the eight thematic modules in order to appreciate the scope of interest of the elaborations; each module consists of several hyperessays. The topics are: the aesthetics of the digital (curator: Claudia Giannetti, Mecad, Media Centre of Art and Design, Barcelona), sound and image (curator: Dieter Daniels, Academy for Visual Arts, Leipzig), cyborg bodies (curator: Yvonne Volkart, Institute of Cultural Studies in Art, Media and Design, HGKZ Zurich), photo/byte (curator: Susanne Holsbach, Academy for Visual Arts, Leipzig), generative tools (curators: Tjark Ihmels, Julia Riedel, IMG Institute for Media Design, University of Applied Arts, Mainz), art and cinematography (curator: Gregor Stemmrich, Academy of Fine Arts, Dresden), mapping and text (curator: Rudolf Frieling, Center for Art and Media, Karlsruhe), public sphere (curator: Steve Dietz, ISEA, San José). A separate module is devoted to the projects of interactive online works representing different net art strategies – the projects are realized exclusively for Media Art Net.

The four online platforms discussed in the text diversely implement the mission of documenting media art and in some cases (notably the ArtBase) also of collecting it (the emphasis is on new media art, but not only – as is made evident by Media Art Net). Each platform has actually formulated its own standards of functioning, methodological assumptions and methods of organizing the materials, yet they have a lot in common. One of the primary features of all the platforms is the key concept which can be seen as a realize-

[42] See: *Media Art Net 1*..., op. cit.

tion of the "open culture" model described by Felix Stalder[43]. Moreover, each of the platforms, in its specific manner, introduces cooperation between its users and its authors – both practitioners (artists) and theorists (media researchers); the ordinary users are also expected to be active; according to Fleischmann's and Strauss's approach visible in netzspannung.org – the user should be treated as producer[44]. This is an important feature of all online practices, not only in the context of art.

It seems that the problem of integrating actions and developing a model of cooperation is another challenge for the creators of the data base platforms. The inspiration and guidelines in this respect can be provided by the activities connected with overcoming the limitations of "isolated digital collections" to achieve "interoperable digital libraries" – as Howard Besser[45] puts it in his article on the problems of conventional libraries that collect books. New strategies of conceptualizing libraries have been developed for quite a long time in the field of digital librarianship. The digital libraries are seen not only as mere storage, but as "the guardians of information". As early as 1994, the federal government of the United States allocated a large sum of money for the mission of creating digital libraries. It is obvious now that ephemeral, volatile and changeable (new) electronic media art necessitates probably even more protection. The meeting in Linz and the *Refresh!* conference that were mentioned in the introduction to this article are a sign of forming a common front in aid of the integration of documenting, archiving, spreading and popularizing cyber art. Fleischmann and Strauss write: "The interconnection of archives and databases raises important technical questions. First of all, there is the question of shared standards that would allow for 'interoperability'. The next, even more complex, question is that of categorisation and standardised keywords for database indices. The same term might mean something different in another context. […] The challenge is to develop a kind of dynamic data-adapter for semantic mapping between the different types of data structures and categorisation systems of the various archives"[46]. These questions will hopefully be resolved in the (near) future.

[43] F. Stalder, *Open Cultures and the Nature of Networks*, New Media Center, kuda.org, Novi Sad 2005, p. 8.

[44] M. Fleischmann, W. Strauss, *Multiple Roles for New Media Arts*, http://netzspannung.org/about/mars/publications/, url: 30.05.2005.

[45] See: H. Besser, *The Next Stage: Moving from Isolated Digital Collection to Interoperable Digital Libraries*, http://firstmonday.org/issues/issue7_6/besser, url: 02.12.2005.

[46] M. Fleischmann, W. Strauss, *Multiple...*, op. cit.

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ARCHIWIZACJA, PREZENTACJA I DYSEMINACJA CYBERSZTUKI W SIECI (streszczenie)

Jednym z najważniejszych problemów upowszechniania cybersztuki jest kwestia jej „niestałości", „zmienności", ulotnego często charakteru. Sieć kreuje możliwości tworzenia platform archiwizujących dzieła sztuki digitalnej, choć mówić należałoby raczej (zamiast o „archiwum") o idei rozszerzonego muzeum wirtualnego, którego celem jest archiwizacja, prezentacja i dyseminacja zdigitalizowanych danych dokumentujących takie rodzaje aktywności cyberartystów jak instalacje interaktywne, sztuka genetyczna, *software art*, medialne *performances*, *net art*, *virtual reality*. Egzemplifikacją różnych strategii działania w tym zakresie są platformy sieciowe poświęcone dokumentacji sztuki nowych mediów: Datebase of Virtual Art, ArtBase, netzspannung.org., Media Art Net, a także archiwa festiwali poświęconych sztuce nowych mediów, takich jak Ars Electronica, transmediale czy DEAF.

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OBSERVING OBSERVATION: VISIONS OF SURVEILLANCE IN MEDIA ART

Abstract

Surveillance can be perceived as one of the most important features of the world in the time of globalization. Many authors (Foucault, Deleuze, Virilio, Bauman, Lyon, to name just a few) have analyzed its influence on the development of the global media society. As surveillance systems are nearly everywhere and invade both public and private spaces, they are an inevitable factor in constructing a new form of post-optic society. The social structure and the representation of social processes have been changing according to the development of technologies, which allow optical, digital and biological methods of scanning and observation. The oppressive society of control and punishment has turned into the society in which we are facing the "global democratization of exhibitionism" (Virilio), and surveillance itself becomes "the spectacle of entertainment" (Weibel). Thus it is a complex and ambivalent phenomenon: it is terrifying and attractive at the same time; it controls and discloses, it restricts our freedom and offers the possibility of a new insight into our personal and public issues; it places us under control and offers us possibilities of personal expression.

The issues of observation, control, tracking, detecting, measuring, gathering, storing and processing information as well as the question of the impact that these processes have on the production and representation of society and individuals has been undertaken by many contemporary artists. However, the complex relationship between the changes in social order and the development of new technologies is reflected especially in technology-based art. Since the beginning of video art, the issue of surveillance has been an important and returning theme of media art, but at the same time the technologies of observation were its material background. As David Rokeby observes, surveillance could be seen as the foundation of any art which involves the observer into an active participation. Hence, surveillance is both the theme and the method of media art with video installations, interactive installations, and net art as the most significant examples.

The focus of the article is on analyzing the various ways of using surveillance technology in media art and different artistic visions of society dominated by its omnipresence. The author stresses the use of artistic subversive strategies by which artists deconstruct the dominant mode of perceiving surveillance and analyze its important features, its role in society, its influence on the construction of public and private identity and, last but not least, its impact on the perception of the world on both global and local scale. The works of three artists – Thomas Koner, Michelle Teran and David Rokeby are analyzed in the article as examples of different attitudes

towards the issue of surveillance. Koner uses images of industrial cameras to question the common understanding of surveillance, showing that CCTV systems can be perceived as a source of nearly metaphysical experience. Teran makes explicit the relations between institutional and private surveillance, stressing virtual exhibitionism as an implicit feature of wireless extension of traditional CCTV systems. Rokeby focuses on the effects of digitalization and automatization of data processing. Creating hybrid systems, consisting of analogue CCTV cameras and computers, the Canadian artist questions the impact of digitally enhanced surveillance on the perception, interpretation and comprehension of reality.

Surveillance is one of the most important features of 21st century culture and at the same time it finds an important place in the history of media art. Since the beginning of video art, various forms of surveillance technologies have constituted a technical background for diverse media works. Yet, the technical aspect was just a foundation for the aesthetic and cultural discourse. From the aesthetic point of view, the systems that could observe viewers, react according to their behaviour and communicate with them made possible the "interactive revolution" in media art. Furthermore, the very use of these technologies puts media art in the centre of the discourse concerning the issues of control, dominance, punishment, as well as exhibitionism and voyeurism. Artistic practice has been determined by the development of monitoring techniques, and has been critically engaged in theoretical reflection on the surveillance society. The history of media art, from video to interactive digital art, can be seen as a constant creative reflection about its foundations and evolution.[1]

The discussion of the issue of surveillance has a history spanning some 250 years. Its revival and fast expansion in sociology and philosophy was closely related to the development of media society. When in the 1970s Michael Foucault proposed his own reading of the classical Bantham's theme, television and video were the most important technologies in the service of the panoptic gaze. However, nowadays traditional technologies give way to new digital ones that are less focused on physical observation, and more data-oriented. Hence, the panoptic society evolves into a post-optic one, and optical surveillance becomes dataveillance. The change of tools also results in the change of the principles of surveillance. We live in the world full of monitor-

[1] A comprehensive record of the relations and association between monitoring and widely understood media art (both electronic and analogue media, such as photography and film) and varying artistic strategies and attitudes towards the topic of surveillance was provided by the exhibition in ZKM in Karlsruhe entitled *CTRL[space]* organized at the turn of 2001 and 2002. The catalogue which accompanies this event, besides documentations of the works presented during the exhibitions, brings several texts that draw a map of the theoretical thought on this subject (cf. Levin: 2002)

ing, measuring, scanning, tracking technologies, we are being watched by omnipresent cameras, and we leave digital traces with our credit cards, mobile phones and networked computers. However, the paradigmatic notion of surveillance, rooted in Jeremy Bentham's idea of the *panopticon* has changed dramatically with the progress of the digital revolution and democratisation of technology. Panoptic logic, determined by the aspiration for transparency, rationality and order was considered to be one of the main institutions of modernism (cf. Foucault 1977, Giddens 1987). While the old paradigm was founded on the principles of an invisible controlling gaze and repressive observation, and evolved into the political and sociological strategy of absolute visibility in the name of total security, the new one makes a close connection between oppressive, totalitarian mode of surveillance, its commercial face and its popular entertainment mutation. The studies of the surveillance society bring a wide range of interpretations. On the one hand, there is the theory of Mark Poster rooted in the Foucaultian mode of thinking, which sees a database as a panopticon of the digital era. The other end of the spectrum is defined by the theories of surveillance as entertainment, creativity and self-expression (cf. Andrejevic 2004, Koskela 2004, 2006; Albrechtslund, Dubbeld 2005). After Deleuze (1992), the shift from institutional surveillance to less centralized, rhizome-like mutual control is seen as a key feature of postmodern surveillance. At the same time, besides state surveillance, we are witnessing a fast evolution of surveillance-based economy, founded mostly on the profiling and evaluation of the users of the Internet commerce services. It may lead to the discrimination and sorting of people with regard to their ability of participating in the culture of consumption (cf. Gandy 1993, Los 2006), and at the same time, as the author of the conception of participatory panopticon Reg Whitaker points out (1999), it is connected with the perception of monitoring as a desired phenomenon, which facilitates the orientation in today's labyrinth-like information market. This aspect of the surveillance society is also emphasized by David Lyon, who proposes the term *panopticommodity* to describe the world in which people commonly use monitoring and surveillance technologies to market themselves. In the world of online commerce, reality shows and live web broadcasting, surveillance is no longer seen primarily as a threat to privacy and civil rights, but has become a fascinating source of pleasure and entertainment. Thus, the democratization of voyeurism goes together with the democratization of exhibitionism, narcissism and all forms of scopophilia, which, as Peter Weibel observed, are transformed from individual-psychological criteria to social categories. As a result, panoptic discipline society has changed into a new form of society of display in which "surveillance is a spectacle of entertainment" (Weibel 2002).

The new status of reality requires new methodologies, since the divisions between the observer and the observed, the visible and the invisible, the controlling and the controlled are no longer useful or even valid. The world of binary oppositions is replaced by the world of difference and repetition, where absolute visibility hides the zones of the invisible, and where what seems transparent appears to be just another mask. This paradox, a trademark of the postmodern culture, is also present in the strategies of both optical and post-optical digital surveillance. Although the impersonal and dispassionate gaze of surveillance systems penetrates nearly all aspects of our life, the images and information delivered by these systems are usually kept secret and hidden from the public view. Created as tools for ensuring security on the ground of absolute visibility, they become a stage for terrorists as well as an indirect manifestation of the hidden fears and desires which drive the postmodern society. Surveillance is terrifying and attractive at the same time; it controls and discloses, it restricts our freedom and offers the possibility of a new insight into personal and public issues. This ambivalent nature of surveillance makes it a very important issue of contemporary sociology, psychology, media studies and art.

An extensive analysis of various types of artistic representation and interpretation of the technologies and strategies of surveillance is beyond the scope of a single article. Here I would like to focus mainly on the specific features of the images delivered by the surveillance systems, which can be seem as a manifestation of the principles of contemporary culture. By means of deconstruction and analysis of the formal features of these images, artists such as Thomas Koner, Michelle Teran and David Rokeby, whose works will be discussed later on, pose questions which can be situated in the centre of the debate about the 21st century surveillance society.

SURVEILLANCE AS REVELATION

One of the visible signs of the surveillance society is the omnipresence of the tools which are applicable in monitoring and control. The most characteristic of them are the systems of CCTV cameras common in almost all big cities of the contemporary world. Initially used for police observation of public spaces, they have now penetrated behind the walls of houses and private flats and have become not only a tool of institutional control but also its determinant and warrant of individual safety. Their presence, explained by the necessity of crime prevention, usually does not raise controversy and objection; on the contrary, it is welcome and appreciated as a significant factor that intensifies

our sense of security. Omitting the divagations on the topic of their effectiveness, let us observe that surveillance cameras have become a symbol of the modern panopticon – as a tool used for optical control, they mark out the invisible walls of the prison that is not a place of isolation for criminals but an asylum for the law-abiding citizens.

Ordinary citizens, who have nothing to hide, lose part of their privacy in exchange for the sense of security by voluntarily exposing themselves to control. The effect is the vast growth of the number of cameras, and at the same time the space not yet subjected to constant observation is shrinking rapidly. Yet, the scale of the phenomenon leads to the problem of the inflation of images; their analysis and interpretation is becoming more difficult, whereas the fundamental issue is the management and administration of the images obtained from the surveillance cameras. On the one hand the extent of the observation forces us to elaborate the criteria which would enable its effective classification and exploitation. On the other hand, it contributes to the development of digital, automatic systems that make these processes easier[2]. The question of the function of the monitoring systems is equivalent to the question of what should be observed and what should be perceived, for the impassive gaze of the cameras covers everything without exception. This very aspect of optical surveillance systems is being considered in the video works of the German artist Thomas Köner.

„During last winter I collected (via the Internet) about 3000 pictures taken by surveillance cameras. The images I selected show empty roads at night, covered with snow. The soundtrack consists of grey noise and traffic sounds, created from memory. The only movement that is visible are the changes of the snow covering the roads". The author's quoted description of *Banlieue du Vide* (2004) points to the principal features of two other works, which form a surveillance triptych. Their raw material are meticulously selected images from industrial cameras obtained by the artist from the Internet. They show the landscapes of the Far North, extinct, devoid of human existence, emanating emptiness, usually covered in snow. They are characterized by almost total lack of motion and monotony intensified by the nearly monochromatic image (colours appear in *Suburbs of the Void).* The cameras observe the world as static as their gaze. In the space which is being observed, even if it is a city space, as in the *Suburbs of the Void,* that should be somehow marked with human activity, absolutely nothing happens. We observe the snow falling, lingering on the roads, melting, while the only source of movement is the wind

[2] This issue is one of the main topics taken up by David Rokeby and is discussed in the last part of the text.

that sways the lampposts. The reduction of movement in the image is accompanied by a very sluggish motion between the shots. The author merges the images of the same places recorded in different time by the same cameras, joining them by long transitions. The recognition of alteration usually takes place *post factum*, because the difference between images is hardly noticeable, and the cross-fades between them are radically retarded. In this way a sensation of fluency is procured, whereas the basic experience is the feeling of continuous, constant metamorphosis. The works of Köner, executed in a double form – as installations and video tapes – are an example of extreme subversion of panoptical logic, and at the same time they discover new possibilities of interpretation of the images from industrial cameras.

Fot. 1. Thomas Köner, *Banlieue du Vide* (2004)

The earlier question about the function and character of surveillance receives an extraordinary answer. For the logic of the monitoring systems is the logic of supervision and punishment, they serve the primary purpose of keeping order and safety. Firstly, they are used to scare off the criminals with the threat of their being recognised, and secondly, when the law is already broken, with the threat of reaction and punishment. This is why the gaze of the cameras is

usually directed to places which are considered dangerous, and the aim of the observation is the spotting and documentation of particular incidents – crimes. However, the cameras work non-stop, recording also, or maybe above all, the lack of criminal activity. The logic inscribed into the surveillance systems should make us regard such images as worthless, empty, meaningless. Yet, Köner focuses exactly on these images, peripheral, inessential and insignificant from the point of view of surveillance, and he uses the time which is empty from the perspective of the logic of the incident. In this way he indicates the problem of the inflation of surveillance. By using the images from industrial cameras as a *sui generis* ready made, he shows the absurdity generated by the widespread atmosphere of emergency. Even the places as safe as a turning on a snow-covered Finnish road, hardly ever frequented by cars is subjected to preventive observation.

However, the intensification of observation also has other consequences. Köner changes the hierarchy of importance, directing his attention towards insignificant images; at the same time he is asking about the influence of the logic of surveillance on determining this hierarchy. His works are often described as boring and monotonous. The author of *Nuuk* deliberately exposes the viewers to the effects of slowed-down time. In his works constancy and duration become a provocation, a challenge for the perceptual habits of the viewers. The cultural connotation of the representations delivered by the monitoring systems popularized mostly by the media is unequivocal. If they are presented in public, it is only when they show the documentation of crimes, largely strange and uncommon situations. What is important is that the unique form of these representations, defined by relatively low quality, the lack of fluency of movement, a stable point of view, the usual reduction of colours makes them easy to identify. The more surprising are the situations in which such simplicity is being questioned. Köner uses recognisable, explicitly interpreted form, at the same time questioning the viewer's expectations towards this kind of representation. Not only is their media stereotypization being revealed and becomes a subject of reflection, but also the role of the surveillance logic in shaping our perception of the world. Being geared for spotting and avoiding danger, often feeling paranoid fear of real and imaginary threats combined with simultaneous, almost narcotic desire for something to happen, interpreting the world in terms of excess, extraordinary situations, attractive, quick action – all these elements make up the perceptual approach characteristic of the modern city dweller. We can add the desire to achieve a particular set goal and to act effectively to this equation. As Susan Ackers observes, the visual structure of Köner's works – the directing of attention to the peripheries of perception, the destruction of linear perspective, the lack of a visible central point determining the hierarchy of elements within the image,

all these features lead to the transgression of a central perspective. Köner's works do not offer easy solutions, they do not intend to lead up to a climax, unlike the recordings from which the images were taken. By detaching them from their original context, the German artist on the one hand indicates the possibility of using observation for the purposes other than surveillance, and on the other urges us to take up a different receiving attitude directed towards concentration and contemplation. Köner emphasizes that he is interested in the margins of perception, the peripheries of culture, the world of insignificant, ordinary, simple things. In the text *Le silence au fond de l'abîme* he writes:

> I like small things and I find it important to search for beauty in situations that are normally not considered as beautiful. (…) It is quite obvious that I am trying to work against inflation. This is why in each work I also address the attention span by allowing image and sound the space they deserve. By stretching the attention span I can afford to see and hear subtleties and details. Similar to physical muscle stretching, which beginners describe as painful, my works are sometimes described as boring. In the same way, this deep boredom can function as a door through which rooms are entered, rooms that are maybe rich of unseen and unheard experiences. (Köner 2007).

Mechanical and automatic surveillance delivers the images which deny the logic of control and incident and at the same time disclose the dimension of reality which is not exactly new, but often forgotten and disregarded in the time of total acceleration. The observation of static frames, which change in an extremely slow motion, focusing on slight, almost invisible alterations, modulations and modifications of the image requires a completely different attitude from the viewers. As many commentators of Köner's works point out, they can be regarded in religious terms and described as meditation, but another interpretation is just as interesting. It suggests that by subverting the monitoring systems, the German artist deconstructs the rules that govern today's mediated and media-defined perception. The dictate of speed, dynamics and attractiveness conceals those dimensions of reality the noticing of which requires concentration and time commitment. Paradoxically, it is the activity of the video monitoring systems that allows us to perceive, spot, grasp, and document long-lasting processes, such as weather changes. Using the tools of optical invigilation, Köner peeps on what is marginalized as a rule in the logic that governs them. He reveals other spaces of reality, creates new forms of experience, but at the same time points out the contextual conditioning of technology, the meaning of which is never given a priori, but, as in the case of video monitoring, depends on the intentions of its users.

SURVEILLANCE AS DISPLAY

The popularization of surveillance technologies is accompanied by the phenomenon of the democratization of voyeurism described by Virilio. Institutional observation and control of public space has been complemented by individual control of private space; industrial cameras watch streets, parks, stations, private yards, houses and flats with equal discernment. This leads to the inflation of monitoring, while at the same time bringing about a fundamental change of the character of surveillance and also widening the spectrum of the problems related to invigilation. They concern the ways of using surveillance technologies by private individuals and can be reduced to a few basic questions: What is subjected to private invigilation? What functions does the observation fulfil? What purposes is the obtained material used for? What is the character of the relations between institutional and private variant of surveillance?

The phenomenon of the privatization of monitoring is stimulated by an easy access to not only consumer-class devices, but also to professional equipment, previously reserved for specialized services. The fact of the liberation of the systems of industrial television from the "leash" of their cables, together with the development of wireless devices and the popularization of internet broadcasting is also of influence. Technological revolution has also led to a change of the cultural context of surveillance – control and invigilation lose their demonic power, while the universal observation of everyone/everything by everyone else takes the shape of a cultural norm. The opening of the panopticon is directly related to the opening of the closed circuit of industrial television and can be understood simply as a disclosure of the technology to the masses and opening the access to the obtained images, but also metaphorically as a transfer from the culture of institutional surveillance to the culture of pluralistic voyeurism. Hille Koskela emphasizes this fact, pointing out the surprising consequences of the metamorphosis of CCTV into OCTV (open circuit television). Such opening brings with it a significant change of the status of the subject – paradoxically, the technologies which, according to many commentators, were supposed to lead if not to the atrophy, then to the reduction of subjectivity, are becoming helpful in the process of the revival of the subject. The private television broadcasting on the Internet allows individuals to return to the scene of the global spectacle, leaving behind the anonymous crowd of the consumers of media pulp. Global voyeurism is ipso facto complemented by global exhibitionism (Koskela 2004).

Fot. 2. Michelle Teran, : *Life: A Users Manual*, Linz Walk, 2005

In a series of public performances under the general title *Life: A Users Manual* (begun in 2003) the Canadian artist Michelle Teran analyzes the relations between institutional and private surveillance. Using a video scanner, she intercepts the images broadcast by wireless surveillance cameras, mapping the hybrid space of such contemporary cities as Brussels, Amsterdam, Berlin, Montreal and others. Dressed as a tramp or beggar she pushes a trolley to which a monitor is attached. The images which appear on it reveal an invisible net of media transmissions that are a mapping and projection of the gaze of the cameras which continuously penetrates both public and private space. What is important is that due to the specific character of the used tools the logic of surveillance undergoes a significant revaluation. The panoptical model founded on the principle of an invisible observer becomes outdated due to the popularization of wireless systems. Because of their airwave nature, as Teran's performances perfectly demonstrate, the observer and the act of observation itself may become the subject of external observation. Wireless monitoring is meant to protect the essential fragments of space, but at the same time it becomes a source of information about its users. Taking the advantage of the appearance of CCTV, Michelle Teran has revealed the fact that an act of observation can be seen as a form of unwitting exhibitionism, since what you are looking at, what you are holding under your attentive gaze reveals you in the first place. The technically extended gaze of the controllers of the monitoring systems, intercepted and publicly revealed by the Canadian artist can be perceived as an externalization of the hierarchy of values that is manifested in the choice of what is important and noteworthy. The intercepted

images reveal two variants of surveillance, which exist simultaneously and interpenetrate one another. Private and institutional visions situated on the same level of airwave-augmented reality, located next to each other in a procession of visual representations force us to make comparisons and to look for the similarities between the narratives that they both produce.

Even a short glimpse on the results of such comparison already leads to the conclusion about the sameness of the form of the images which determine the character of both narratives. Created by means of exactly the same technology, they are almost identical. They have a similar definition, colour, focus, they are equally static, they show a world from a similar perspective. Visual identity can be regarded as an external feature of little importance, which is determined by the specific character of the used tools, but close relations between institutional and private versions of surveillance are also revealed on a deeper level. The analysis of the space to which the gaze of the cameras is directed leaves no doubts. In both cases it is doors, windows, entrances, corridors, yards that are subjected to observation, therefore the tangential points between the internal, protected space and the outside world, the points of crossing or separation and also the potential places of intervention. Joined together into a net, CCTV cameras set invisible borders which separate what is important from the point of view of the controllers of their gaze from what is unfamiliar, strange, and defined in terms of a threat. The invisible topography of surveillance, revealed with the help of a video scanner, clearly points to the permanent existence of a thoroughly modernist model of surveillance, characterized by striving for a reasonable management of space by virtue of distribution, division, classification and categorization. The location and directing of the cameras to particular fragments of space is a direct expression of the aim to control it and hierarchize it in order to gain safety in both public and private space.

However, while the images obtained from the cameras which monitor public space almost always stop at invisible boundaries, private invigilation also concerns interior space. Cameras may be directed to the inside of rooms, making the geography of the private space, even with its most intimate zones, accessible to the external observers. Observed and at the same time exposed to the public view are the living room, the child's bedroom, but also a bedroom with an unmade bed. What is more, the cameras, which are not turned off, no longer show just empty but significant space; they show life which is happening in this space – the everyday existence of the occupants of the house becomes the subject of direct transmission, they come to resemble the "Big Brother" stars. Most often, they unwittingly become the passive actors in a spectacle in which the boundaries between the private and the public space

are blurred. Teran highlights this fact, alluding to the idea of a non-place in the description of *Life: A User's Manual.* Following Marc Auge (1995) and Michele de Certeau (1985), she points to the hybrid character of space in the postmodern (or, to use Auge's term, the supermodern) world. The revealed invisible net of wireless transmissions belongs on the one hand to the non-place category, it is a result of a conscious and intentional use of the medium; on the other hand, the fact of the disclosure of the most private aspects of life is the consequence of the specificity of this medium. The private and the public turn out to be two sides of a coin, while the experience of space becomes the experience of being in between. The Canadian artist says: "The action of walking through the city and intercepting wireless surveillance feeds becomes a journey narrative of transient states, intertwinings between place and non-place, between the visible and the invisible, as one moves through and inhabits both the physical and the mediated. The city is a 'network of nowheres' defined by transience and absence, by borders and borderland states" (Teran 2008).

In her work, Teran points to the paradoxical character of today's panopticism – looking for safety, we expose the fragments of space which seem important from our point of view to accidental observation. Yet, the effectiveness of the observation is questioned when we realize that the controlling gaze may be a source of information for the external observer as much as for a thief who, by analysing the intercepted images, can localize the weak points of the fortress which we have built around ourselves. By revealing the invisible net of surveillance in public places, and, what needs to be stressed, by doing this with the aid of such simple tools, Michelle Teran highlights the basic features of the post-panoptical culture – the universalization and decentralization of observation, accompanied by the reflexivity of the gaze – every observer is potentially the subject of observation. The omnipresence of media voyeurism and exhibitionism is a fact, whether we agree to take part in the post-panoptical spectacle or not.

SURVEILLANCE AS A WORLD GENERATOR AND SIMULATION OF REALITY

In his works dealing with the question of monitoring, David Rokeby puts together the tools of optical control (cameras) and the digital media, which are characteristic for the post-optic paradigm. By creating unique analogue-digital hybrids, he points to the multiple dimensions of the relation between the old and the new media of invigilation as well as the trajectory of the trans-

formation to which both technology and the culture of the spectacle of peeping are subject. The main reason for such an approach is the wish to analyze the diverse strategies of producing the images and ipso facto methods in which surveillance technologies affect or even determine the perception of a contemporary human and in consequence the image of reality. In installations such as *Watched* (1995), *Watched and Measured* (2000), *Guardian Angel* (2001), *Seen* (2002), *Taken* (2002), *Sorting Daemon* (2003) Rokeby adverts to the idea of limitless visibility deep-set in the Enlightment paradigm, deconstructting it by referring to digital strategies of image manipulation. He uses images delivered by traditional video cameras but he exposes them to system processing, which changes their form and meaning in a fundamental way. They (the images) stop being exact recordings of what's happening under their vigilant gaze, they are rather tools of analysis and interpretation. In this respect, it's the way of seeing that's important, not what is (being) seen.

The common use of industrial cameras and other monitoring systems in both the public space and the private sphere leads not only to universal voyeurism, but is also a challenge for the controllers, who are flooded with images, most often redundant. Currently the most important issue is the analysis of the accumulated material, not the ways of its obtaining and gathering. This is why, to prevent total chaos, we need research on the usage of automated systems which would replace policemen and bodyguards. The observation of the dehumanization of monitoring forces us to ask several questions: what are the rules of creating such systems? What are the criteria for scanning, choosing and processing images which are considered noteworthy and meaningful? What role is played in the operation of these systems by the stereotypical notions of their authors, administrators, and first and foremost, of those who commission their execution? Is it possible to exclude the danger of the excessive simplification, reduction and formalization of the procedures? All these questions dominate the discourse of Rokeby's works.

One consequence of the use of data processing systems operating on the basis of algorithms is the fragmentation of the image of reality. Rokeby points this out to the viewers by revealing the arbitrary character of the procedures which are being used. Through the construction of the installation he endeavors to expose their existence. One example of such strategy is the work *Watched*. Its construction is based on the dialectics of the space which is being observed, external both to the viewer and to the sytem (the street close to the gallery on which the work is installed) and the inner space of the system which is also under observation and materializes in the images evolving in real time, watched by the viewers. The cameras, invisible for the viewers, monitor the nearby street and send the images to a computer which then performs an

analysis compatible with the rules defined by the author, formulated in the algorithm. The effects of these operations are available to the viewers in the form of two images situated next to each other and oriented in such a way as to evoke the impression of a mirror image. The first one shows only the static elements of the monitored space, the second one presents what is in motion. Therefore, the viewer observes two mutually exclusive versions of the same reality, but the recognition of this fact is possible only when the system breaks down. A movement sensor, situated in the gallery space makes both projections return to the original condition for a short period of time, revealing the initial image caught on camera, the fact of the sameness of the images projected on both screens and also their mirror-like location. After a while the system filter starts working again and what for a moment was integrated becomes disintegrated and decomposed again.

Fot. 3. David Roekeby, *Taken* (2002)

Rokeby accentuates the distance between the initial image caught on camera and the transformations introduced by the system. Two visions of reality emerging from two different procedures of analysis, although based in the same initial image, have absolutely no elements in common; the mutually exclusive procedures lead to the formation of utterly new and totally individual and distinct views of the world. What the viewer sees right before his very eyes is the vivisection of reality, its fragmentation and analysis – the processes of its deformation.

By revealing the arbitrary nature of the established rules of image analysis, Rokeby points to the problems of stereotypization, standardization, generalization and simplification resulting from the requirement of the system's effectiveness, the main consequence of which is the selection of only such fragments of the observed scene that are *a priori* considered noteworthy. The focus on single, separate aspects of reality turns it into a catalogue of unrelated elements, deprived of context, and in consequence creates an extremely fragmented vision of reality – an artificial product determined by the procedures that define the process of the observation.

Rokeby situates his works on the borderline between analogue video image and digital simulation of reality. Ipso facto, in a strategic way he exploits and reveals the meaning of the dialectic relation between the idea of the screen as a window and a frame. Through the medium of the systems he created, the viewer observes the reality which is happening now at the moment, often functioning as its element, e.g. in such installations as *Watched and Measured*, *Taken, Seen* or the *Sorting Daemon*. The emphasis on the here and now allows him to check up on reality; he can see and compare the images obtained by the cameras, the same images subjected to digital processing, and the actual scene in front of the cameras. In this respect, the moment of recognizing one's own image placed in the catalogue of the observed figures is especially interesting, because these images always deliver a deformed representation of the observer. The camera chooses a viewer and tracks his movement within the space of the installation, observing his head in a close-up. Thus the comparisons concern not only the reality exterior to the viewer, but also the difference between the image of the viewer mediated by the system and the viewer's own idea of himself. What seems fundamental in this context is the explicit definition of the viewer's position. Apart from *Watched*, in all the other installations the viewers have no influence on the images. and in the case of the work from 1995 the level of interactivity is also so low that it is beyond the level of the viewer's awareness. A media spectacle is taking place before his/ her very eyes; he/she witnesses the evolution of a new form of media reality which is being constructed here and now on the basis and from the elements of the non-media world.

In most of his works touching upon the issue of monitoring, Rokeby uses the mechanism of real-time transmission. This fact is significant, because among the many forms of media broadcasting, this one is considered the most reliable and free of manipulation. In his works, the transmission of reality becomes a media transformations analysis happening in real time. The incapacitated viewer can only look and observe the world modified by media observation. Such a radical limitation of the viewer's role seems important, especially when

we consider that it is being carried out by the artist regarded as a classic of interactive art. Rokeby manifests his sceptical attitude towards the possibility of changing the existing status quo. The mediatization of reality seems to be self-activating, it has an almost automatic character; it is ruthless, uncompromising and there is no stopping it. What is more, the technologically modified seeing has a compelling power. It offers a different, attractive, seductive vision of reality. Rokeby intensifies this impression by creating computer images which can be described in terms of traditional aesthetics. Their composition and colour scheme inspires the viewer to interpret them in the tradition of abstract painting; they evoke the classical works of Kandinsky on the one hand, and on the other the strongly present aspect of movement, the evanescence, the temporariness of the composition and the striving to reduce the impression of depth recalls the attitude of the action painters. Yet it seems that such effects of image modification can be interpreted as a kind of trap for the viewer. In this way, Rokeby stresses the easiness with which we surrender to the charm of the images and at the same time he asks a question about the possibility of a conscious critical approach towards this process. By dealing with this issue, he points out the paradoxical character of the monitoring technologies. As he notes in the description of the work entitled *Guardian Angel*, our attitude towards them is a mixture of fascination, fear and pragmatism. Even if we are aware of the dangers of opening ourselves to monitoring, we still do it in exchange for numerous amenities and the pleasure of being recognized by the system. Ipso facto monitoring becomes a mechanism confirming our individual identity.

Guardian Angel is a fictional organization which offers its members a number of profits on condition of their agreement to a high level of invigilation. In this work Rokeby deals with the problem of our susceptibility to the controlling guardianship in the time of Internet marketing. Taking the advantage of the benefits is tantamount to being open to numerous threats. Yet, Rokeby's work is not (only) about the dangers caused by the existence of bugs on the net and other forms of net agression. The issue of the susceptibility of the users of the global net to subtle control is much more interesting. It can be called a specific psychological disposition which makes us take the risk of being controlled. Using cookies is a form of extreme sport because despite the assurance of personal data privacy and security, by revealing our personal details to corporations, we lose control of the situation. We do not know where and how they are stored, how they are segregated/classified. We do not know who uses them, and what he uses them for. Being aware of all these threats, we still take on the cookies, even though we swear to ourselves not to do this again. Thus monitoring somehow loses its demonic power, we become accustomed to it in the world which takes the form of a participatory panopticon.

For Rokeby, our willingness to accept the cookies shows not only the omnipresence of the media, but first and foremost their captivating power of attraction. By trying to initiate a critical discours on the role played by the media in shaping both the common and the individual mode of perceiving reality and constructing its representation, the Canadian artist at the same time points out how hard it is to break away from the sweet constraint and engage in some critical reflection on the nature of the new media, especially when their use is becoming a more and more natural form of contact with the world.

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OBSERWUJĄC OBSERWACJĘ: INWIGILACJA JAKO TEMAT SZTUKI MEDIÓW (streszczenie)

Zjawisko nadzoru, kontroli i inwigilacji można uznać za jedną z najważniejszych właściwości świata w dobie globalizacji. Liczni autorzy, jak Foucault, Deleuze, Virilio, Bauman, Lyon anlizowali jego wpływ na rozwój cywilizacji medialnej. Upowszechnienie systemów monitoringu, ich wpływ zarówno na przestrzeń publiczną, jak i sferę prywatną powodują, iż *surveillance* stanowi istotny czynnik rozwoju społeczeństwa i kultury post-panoptycznej. Przemiany społeczeństwa dokonują się w ścisłym związku z rozwojem coraz to nowszych form kontroli od tradycyjnych metod optycznych, przez *dataveillance* po metody biometryczne. Wraz z ich rozwojem społeczeństwo dyscyplinarne podlega przeobrażeniu w społeczeństwo "powszechnego wojeryzmu i ekshibicjonizmu (Virilio), zaś nadzór i kontrola przyjmują postać "rozrywkowego spektaklu" (Weibel). Współcześnie tracą one charakterystyczną dla modernizmu jednoznaczność, fukcjonując nie tylko w kontekście instytucjonalnym i państwowym, lecz także w przemyśle i rozrywce, wyznaczają złożone i wielowymiarowe pole interpretacji. Postrzega się je jako straszne i pociągające zarazem, ograniczające wolność i zagrażające prywatności, ale jednocześnie pozwalające na indywidualne zachowania twórcze i autoekspresję.

Problematyka obserwacji, kontroli, śledzenia, oceny, gromadzenia i przetwarzania danych pozyskiwanych z systemów monitorujących podejmowana jest przez wielu współczesnych artystów. Szczególnie interesujące w tym kontekście przedstawiają się prace wykorzystujące technologie *surveillance.* Obecne są one w sztuce mediów przynajmniej od zarania wideo artu. Co jednak istotne, ich znaczenie dla sztuki wynika w dużym stopniu z charakteru stosowanych narzędzi medialnych, gdyż, jak zauważa klasyk sztuki interaktywnej David Rokeby, technologie inwigilacji stanowią podstwawę wszelkiej sztuki, która dąży do interaktywności i aktywnej partycypacji widzów/uczestników. Są one zatem zarówno tematem, jak i technologicznym zapleczem sztuki mediów interaktywnych.

Przedmiotem artykułu jest analiza prac artystycznych, które stanowią przykłady wykorzystania technologii monitoringu w celu krytycznej analizy społeczeństwa (post)optycznej inwigilacji. Autor artykułu skupia się na działaniach o chrakterze subwersyjnym, analizując prace, których twórcy za sprawą dekonstrukcji i rekontekstualizacji technologii monitorujących starają się wyznaczyć zasadnicze rysy współczesnych form nadzoru i kontroli, badają ich wpływ na przemiany społeczne, analizują ich udział w przekształceniach relacji między przestrzenią publiczną i prywatną, a także zadają pytania o udział tychże technologii w kształtowaniu percepcji w dobie totalnej mediatyzacji. Spośród licznych przykładów artystycznego ujęcia tej tematyki, wybrane zostają przykłady z twórczości trojga autorów: Thomasa Konera, Michelle Teran i Davida Rokeby'ego. Pierwszy z nich wykorzystuje obrazy z kamer przemysłowych by zakwestionować powszechne mniemania dotyczące sposobu działania i funkcji sytemów CCTV. W jego instalacjach i filmach wideo stają się one nośnikiem niemal metafizycznego doświadczenia. Teran natomiast ujawnia relacje między monitoringiem instytucjonalnym a prywatnym podkreślając, iż upowszechnienie dostępu do tych technologii prowadzi wprost do demokratyzacji wojeryzmu i ekshibicjonizmu. Rokeby z kolei skupia się na analizie efektów digitalizacji i automatyzacji procesów przetwarzania danych. Tworząc prace będące swoistymi analogowo-cyfrowymi hybrydami kanadyjski artysta analizuje wpływ komputerowo ulepszonego nadzoru na procesy postrzegania, interpretowania i rozumienia rzeczywistości.

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He regularly participates in international conferences and panels. He presented papers at Glocal Outsiders 2007 conference in Prague, and at ISEA 2008 (International Symposium on Electronic Art) in Singapore. In 2007 he received postdoctoral research fellowship from Polish Ministry of Science and Higher Education. Currently he works on book “Surveillance as Theme and Method of New Media Art”.

Since late 80's he has been active in experimental music scene in Poland. In 1992 together with Joanna Niekraszewicz he started a multimedia project Spear and in 2006 he started a duo with Pawel Cieslak called Ben Zeen. In 1998 he established a label Ignis for electronic and electro acoustic experimental music. As a curator he organized many concerts, festivals and exhibitions. Since 2005 he has been the curator of "Poza horyzont" (Beyond horizon) project for new media art and experimental music.

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THE ELECTRONICALLY INCARNATED HUMAN

Abstract

The article concerns the description of various phenomena connected with identity, which human can be subjected to in the Net. Accordingly, the processes have been presented which take place mainly within 3D electronics environment. These environments possess an ability to cause a strong immersion, which „engages" human intentionality, and also provides possibility for self-creation. For a description of the phenomena of translocating human activity to the Net, two processes have been indicated: incorporation process, i.e. receiving of an electronic body, e.g. of avatar, and existential process, i.e. human involvement in electronic environment which exceeds the utilitarian aspect. Both processes lead to the state of electronic incarnation, which is not related to any cause of being in the electronics environments, and becomes an autonomous value. Electronic incarnation combines with cultural and anthropological aspects, and has reflection in electronic art. Interrelation between common everyday activity with Net, influences a range of human involvement in the electronic environment, i.e. sometimes changing a user into a participant of immaterial events. On the one hand, such processes reach deeper in human, and secondly, electronic worlds, such as *Second Life*, create possibilities for finding there spiritual values, emotional life, and the sphere of feelings. Human subjected to immersion can begin specific „journey", starting in front of computer's interface, and ending in the rising of electronic personality – finding oneself in the reality alternative to the physical world, in the electronic reality.

I was born in *Second Life* on 11 October 2007. First I had taken a name, by myself, and next I took a body. After that, the picture had split out, had raised a space. Interactivity overtook intentionality. I had gone into the electronic world.

1. PICTURE AND SPACE

The technical picture has been evolving and, changing its nature, it has transformed itself into space. When we consider a picture, we take into account the

manner of its presentation and its structure. On the one hand, this stems from an aspiration seen in the historical process of "finding a third dimension" through the application of artistic values and the process of cognition in the perceiver's mind, requiring the creation of a space, for example, in art. On the other hand, when the structure of the picture was changed through a process of interactivity, the new features of art and the electronic environment – predicated on technology – could realize the dream of a human-created space. We will focus mainly on certain areas of the Internet, thinking about the 3D environment where the nature of the *picture* can be connected with an electronic space; this can be described as a space in the literal sense as part of the electronic environment.

The notion of a *picture* seems inadequate and it breaks down when we consider 3D environments and the phenomenon of interactivity. We tend to talk about the evolution or dissimilarity of *pictures* we encounter in the electronic proscenic media, i.e. television or the cinema, in terms of the space and interactivity of electronic 3D envirnoments. In the case of the 3D environment, the picture has metamorphosed and become a space, an environment which a human can refer to as a kind of reality. Possibly, the category of a space in the electronic media, both proscenic and interactive, can generally change, or even do away with the category of a *picture*. We consider the anthropological aspect, which is to say that a human is surrounded not only by *pictures* of reality, but also by the medial reality; while the *picture* has only conventional meaning, in essence creating a kind of reality, it is the medial reality in which the human being exists, evaluates and experiences. We try to understand a medial *picture* as a state of things – not a simulation – as a human condition which is accepted with conviction and forms our valuation of human life. However we understand the media, we exist and function among them and we are actually "prisoners" of this kind of reality – the media become our reality and are regarded as a source of information or a point of evaluation.[1] My intention is to show that humans refer to the media more as

[1] We presume the notion of the medial *picture* to be independent from the notion of the physical world and overrule the possibility of the verification of a medial picture in intercourse with the physical world. We are inclined to state, that the physical world and the medial reality constitute two independent kinds of reality, and their coincidence is forced or random. If the media "in some way" refer to the physical world, e.g. in the information stratum, it doesn't change the fact that its information function is secondary and appears because of a fast and efficient method of constructing information. The problem arises when a subject of the physical world appears and we try, in some way, to create relations between the media and the physical world, e.g. by negating the truthfulness of the media or in a context of reference. Making a connection between the media and the physical world would not only appear to be impossible, but also unnecessary; however, that does not alter the fact that the media are close to most people.

a category of reality than as a category of picture or simulation. Medial reality and the reality of the physical world exist as two separate realities. Between these realities there occur relations, but it is not certain that their influence on each other elicits any problem of mutual dependence. We say about a certain state: an amazing and random coincidence between the media and the physical world, and do not analyze it, for example, with reference to the physical world. We recognize this coincidence as an effect of the process creating a medial reality to which a human being refers.

There are two interesting questions. The first is on the philosophical plane: how does it happen that someone can take a "picture" of a human in electronic space just as a person would in the physical world? Secondly, and this question is more psychological, does such a duality of the person that we meet in electronic reality have psychological consequences for the meaning of dual personality? We regard the procsenic media as a genetic example of the genesis of transforming a *picture* into a space. The category of space becomes more readable in conjunction with interactivity. Interactivity changes the "passivity" of watching a *picture*, into "active participation", but the notion of the *picture* seems inefficient here. Interactivity releases activity which is directed into the electronic environment and should not be connected with any concrete necessity. Such activity can become a disinterested participation. Involvement which goes beyond notions of use can change the way we think about realities, both in the physical world and the electronic one.

2. SURROUNDED BY THE ELECTRONIC ENVIRONMENT

The advance of technology has brought about great changes in humans. Interactivity and multi-linear access can dominate common daily life and thinking. Technology increases the scope for accommodating human needs, enabling more sublime values to be reached. A human then accepts the values of technology, increasing her/his own possibilities and at the same time enlarging the scope of her/his relationship with the Net or *appliances.* Co-existing with technology, the human puts her/his faith in *appliances* to satisfy certain of her/his needs, in full agreement with the conditions that *appliances* place upon him/her and trusting them implicitly. In her/his connections with *appliances,* the human is formed by technology and derives her/his personality from such interrelations.[2] Describing 3D environments, we are able to observe

[2] F. Popper, *From Technological to Virtual Art*, Massachusetts Institute of Technology 2007, pp. 355-370.

phenomena connected with technology and human involvement in the electronic environment which are still imperfectly understood and were quite unknown in the past.

Alongside electronic interactivity, meaning the specific dialogues to which humans acquiesce in the electronic environment, human attitudes to the physical world can also change.[3] Technology reveals several phenomena, such as immersion, telemacity, telepresence and immateriality, which describe a kind of "logged in" human existence. These features describe the electronic environment in the same way as the physical world is described by categories of space-time or physicality. The 3D environment doesn't possess them; neither is it possible for the phenomena of the electronic environment to describe a picture's category. The features found in the electronic environment can cause disorientation in intentional attitude, immersion can lead to involvement, and a human can become a real in the electronic environment, transforming himself.

Perceiving one's own activity in electronic reality can arouse feelings of openness to this environment, leading a person to participate in the electronic community and become a more deeply involved she/he within this environment. Creating an avatar, as is now common in *Second Life,* can be related to two identification processes: the incorporation and existential processes. Together, these lead to electronic incarnation: in other words, a human state which can be achieved and confirmed in electronic reality, in which a human can exist to some extent independently from her/his existence in the physical world. These identification processes can draw someone into a kind of sphere of being, an electronic *realis* where the main value is in participating without requiring any justification – simply being.

Electronic Incarnation concerns the aspects of body and existence which are connected with a direct reversal of intentionality, from the physical world into the electronic one. Incarnation intensifies the necessity of participation, and can release a powerful ability to create a self or even an electronic world, enrich it and enable further and deeper self-implementation to be achieved.

Identification processes are concerned with self-creation, which encroaches on several strata, bringing the electronic person and the biological owner closer together. The electronic personality absorbs the migrating personality, saturating it with electronic identification. The electronic person can conquer

[3] H. K. Hayles, *How we Became Posthuman. Virtual Bodies In Cybernetics, Literature, and Informatics*, University of Chicago Press, Chicago 1999, p. 27.

someone from the physical world; enlarging one's identity in this way can change many things and elicit intentions and realistic values. The electronic *alter ego* can express itself as a fully vital human. Incorporated into the electronic person, the human sees her/himself as she/he could possibly be in the physical world. The human applies strategies of behaviour, creating a world of feelings and needs which, for various reasons, she/he fails to find in the physical world. Identification processes can proceed quickly and with intensity, without any of the boundaries that appear in the physical world. The possibilities of communication and space are enlarged.

3. BODY AND MIND IN THE ELECTRONIC WORLD

In the electronic environment, a human is subject to holistic identification processes, which, as have been mentioned above, refer mainly to incorporation and existential processes. The former refers to identification with the electronic body and the latter to mental accommodation. The above two processes lead to the acceptance of someone in the electronic environment, which can be regarded as a kind of reality or sphere of being. These processes are mainly due to the phenomenon of immersion, which can weaken connections with the physical world, in effect "immobilizing" a human in it. Dualism is asserted in the vision of the human, who transfers her/his mental life into the electronic world, leaving her/his "biological avatar" in the physical world.

Incarnation raises a general question about the body. In the real world, bodily self-creation could refer to ethical values and biological boundaries. Because the capacity of the physical body to change is limited, we can say that the limits of bodily transformation in the physical world are fixed. In the case of electronic incorporation, such processes can present values, and in some cases seem to become concurrent with a physical body, for example in self-acceptance or the expression of personality.

Identification processes rely on the Cartesian reflection about the mind-body dualism. Such duality of a human being unconsciously splits a person's humanity into two elements. It is obvious that in philosophy this problem was settled in favour of singularity, without any effect, however. The Cartesian idea divides a human, causing him to be described and understood as a compound of two separate parts. Such a description of human nature seems in essence to be incomprehensible, establishing duality in place of unity. Such

duality has obvious consequences for the question of human nature and how we can understand physicality and spirituality combined in a human.

It is easy for spirituality to migrate into the electronic sphere; it is as if the electronic environment has been waiting for it. As for the body, it has to be considered as undergoing a process of change from its original biological substance to an immaterial one, which depends on processes different from those involved in the migration of spirituality. The process of migration of a body into the electronic environment is ambiguous and is connected with a comparison between the mind/brain structure and its electronic counterpart. This aspect stems from the idea of a bioport connection between the electronic environment and the human mind. That means that someone would exist with full sensory perception in the electronic environment by means of a bio-connection and it is not only similar to a non-connected existence in the physical world, but also quite adequate or possibly even more intensive.

When we consider electronic incarnation in the sense of creating an electronic body, insofar as it is possible, and assume some transfer of spirituality, such as intentionality, feelings and emotions, there are grounds for analyzing humanity as a kind of monistic entity, taking into account the immaterial dimension of the electronic sphere, where the human's spirituality, and even body, can be brought to bear. It could be called an electronic monism; not realizable today, of course, but posited as a general suggestion. We are simply proposing that electronic incarnation as a process may lead to electronic monism.

Additionally we might ask, without wishing to extend the question too far, is the physical body not a cloud of structured atoms? Are we not trying to describe humans on the basis of neurons-cybernetics? And in the end, is a biologically structured mind the only *medium* for representing the thought process?[4]

We will try to describe the two main identification processes:

a. Incorporation – this refers to the acceptance of an electronic body or, in wider terms, the emergence of an electronic person, that is to say, an avatar.

[4] Victoria Vesna is an artist who considers the body in the sense of creating a "new" electronic body. The significance of one of her works, *Bodies INCorporated*, provokes wider reflection on this subject: on the one hand, the body is "alive" with its own biological life; on the other hand, it is the individual property of a human. The closeness of body and simultaneously its foreignness and "initiative" can cause a human to live in agreement with her/his body or try to change it, regarding the body as a subject. http://vv.arts.ucla.edu/projects/95-97/bodies_inc/installation/bodies_inc_install.htm.

When we consider the electronic body, we think of ourselves in terms of electronic incorporation. It can be understood as a process of one's "physicality" in the electronic environment**:** physical representation in an immaterial environment.

b.

Taking care of one's avatar can be so involved, that it sometimes gives rise to certain feelings being directed into one's electronic body, to the extent that one may no longer be mindful of one's physical body. Fascination with electronic incorporation based on the possibility of constant change can define a *persona*, making it possible to realize an image of oneself, how one thinks of oneself in the physical world, and possibly what one would, in essence, want to be like.

The question is, is it ever possible to talk about, and in which aspects, the body as something that can be transformed? This subject gives rise to all kinds of difficulties. The process of incorporation seems interesting because it frequently originates from an archetype, or model for which humans have been searching for centuries in the physical world. Perhaps electronic incorporation is used for the creation of the human canon of corporality, proposed as an ideal since ancient Greek times and not realized in the physical world. Generally speaking, we can talk about the relation of someone to their physical body and the subsequent possibility of forming, changing, and shaping each creation of our own electronic body according to a chosen pattern.

Describing the two kinds of body, physical and electronic, we find moral and anthropological aspects. We would only posit general questions concerning the acceptance of a biological body. It stems from the historical mediation of the body and is caused by aesthetic changes, such as painting, clothing or plastic surgery, or any kind of aesthetic improvement. In such cases, the body was regarded as the object of a diversity of changes. These processes established the body as a *medium* for the expression of various values or feelings. Such tendencies have been present throughout the history of mankind and are still important today. Such changes are related to the transformation of self-consciousness. Electronic incorporation can change the meaning of one's own biological body. Chosing and presenting one's prospective outlook makes it easy to adapt and implement the self. We think about situations where an avatar is not considered by someone as a picture but becomes someone's identity. Incarnation can start from the acceptance of one's electronic body, which goes on to express, and in some cases define, a spiritual "I" embodied in the electronic world.

It is possible that the electronic body could be regarded as a substratum for the realization of some human form, a sort of aspiration for the creation of a necessary individual exteriority which is not separate from the general view of the human body established, for example, in the ancient Greek canon of the human body. Additionally, we can say that, apart from the aspiration to a bodily canon, the body can by tested by examinations and strategies. For example, in *Second Life* people are usually "beautiful", but they can, if they want, incorporate themselves in an animal body described, for example, as "furry", or in a mixed incorporation consisting of human and certain abstract elements. One can create one's body starting from one's hair and torso right through to all the little details, which one can remake over weeks or months. Such stylization stems from hidden and invisible needs or desires**;** one is becoming a work of art for oneself in an electronic *realis* in a process of creation conducted on an unusually sublime medium: a human.

Although the participants of *Second Life* can posses several electronic bodies which make use of various strategies, we tend to the proposition that only one of these is indispensible with regard to identification processes. The other bodies remain for the individual's own experience. We still try to take into account the identification processes which identify an individual with a single electronic personality because, generally speaking, the chosen personality seems unique and, moreover, is unachievable in the physical world.[5]

Electronic incorporation can imply existential effects, awakening needs arising from it and precipitating a need for self-expression and self-presentation. It is a kind of comprehension of our own body in a process of identification with it which eventually leads to its transformation into a person who exists in the electronic world.[6] Generally speaking, the subject of a body remains for us a problem which is described only in terms of electronic identification and which we see as a phenomenon of the electronic environment, and, in consequence, we do not analyze the body at the level of general meaning, and we do not posit statements which evaluate or compare the body, whether physical or electronic.

[5] M. Foucault, *Utopian Body* in "Sensorium. Embodied Experience, Technology, and Contemporary Art", MIT Press 2006, p. 229.

[6] A known example of activity and self-creation is the woman who participates in *Second Life*, under the Net name Anshe Chung (her name in the physical world is Ailin Graef). Anshe Chung is a real estate agent in *Second Life*, which influences her enrichment in the physical world. Creating herself in *Second Life*, one day she decided to change her outlook in the physical world, and she decided to become like her electronic corporality http://www.anshechung.com/.

c. Existence – concerns an identification process on the ground of consciousness. In the electronic *realis,* the human can frequently find work, enter into various kinds of commitment or be involved in interpersonal relationships and begins to regard the electronic world as her/his everyday experience. The electronic personality seems to be like a sphere of immanence, appearing in many activities which the human directs into the electronic world. We consider this a kind of perception of phenomena in the electronic *realis* which allows the transformation of the electronic world into the human world. This leads us to ask questions concerning the process of implementation**:** implementation describes human activity which stems from concrete needs and their realization in an electronic *realis*, which enrichs it and adapts it to the human. Why would someone identify an electronic *realis* as a state compareable to the physical world? Is it possible to replicate human activity from the physical world in the electronic one? We think about an identification process which causes a human to give it her/his attention, and fill it with her/himself. Processes of identification confirm an electronic *realis* as an aggregation of facts which are, in some cases, important for a human.[7] We might add that a subsequent controversial aspect appears, evoking moral doubts and having a social dimension. We will consider the creation of an electronic personality which stems from the need for the creation of interpersonal relationships which have an emotional and spiritual dimension. This subject remains in itself controversial, showing that the electronic environment releases emotional attitudes towards other humans and can identify and replace relationships from the physical world. Manifestations of this are establishing a home and family, which, we note, is not extraordinary in *Second Life*, where participants possess such things as private property, for example, an island or part of one, with a built or purchased house, and can have an electronic family through marriage. Identification processes can go this deep perhaps because when people exist on the Net in a network of connections, they are influenced and attracted by many aspects, and can moderate their decisions and create many useful situations before making a final decision.[8]

[7] R. Ascott, *At Home in the Post-biological Universe*, "Art Inquiry", Vol. V (XIV), Łódź 2003, p. 11-12.

[8] During my documentation in *Second Life,* I had occasion to meet a person who, after nine months of marriage in SL, was left by his electronic partner. Their cohabitation was connected with having an electronic child – a bot. This person expressed her feeling that her life had just finished, to some extent collapsed. Incarnation in an electronic family created relationships which, apparently, had greater value than those in the physical world. I declared my intention for making the documentation and this person was aware of it.

4. DEMANDS AND DESIRES: THE SELF-ACCEPTANCE OF AN ELECTRONIC "I"

An electronic person can take possession of their biological personality, finally becoming more closely identified with their electronic identity than with their biological one. Seeing oneself and other participants of the electronic world on a computer display and, transmitting one's personality, one can find oneself in a new relationship, taking on new roles and frequently entering into new situations in the community. Sometimes the situation in an electronic *realis* can be more acceptable than a similar one in the physical world. The acceptability of self and various situations is consequently developed from one experience into another. Self-acceptance appears, we might say, unawares and quickly. Such experience can release subsequent processes permeating various strata, sometimes feeding back into the physical world. We can think of situations when someone changes their mentality in the physical world under the domination of the behaviour patterns of their avatar. Such an identity requires a human nature proportionate to the involvement of a person in the electronic *realis.* It appears to be a spiral process of the identification of a person with their electronic nature. A human being will want to exist in the electronic environment as long as they recognize it as better and find a " spiritual home" for themselves in it, or even a home in the usual sense. Is it not a good way of changing one's life in the physical world? Is it not a way of identifying oneself in the real world?

The need for electronic incarnation appears as a choice determined by personal desires. Immersion in the electronic world can begin a process of reflection and the search for an experience which a human was not able to obtain in the physical world. The space of an electronic *realis* can complete one's personality, and thus appears to be a plastic medium for shaping it. Existing within the incorporated body, it is possible to get into a rut. It is possible for a person in the physical world to fail to develop her/himself and not show the different types of behaviour exhibited in the electronic environment. Widespread involmement in an electronic *realis* displaces certain mechanisms existing in the physical world, thus the condition of electronic incarnation results from the total orientation of the human towards the electronic environment. The velocity and range of interactivity can cause a human deprived of input in the electronic world to feel incapacitated, closed in the "tower of the physical world", which is not reached by electronic signals.

Electronic incarnation leads humans to inhabitat an electronic reality. It consists in multiplying possibilities and needs, which leads to transferring

more and more professional or existential activity to it. This phenomenon can be described as the condensation of an electronic *realis* and the process of its anthrophisation. It can result from the fact that the incarnation is becoming more dynamic, and the electronic *realis* becoming more vital, valuable and important. We would add that crossing into an electronic *realis* has a multi-cultural character and is international in the case of many of the relations between users and their opinions, expressions, values, conflicts and comprehension. All of them in the electronic environment seem to have the dimension of co-existence.

5. FROM THE IMAGE TO THE ELECTRONIC INCARNATION

Since a human is usually related to the physical world, in a situation where an alternative reality is met, he/she either strikes a balance between two realities or sometimes makes a choice and is reborn in a new electronic personality. The newly incarnated person rises and begins their existence in the reality of the electronic *realis.*

Processes of electronic identification are experienced by over a million users entering an electronic *realis* independently and for diverse reasons. The assumption of anonymity in relation to the reality of the electronic world keeps both realities discrete and supports their mutually hermetic character. The question *Who are you?* in an electronic *realis* may elicit a response which contains meanings which might never be manifested in the physical world.

Electronic identification can be compared to a progressive series of choices, or to a human "birth" into an alternative kind of reality. The electronic personality can lead to the complementation of one's personality. It is not a split consciousness, but rather the progression and expression of someone who can thus model and verify her/his behaviour. Thanks to the electronic environment, someone can observe her/himself and watch these situations from two perspectives: that of the avatar and that of the physical world. In consequence, she/he can appraise the situation and can make corrections. It is a unique experience, possible only because of the nature of the electronic world. Thanks to technology, humans have the opportunity to improve themselves in a way which was never possible before.

In the case of self-creation in an electronic *realis,* we have a unique situation consisting of possibilities for creation. Such a process can be defined as similar to the artistic process of creating a work of art. It starts from a adopting

a name, a Net Name, and then taking on an electronic body. It seems to be a silent, personal process of passing from one decision to another relating to the outlook and manifestation of a personality. A human grows in the electronic reality which becomes her/his surroundings, but which only bears a certain resemblence to the physical world while actually still being different from it. Perhaps because of the blurring of emotions and openness, the birth of an electronic personality will contain more features described as human than would be used to describe her/him in the physical world. The electronic world "drags-in" the personality from the physical world. In the process of migration to an electronic *realis,* humans import these values with them into the non-biological substratum. Consequently, the axiological dimension of the electronic *realis* is constantly being changed and enlarged. The identification processes can sometimes leave behind them a kind of emptiness for someone when reverting to the physical world. We would call it an existential "drying up" of someone in the physical world. This seems to be a negative aspect of the processes of identification with the electronic environment, causing humans to feel cut off from their existence in the physical world. At the same time, a human arises and has experiences in the reality of an electronic *realis*. This might involve their occupational activity, but we are mainly concerned with spirituality. The changing of one's sphere of interests and activity in the electronic world can cause secondary transformations in the physical world.

The identification processes described above can cause complete integration with the electronic environment referring to the main kinds of human activity. With regard to the notion of electronic incarnation, we think about the effect of the simultaneous crossing, opening and enlargement of a human. Electronic incarnation may occur for many reasons**:** deep processes hidden in a human. This subject touches on wider problems, i.e. the electronic anthroposphere, in which all the elements of the human world have reference or are replaced in intercourse with the physical world. Electronic incarnation referring to human identity does not describe any concrete activity and leads to a kind of existence in the electronic world which is understood as the anthroposphere**:** the electronic anthroposphere is an aspect of the description of a world in which humans exist.

Electronic incarnation is regarded as a full and definitive state of a human being in the electronic environment. It is accompanied by passive participation, that is the kind of participation where practical activity is eliminated and vanishes completely. Passive participation is a state in itself, proceeding without any conditions. Such participation in the electronic world is unconditional, does not have any obligations and stems from choosing and accepting the electronic world.

We note and conclude with the *technology factor* as a certain determinant, which began when humans lit the first fire in a cave and found some value in it. We understand the technology factor as penetrating all human existence and to some degree determining evolution. Technology acts without compromise, going beyond the body and consciousness and changing the physical world. Technology, without doubt, gives value, especially in those tragic situations where humans make use of the possibilities presented by technology: an amputated hand or eye is replaced by a bionic one, making techno-nature out of biotechnology. How can we understand the body or identify with it in this case? Is technology "breaking up" human nature or elevating it?[9]

Electronic incarnation can contain values. In some situations, electronic incorporation can probably cause human existence to achieve fulfillment and acquire the ability to exploit their personal characteristics in both realities: the physical world and the electronic one. These worlds can be combined into a single common experience of a human being.[10] We posit the fulfillment of personality in contrast to a split personality; thanks to identification processes, we discover a basis and value for extending one's space and experience for the purpose of defining the self and not dividing it.[11] By means of electronic identification processes, a human being has the opportunity to recognize her/his essence, which may sometimes hidden in existence in the physical world. The value of environments such as *Second Life* consists in providing a space for human emergence, finding there an alternative world from the physical one. An electronic world like *Second Life* seems receptive of humanity, absorbing human activity in sublime spheres. An electronic identity is born when a human being invests more and more in the electronic world, obtaining a response and finding a space for her/his acts.

Emails and websites have changed the way we communicate; however, we mainly think about the necessity of possessing an email account or a phone, not about the fact of communication. Things transfer into the Net, seemingly as a non-human mechanism with the power to penetrate the physical world while at the same time creating an electronic *realis* as an alternative sphere of being. Identification on the Net is a fact: it is often easier to find someone on the Net than in the physical world. Human nature on the Net is determined and formed through undergoing identification processes, just as someone can be

[9] http://pl.youtube.com/watch?v=xuIGXStjOJE; http://www.youtube.com/watch?v=y0apm2NnNx8.

[10] G. Cartwright, *Virtual or Real? The Mind In Cyberspace*, "The Futurist", Mar-Apr 1994, p. 24.

[11] S. Turkle, *Life on the screen: Identity in the Age of the Internet*, New York, Simon & Schuster, 1995, p. 261.

reconciled with their electronic identity. Perhaps we can suggest a kind of composite identity, stemming from the complementation of experiences in two worlds, giving rise to technohumanus, an electronically incarnated human who, together with technology, forms human existence. [12]

CZŁOWIEK ELEKTRONICZNIE INKARNOWANY
(streszczenie)

Artykuł dotyczy opisu niektórych zjawisk związanych z tożsamością, jakim człowiek może podlegać w Sieci. W tym celu przedstawiono procesy, jakie zachodzą głównie w środowiskach elektronicznych 3D. Środowiska te posiadają zdolność wytwarzania silnej immersji, która „przyciąga" intencjonalność, jak również stwarzają możliwości dla autokreacji. Dla opisu zjawisk przemieszczania ludzkiej aktywności do Sieci, wskazano na dwa procesy: inkorporacji, tj. przyjmowania elektronicznej cielesności, np. awatara i egzystencjalizacji, tj. zaangażowania, które wykracza poza aspekt użytkowy. Obydwa procesy prowadzą do stanu elektronicznej inkorporacji, stanu, który nie jest powiązany z żadną przyczyną dla przebywania w środowisku elektronicznym, stając się samoistną wartością. Elektroniczna inkorporacja łączy się z aspektem kulturoznawczym, antropologicznymi oraz posiada odzwierciedlenie w sztuce elektronicznej. Coraz większe powiązanie codziennej aktywnością z Siecią wpływa na zakres zaangażowania człowieka w środowisko elektroniczne, tj. czasami zamienia użytkownika Sieci, w uczestnika w immaterialnych zdarzeniach. Procesy sięgają coraz głębiej w człowieka, a światy elektroniczne, takie jak np. *Second Life*, stwarzają z kolei możliwości na odnalezienie w nich wartości duchowych, emocjonalne przeżywanie i uczuciowość. Człowiek podlegający immersji może odbyć swoistą „podróż" rozpoczynająca się przed interfejsem komputera, a kończącą się powstaniem elektronicznej osobowości – samego siebie w alternatywnej w stosunku do świata fizycznego rzeczywistości, rzeczywistości elektronicznej.

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[12] J. Rajchman, *The Virtual House*, ed. by P. Weibel, *Essays on Space and Science,* Neue Galerie, Graz, ZKM Karlsruhe and MIT Press, Cambridge, Massachusetts, 2001, p. 499-500. A publication edited on the occasion of the exhibition: Olafur Eliasson: "Surroundings Surrounded", Neue Galerie am Landesmuseum Joanneum, Graz, Austria, 30.03 – 21.05. 2000.

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VIRTUAL REALITY IN SCIENCE FICTION FILMS

Abstract

The development of technology has allowed us to change our notion of space. Until 500 years ago, people could only conceive of space inside the continent on which they lived. Once they began traveling to other continents as technology developed, their cognizance of space became global. The invention of the telescope extended the notion of space into cosmic space, and the microscope extended it further to the atomic world.

By the end of the 20th century, the rapid progress of technology suggested to us a new concept of virtual reality (VR). The notion of virtual worlds had been partly developed through various types of creative media, such as plays, poems, novels and music. However, those virtual worlds have not been accepted or regarded as something definite, since they had no bearing on actual human life space. It was only by being able to transform the objects in a virtual world and interact with them, that people have finally come to accept the virtual world as part of actual space.

Incidentally, VR is not something with which people can easily identify. Thus, deep analysis or research into this emerging domain is very difficult to find, despite the importance of VR for our future. However, people can experience the essence of VR through movies, and science fiction (SF) films are taking center stage in that endeavor.

This paper will study the character of VR and the relation between cyberspace and physical space. Furthermore, I will explore the presentation of human functioning in space in SF films that reflect the phenomena related to the development of digital technology.

VIRTUAL REALITY

The digital era has provided us with an environment created by computers and as a result, we have found ourselves confronted with a new kind of reality – virtual reality – which, while it is not material, is nonetheless existent. Being virtual is not opposed to existence; virtual reality is just another method of combining existence with reality.

Webster's dictionary defines *virtual* as "being in essence or effect though not formally recognized or admitted", and *reality* as "a real event, entity, or state of affairs." Combining the two words and their meanings, we arrive at the phrase *virtual reality*, denoting "an event or entity that is real in effect but not in fact."[1] However, this concept is too blurred to allow one to distinguish virtual reality from other types of virtual worlds, such as the worlds created by novels, plays or films.

For some researchers, VR is a technology that creates certain types of virtual worlds that generally consist of three-dimensional images. According to some engineers, VR is defined by five features. It is a medium of communication; it requires physical immersion; it provides synthetic sensory stimulation; it can mentally immerse the user; and it is interactive.[2] But while it is very useful to point out the features of VR, the resultant list is too reductive to explain the meaning of the concept. As I have mentioned when borrowing from Webster's definitions, VR is a kind of event – a state – not simply a technology or medium. Therefore, in this paper, I use the term *virtual reality* to mean the events, entity or state that people encounter in VR systems using certain types of devices such as HMD, data glove or CAVE. People can travel and interact in the three-dimensional virtual world that consists of a digital image created in real time while completely immersed.

THE REALITIES IN SF FILMS

William Mitchell[3] argues that electronic digital spaces will gradually overwhelm physical spaces. According to him, graphic computer screens will slowly drive out the buildings of public institutions. Even today, material banks are being substituted by the digital images of Internet banking. The various other institutions in physical space, including shops, schools and companies are also moved into virtual space. Such films as *The Lawnmower Man* predict that even human sex will be transferred to VR. Furthermore, in *The Matrix*, the physical reality can only be perceived by a few selected people. Unlike the people who had experienced the physical world, most people in the matrix perceive the computer-made world – VR – as the only reality.

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[1] Heim, M., 1993, *The Metaphysics of Virtual Reality*. New York: Oxford University Press, pp. 108.

[2] Sherman, W. Craig, A., 2003, *Understanding Virtual Reality.* San Francisco: Morgan Kaufmann Publishers. pp. 36

[3] Mitchell, W. J., 1996, *City of Bits: Space, Place, and the Infobahn*. Cambridge: MIT Press.

The two realities, however, have different spatial characteristics, although they may appear identical or functionally similar. In most SF films, the space of virtual reality is made up of interactive digital images. In *The Matrix*, the characters enter a loading program. Then, in the empty white space, as Neo and Trinity prefer, many weapons appear in real time. Here, Trinity can load what she wants. Not depending on physical materials, she can produce everything by synthesizing digital images in real time. In VR, location is not absolute. In *Johnny Mnemonic*, Johnny logs in to a virtual reality system in order to find lost paintings. In doing so, he is able to visit many foreign places simultaneously. While he connects with virtual reality, he can go wherever he likes, and unlike the physical world, none of these places is sequential. So, it is not important for visitors whether a printing house or some hotels are nearby. The non-physical space in *The Matrix* has similar characteristics: it is not ordered and sequential any more, unlike physical space. The corridor may lead onto a roof, and the kitchen may be changed into a lobby or stairs if needs dictate.

The two realities, primary and virtual, are completely separated. In *The Lawnmower Man*, Dr. Angelo says to Jobe, who is searching for a method to remove a bomb while he is accessing virtual reality, "You can't defuse the bombs, can you? You lost all your power over the physical world, once you transferred in here". Jobe has no control over the physical reality even if his body is in it. Human consciousness, separated from the body, is immersed in and moves around in VR, while the person's gaze is fixated at the screen. In the film, the physical human body in VR revolves within a virtual reality machine when the person is engaging in running a race or in sex. *The Matrix* shows that the screen will eventually disappear, and the data will be uploaded directly, still with the body immobilized.

Minority Report envisions other types of reality. Contrary to other films, which substitute the primary reality by another world, it expands the primary world, supplementing it with data and information or virtual objects. The contents are available off-screen, breaking through the frame that divide the two realities; or perhaps the screen itself becomes an interface providing multiple realities.

CONCLUSIONS

In this paper, I have discussed the characteristics of virtual reality through a brief analysis of SF films. The SF films suggest various alternative realities as well as VR, producing an immersive and dichotomous framed digital virtual

world, and show the different structures of these realities. They predict that spatial structure will be reorganized by technology, and that we will live in a heterogeneous and increasingly complex reality.

RZECZYWISTOŚĆ WIRTUALNA W FILMACH SCIENCE FICTION (streszczenie)

Rozwój technologii pozwolił ludziom zmienić pojęcie przestrzeni. Jeszcze 500 lat temu przestrzeń życia każdej wspólnoty ludzkiej była ograniczona do rozmiarów kontynentu przez nią zamieszkiwanego. Rozwój technologii i podróże na inne kontynenty rozszerzyły pojęcie przestrzeni, czyniąc ją globalnym konceptem. Wynalazek teleskopu nadał pojęciu przestrzeni charakter kosmiczny, a mikroskop ogarnął świat atomowy.

Jeszcze przed końcem XX wieku szybki postęp technologiczny przyniósł nam rzeczywistość wirtualną (VR). Technologia tworząca wirtualny świat była częściowo rozwinięta w różnych typach mediów artystycznych, jak poemat, powieść, muzyka. Jednak świat wirtualny nie był postrzegany jako konkretny i określony, ponieważ nie uobecniał się w ludzkiej przestrzeni życiowej. Dopiero uzyskując możliwość przekształcania obiektów w świecie wirtualnym i wchodzenia z nimi w interakcje ludzie ostatecznie zaakceptowali świat wirtualny jako część rzeczywistej przestrzeni.

Ludziom nie jest jednak łatwo identyfikować się z rzeczywistością wirtualną. Dogłębne badania i analizy w tej dziedzinie nie są więc szczególnie liczne, pomimo znaczenia VR dla naszej przyszłości. Filmy natomiast są w stanie przynieść doświadczenie istoty VR z pierwszej ręki, a filmy scence fiction zajmują w tym przedsięwzięciu miejsce centralne.

W niniejszych badaniach zajmuję się analizą charakteru rzeczywistości wirtualnej oraz relacjami pomiędzy cyberprzestrzenią a przestrzenią fizyczną. Ponadto badam rzeczywistość ludzką opisaną w filmach *science fiction*, które podejmują refleksję nad fenomenami związanymi z rozwojem technologii cyfrowej.

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