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ACHIEVING IMMERSION:
THE GRAY-ZONE BETWEEN REAL AND VIRTUAL

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Abstract

Twentieth century art favors an aesthetic no longer oriented to beauty (which is associated with harmony and unity), but to “sublime” (which is associated with the incomplete and the inconceivable in its totality) (Lyotard, Adorno).

Immersion by itself is a triumph of the experience the sublime offers over a detached viewpoint of the object-artwork; it mobilizes the entire human body seeking to offer a full experience, but can fill us with awe and make us weak-willed beings that accept without criticism the value system and the ideological choices inherent in the artwork.

Virtual worlds are increasingly seductive, and people immersing in them end up perceiving reality through the lenses of virtual reality; and wanting to create a reality resembling virtual reality.

The current thesis attempts to investigate how it is possible to achieve a kind of immersion that allows for a full experience not marginalizing thought. Projects structured under a certain set of distinct concepts, and using restricted means of representation, may help retain one’s individuality while immersing in the virtual environment, and allow for deep and rich reading real art offers.

Résumé

L'art du XXe siècle favorise une esthétique qui se détourne de la beauté (associée à l'harmonie et à l'unité) au profit du «sublime» (associé à l’incomplet, à l'incommensurable, l'inconcevable d'une oeuvre dans sa totalité) (Lyotard, Adorno).

L'immersion en elle-même est le triomphe de l'expérience offerte par le sublime sur un point de vue détaché de l'objet-œuvre; Elle mobilise l'ensemble du corps humain et cherche à offrir une expérience complète, mais peut nous remplir de crainte et faire de nous des êtres velléitaires qui acceptent sans critique le système de valeurs et les choix idéologiques inhérentes à l'œuvre.

Les mondes virtuels sont de plus en plus séduisants, et ceux qui s'y immergent finissent par percevoir laréalité à travers la lentille de la réalité virtuelle ; et par vouloir créer une réalité qui ressemble à la réalité virtuelle.

Ma thèse tente de déterminer comment il est possible de parvenir à une forme d'immersion qui permette une expérience complète sans pour autant marginaliser la pensée. Les projets structurés sous un certain ensemble de concepts distincts et utilisant des moyens de représentation restreints peuvent aider à conserver l'individualité de celui qui s'immerge dans l'environnement virtuel, et permettre le déchiffrement riche et profond qu'offre l'art réel.

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Scene from interactive video instalation "Human Cloud 1" (Nora Demjaha)

Henri Cartier-Bresson

ACHIEVING IMMERSION: THE GRAY-ZONE BETWEEN REAL AND VIRTUAL

INTRODUCTION

«*In jail I begged for permission to pass my time by painting. This was granted… I painted the landscape on the wall of my cell… In the middle of the picture, there ran a very small railroad train. It was going straight toward the mountain, and the locomotive had already entered a little tunnel out of whose dark mouth sooty smoke was pouring…. It was in front of this picture in my cell that I was standing one day when the guards came hurrying up once more with their tedious summons and tried to tear me away from my happy activity…I affably requested the guards to be patient for a moment longer since I had to step into my picture and look after something in the train. They laughed in their usual way, for they considered me mentally unbalanced. Then I made myself small and stepped into my picture, got aboard the little train, and rode in the little train into the black tunnel. For a while sooty smoke continued to be visible, pouring out of the round hole, then the smoke dispersed and disappeared and with it the entire picture an I with the picture. The guards remained behind in great embarrassment*». Hermann Hesse[1]

[1] Hesse, Hermann, «Zusammengefasster Lebenslauf», in *Gesammelte Werke*, vol 6, 393ff ("Life Story briefly told", in *A Picorial Biography*, Volker Michels (ed.), Denver Lindley (transl.), Triad Books 1979).

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Man always needed myth. Myth accompanies man in all cultures and all eras; mythology, fairy tales and even religions did not occur by accident. Thanks to myth we have a world filled with all kinds of masterpieces. Artworks depicting non-existent things and events that fascinated and created addiction to people, were imitated and reproduced. Architecture creates as well worlds that did not exist before and attempts to lure people into them

Architecture has the ability to immerse its "prey" into its world even more than painting, poetry, literature, because it moves it between walls, guides it over the floors through routes, drives it away or greets it with doors, lighting. Paul Valéry[2] talked about the feeling of greatness caused by architecture and our inability to escape from it compared to painting. The experience that architecture offers to man is effortless: touching the cold doorknob, sitting on a comfortable couch, experiencing sinking in the wooden floor while walking, smelling the materials.

In Renaissance it used the perspective and the illusion of depth. In Baroque it did away with the distinction between horizontal and vertical and blurred their limits with excessive decoration. Byzantine architecture created mystery by dimming the light. The wish to manipulate the observer differs from architect to architect. Pre-war modernism appealed to the mind, and aspired at making buildings the logical construct of which would be conspicuous. Post-war Le Corbusier wanted to guide experience by orchestrating views and light.

Baudelaire and Benjamin have spoken about the magic of wandering in cities.[3] The metropolis by itself pulls its resident into a world, from which he cannot escape – in order to face it he becomes blazé, says Simmel.[4] Bataille and Valéry see totalitarian trends in architecture, they want to destroy it[5] (the Romantics of 1800 wanted as well to leave civilization and go to nature).

One would expect that with technological advances and science's ability to explain the various phenomena, myth would diminish and that distance between reality and falsehood would increase, that the line between them would become clearer. However, the situation shows that myth simply mutates. Today it has expanded into new fields such as "virtual reality". The main aim that the construction of illusionary spaces of all kinds – either architectural structures or theatre sets, exhibition halls, cinematic or virtual space for games – seems to have is to make less clear the boundary between them and reality. These constructed worlds in order to fascinate the visitor and attract him to enter them (even initially "rejecting" him) create the desired impression by answering his/her innermost "needs" or desires.

Some philosophers and media theorists –between them William Mitchell-[6] believe that the new media lead to the visitor's "disembodiment". According to this point of view, digital virtuality cuts off the viewer from the tangible, tactile sense of his corporeal integration in the world, absorbs him into

[2] Valéry, Paul, *Eupalinos ou l'Architecte*, 1921, Wikisource, la bibliothèque libre. Retrieved from http://wikilivres.ca/wiki/Eupalinos_ou_l'Architecte on February 27, 2014.

[3] Benjamin, Walter, "The Paris of the Second Empire in Baudelaire", in *Writings 1938-1940,* HUPress 2003, *The Arcades Project*, Cambridge, Mass.: HUPress 2002.

[4] Simmel, Georg, "The Metropolis and Mental Life" (1903) in Gary Bridge and Sophie Watson (eds.), *The Blackwell City Reader*. Oxford and Malden, MA: Wiley-Blackwell, 2002.

[5] Hollier, Denis, *Against Architecture, The writings of Georges Bataille*, Cambridge, Mass.: MIT Press, 1992.

[6] Mitchell, William J. *e-topia: 'Urban life, Jim - but not as we know it'*. Cambridge, Mass.: MIT Press, 1999.

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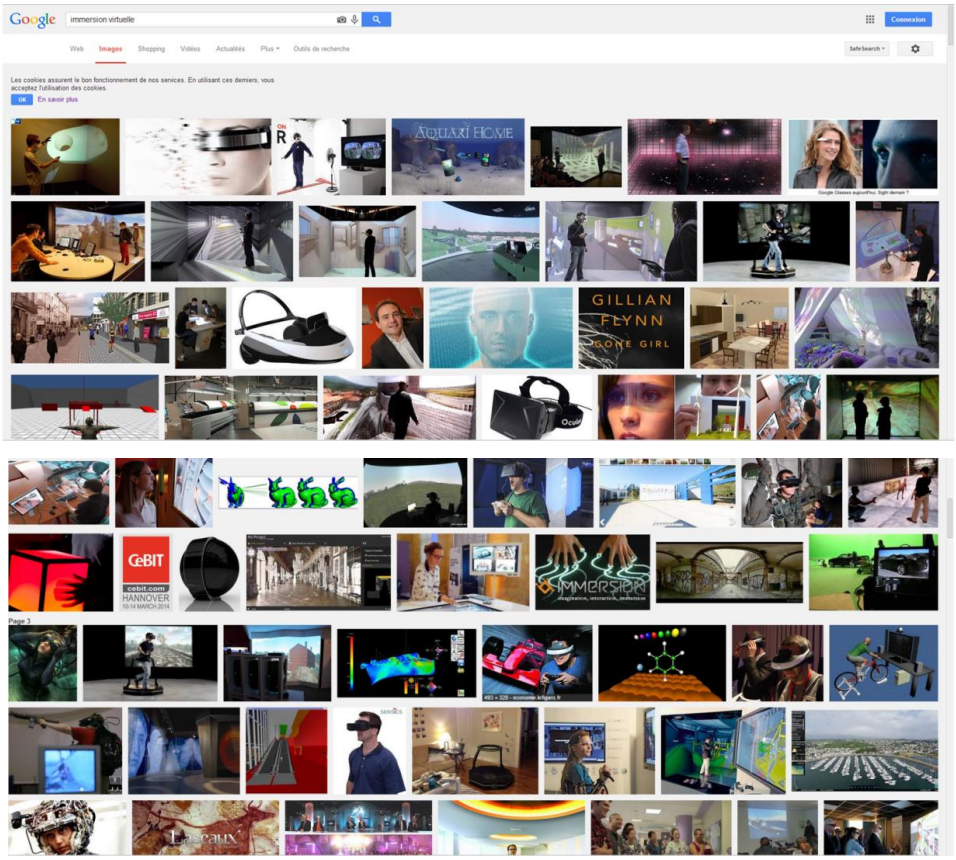
the image and removes him from living reality. "Any kind of matter is about to vanish in favour of information" foreshow Paul Virilio in early 1990's.[7]

In contrast others, such as Mark Hansen,[8] regard that the experience, which virtual reality offers is more complete since our body is also involved emotionally with the environment. The body continues to be the active participant who determines the image's reference point. Our physical involvement with the new media allows immersion to virtual environments and is the basis of interactive integration in cyberspace. "In areas as diverse as virtual reality, video conferencing, MUDs (multi-user domain), newsgroups, electronic discussion lists, telemedicine, web-based education, flight simulation software and computer gaming, a sense of presence is vital for the success of the particular application"[9] points out Esther Milne.

Today if we look up the word immersion in the Internet the following image appears on our screen:



The focus of the current thesis will be on how it is possible to achieve immersion with austerity and less means in virtual reality, because this is maybe the way to make immersion a tool for enriching

[7] "First of all, the disappearance not only affects architecture but any kind of materiality: the earth (deterritorialisation), the body (disembodiment) and architecture (deconstruction in the literal sense of the word, not the architectural style) Any kind of matter is about to vanish in favor of information", Virilio, Paul, interviewed by Andreas Ruby, "Architecture in the age of its virtual disappearance". In: Beckmann, John (ed), *The Virtual Dimension*, Princeton Architectural Press 1998, 186.

[8] Hansen, Mark, *New Philosophy for New Media,* Cambridge, Mass.: MIT Press, 2006.

[9] Milne, Esther, «Email and Epistolary technologies: Presence, Intimacy, Disembodiment», *Fibreculture* 2, 2003.

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not only “experience”, but also thought. It will examine reality, and real space in particular, in order to see with clarity the way with which we immerse in it and which are the elements attracting us to the current real space and afterwards in its representation to the virtual world. The aim is to maintain quality and aesthetics in virtual reality as the representation of reality and secondly in reality itself (since it is influenced/shaped by the virtual) via some reading “thermometers”.

CHAPTER 1

Virtual reality as a semiological system

Virtual reality uses “signs” that it signifies with a quite different manner to which we are used to in reality, in order to immerse us in its world.

Elementary function and necessary condition for the survival of all living organisms, including man, is dissemination of information.[10] Language is the basic tool of communication and dissemination of information for people.[11] The message’s dissemination presupposes a “sign”. (Linguistic) “sign” is a “duality” that consists of the “signifier” and the “signified”. The signifier is the material vehicle of the meaning – a word, while the signified is the meaning communicated. Whether categories pre-exist our perception, if these are taken for granted “objectively”, or if these are only mental constructs, arbitrary to a significant extent, that allow us to understand the world, is a difficult theoretical subject. The world is a continuum. Daniel Chandler wonders, “where are the boundaries of a cloud; when does a smile begin?”[12]

The meaning arises in a specific cultural environment, specific conditions and circumstances. The word “fire”, for example, on a ship, is not a simple information, which the attendees treat as one of thousands of information they receive – i.e. that “we sail at 18 knots”, or that “the restaurant will remain open until 20:00”; the word “fire” would have this function if it was phrased in the context of a novel read by a passenger reading. However, the word “fire” heard from the speakers of the ship means “danger”, “get ready for an emergency”, possibly for abandoning ship.

[10] Due to the diversity of information it is difficult to define it comprehensively: the more generic the definition is, in order to include every form of information, the more indefinite and vague it is. C. E. Shannon, one of the founders of the mathematical “Information Theory”, believes that information is anything that reduces uncertainty about our environment and contributes to decision making (Shannon, C. E., *Collected Papers*, New York: IEEE Press, 1993). For the dissemination of information to occur, i.e. in order to achieve dissemination of a message, must, surely, exist a transmitter and a receiver. Both must have the same sensory organs in order to perceive messages and to share the same code in order to be able to decode them in the same way.

[11] Modern semiotic theory was founded by the linguist of the early 20th century Ferdinard de Saussure. With language one person transmits messages to other people.

[12] Chandler, Daniel, *Semiotics: The Basics*, London: Routledge, 2001, 57.

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Together with language, which is the sign system par excellence, man uses many other sign systems that can therefore be regarded as "languages" on the condition that these systems are adequately organized and that there is a community of people, an audience, which can identify and interpret them with stereotype and, to great extent, interpersonal ways. For Roland Barthes, something becomes a sign when it means something for someone, when it transfers one meaning from a transmitter to a receiver.[13] Every signifier carries with it denotations and connotations.

Erwin Panofsky, the historian and art theorist who studied the conveyance of meanings through art (and particularly of representational art), noted that "the denotation of a representational visual image is what all viewers from any culture and at any time would recognize the image as depicting".[14] On the other hand, the connotations of such an image are varied and depend both on the cultural environment and on the specific each time occasion in which this image is incepted. In his distinctive analysis of Nicolas Poussin's painting, Et in Arcadia ego, what is denoted is a group of shepherds reading the inscription *et in Arcadia ego* carved in a tomb. That we all die is the direct conclusion of this denotation, something which is not obvious and not worthy of becoming the subject of a painting. Panofsky stresses that without its connotations this painting does not say something actually interesting. But if we take into account that Arcadia is consider to be Heaven on earth, a mythical place of happiness where the nymphs lived according to the popular during the 17th century ancient Greek mythology, then a first connotation of the painting is that even in a state of happiness sorrow and pain are inherent.

Virtual reality is particularly apt at creating new denotations and connotations by juxtaposing various images, not usually seen in such sequence in reality.

The huge potential virtual reality has to manipulate the denotations and connotations of images, enhances the feeling of ecstasy that it offers and (if it is for example an intense video game) could be compared to that caused by the "sublime" in art.

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[13] Roland Barthes, who continued, renewed and expanded the theory of signs to fields beyond language, noted in the 1960s: "Je rappellerai donc que toute sémiologie postule un rapport entre deux termes, un signifiant et un signifié. Ce rapport porte sur des objets d'ordre différent, et c'est pour cela qu'il n'est pas une égalité mais une équivalence. Il faut iciprendre garde que contrairement au langage commun qui me dit simplement que le signifiant exprime le signifié, j'ai affaire dans tout système sémiologique non à deux, mais à trois termes différents car ce que je saisis, ce n'est nullement un terme, l'un après l'autre, mais la corrélation qui les unit: il y a donc le signifiant, le signifié et le signe, qui est le total associatif des deux premiers termes" (Barthes, Roland, *Mythologies,* Éditions du Seuil, Paris, 1957, 185). Something, says Barthes, becomes a sign when it means something for someone, when it transfers one meaning from a transmitter to a receiver. We can consider as a signifier the physical shape of the sign; it is something that we can perceive with our senses. On the other hand, the signified is a mental construct, it is not a physical. The relationship between signifier and signified is usually referred as signification. For example: sign: the word rose; signifier: all the letters r-o-s-e; signified: what we mean as 'rose', the mental category 'rose'.

[14] Panofsky, Erwin, *Meaning in the visual arts*, New York: Penguin, 1970, 51 ff.

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A first century CE text, *On the Sublime*, introduced in literature the concept of sublime.[15]

Sublime does not seek to convince the audience but to bend its critical ability by entrancing it into accepting the argument without resistance. In the *On the Sublime*, "le sublime est en effet ce qui forme l'excellence et la souveraine perfection du discours" [16] in the translation with which this text become known in Europe, made in 1674 by Nicolas Boileau. The effect of elevated language upon an audience is not persuasion "car il ne persuade pas proprement, mais il ravit, il transporte, et produit en nous une certaine admiration méfiée d'étonnement et de surprise, qui est toute autre chose que de plaire seulement, ou de persuader." The concept of sublime was examined systematically by Kant, who interprets it as the emotion arising from the natural phenomena's influence on human psyche – a harsh mountain's sight or a storm's mystique etc. Kant was extremely cautious in using the sublime on art. The sublime art in his era was not an art resisting authority, its overt or latent violence, but an art depicting its greatness. Art, therefore, had the function of converting the autonomous citizen to a passive subject and therefore of legitimizing ideologically the dominance of existing conditions. Kant rejected the sublime as analyzed in the ancient *On the Sublime* because it involves the risk of glorifying violence and hence undermining the noble idea of freedom due to the power of the passion that distinguishes violence. For Kant the natural powers themselves are not sublime. They are merely the pretext for realizing our suprasensible freedom through which we can resist nature's brutal authority.

During the 1980s postmodern thought shifted to the concept of the sublime, which Edmund Burke and Immanuel Kant had reintroduced to philosophical thought. Jeans-Francois Lyotard, one of the pioneers of this shift, notes that twentieth century art no longer favors cultivating an aesthetic oriented to achieve the beautiful, but rather uses and refers to the aesthetic of "sublime".[17] According to Lyotard, modern art is founded on this very character that Kant attributes to the sublime. He does so, obviously recognizing, that the risks linked with this choice are the price that art has to pay in order not to lead to the leveling of the differences that prosaic rationalism has

[15] *On the Sublime* was once attributed to Cassius Longinus, intellectual and writer of the third century CE.

[16] *On the Sublime* 1.3: *ἀκρότης καὶ ἐξοχή τις λόγων ἐστὶ τὰ ὕψη*.

[17] According to Lyotard, both postmodern philosophy and art must resist forced consensus based on some rational which ignores (unless it settles violently) diversity, must resist the dictation of a single right model in social organization, in reason, in the daily life of modern society; a society consisting of a multitude of autonomous individuals each with his own goals and visions, who claims a space of his own where he can materialize his desires: something already pointed out by Theodor Adorno and Max Horkheimer in the 1940s (Horkheimer, Max & Adorno, Theodor, *Dialectic of Enlightenment*. New York: Herder & Herder 1972 [1947)]. These German thinkers attempted to explain Germany's and many European countries' slip to fascism during the interbellum period, making distinction between reason and purpose-oriented utility, which is associated with the reduction of the Enlightenment's emancipating programme into an instrumental rationality. This is what Jacques Derrida called book's own violence (i.e. violence of every rule): "la protection encyclopédique de la théologie et du logocentrisme contre la disruption de l'écriture, contre son énergie aphoristique et, nous le préciserons plus loin, contre la différence en général." (Derrida, Jacques, *De la Grammatologie*, Paris: Éditions de Minuit, 1967, 39).

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fallen to.[18] Adorno formulated this idea in his *Aesthetische Theorie*. According to Adorno true innovating works of art belong to the sublime category: sublime, however, has changed character and function compared to what Kant perceived as sublime because society has transformed radically since the 18th century in terms of how a person defines its identity and understands its position in society and its relationship with others.[19]

With beautiful we connect the features of agreement, totality, harmonization of the opposites, something which today is irrelevant, since today dominate incompatibility and heterogeneity of the various aspects, which things consist of. This incompability and heterogeneity are fundamental features of modern society, which is open to individuality and tolerant to diversity.

Immersion by itself is a triumph of the sublime on a cold, detached viewpoint of the object-artwork, a viewpoint often dictated by dominant ideology and logic. Immersion mobilizes the entire human body seeking to offer a full experience. In virtual space… "this suggestive power may, for a certain time, suspend the relationship between subject and object, and the 'as if' may have effects on awareness. The power of a hitherto unknown or perfected medium of illusion to deceive the senses leads the observer to act or feel according to the scene or logic of the images and, to a certain degree may even succeed in captivating awareness" points out Oliver Grau.[20]

Immersion can fill us with awe and make us weak-willed beings that accept without criticism the value system and the political, social and ideological choices inherent in the artwork. Or, transferring us to another world can allow us to look the real world with a critical eye and allow us to see that current reality is not the only one possible, as totalitarian regimes often argue. Therefore, it is a major challenge today for immersion to have the traits that Adorno and Lyotard wanted to attribute to it (i.e. the refusal of accepting a single truth and the confirmation of individuality when one engages the work of art transporting the immersed person out of the box) and not the characteristics described in *On the Sublime* (ecstasy and circumvention of the resistance raised by the mind to the meanings submitted by the artwork), towards which Kant was particularly skeptical.

[18] Lyotard Jean-François, *La condition postmoderne*, Paris: Éditions de Minuit, 1979, especially 71-82. The modernist maxim of rationalism has deviated into an uninspired and ruthless effort to enforce homogeneity on the basis of a perceived "right" and "sensible". This was mainly achieved by the impoverishment of linguistic means of expression and the new media. It is distinguished by its deep mistrust of ambiguity, to different opinions, to openness towards the new, which is not yet been organized and categorized; in a nutshell it is distinguished by a irrational fear towards the possibility of living in freedom" (Xeropaidis, G., «Η νεωτερική τέχνη ως τέχνη του υψηλού. Κριτικά σχόλια στην Αισθητική Θεωρία του Adorno" (Modern art as art of the sublime. Critical remarks on Adorno's Aesthetical theory») In: *Το Μοντέρνο*, Β. Κιντή, Π. Τουρνικιώτης, Κ. Τσιαμπάος (επιμ.) (The Modern, V. Kindi, P. Tournikiotis, K. Tsiampaos (eds)). Athens: Alexandria 2013, 48)

[19] Adorno argues that defending individuality and freedom of choice of the individual guarantees that Nazism's atrocities will not be repeated, as he had seen as dominant art's political and social dimension.

[20] Grau, Oliver, *Virtual Art: From Illusion to Immersion*, London: Leonardo Books, 2003, 17.

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CHAPTER 2

How is immersion archieved? Conceptual tools for analyzing virtual reality

1. **The interface of real and non-real (L'interface de réel et non réel)**
2. **The awareness of non-real – security in myth (La conscience de la non-réel - sécurité dans le mythe)**
3. **Aesthetical enjoyment (Jouissance esthétique)**
4. **Concealing and unveiling (Dissimulant et révélant)**
5. **Possibility of projecting the desired (Possibilité de projeter le choix)**
6. **Embodiment and navigation through 3d avatar (Incarnation et navigation à travers avatar 3D)**
7. **Multiplicity and condensation (Multiplicité et condensation)**
8. **Escape to a dream (L'évasion au rêve)**
9. **Movement (movement)**
10. **Scale (Echelle)**
11. **Limits and boundaries (Limites et frontiers)**
12. **Narrative (narrative)**

1. The interface of real and non-real

Reproduction of intimate and familiar elements with acceptable features is often observed in virtual spaces tending to immerse the participant. Imitation, representation and reproduction do not transfer only the style and prestige of reality, but are used to make an environment familiar. If we observe the design of psychiatric spaces we will find many objects originating from the periods locked in the patients' memory, since they accept reluctantly anything new. Probably this is the reason why we find imitation of real spaces in a video game, even though there is absolute designing freedom.

Case study: gardens of illusion

Blending of reality and "made-up" features was sought for since remote times. Gardens are prime examples of early interfaces of real and non-real.

Alice opened the door and found that it led into a small passage, not much larger than a rat-hole: she knelt down and looked along the passage into the loveliest garden you ever saw. How she longed to get out of that

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dark hall, and wander about among those beds of bright flowers and those cool fountains, but she could not even get her headthough the doorway; 'and even if my head would go through,' thought poor Alice, 'it would be of very little use without my shoulders. Oh, how I wish I could shut up like atelescope! I think I could, if I only know how to begin.' For, you see, so many out-of-the-way things had happened lately, that Alice had begun to think that very few things indeed were really impossible... [21]

Scene from Tim Burton's Alice in Wonderland, 2010

If we remove gardens from fairy tales they might have not even existed.

The garden is a kind of an interface between myth and reality, between the world constructed by man and the existing one, namely between human construct and nature.

Constructing garden as a medium, man made more familiar and controlled the unknown natural environment.

Kant writes about gardens: «For [painting] gives only the illusion of corporeal extension; the latter certainly gives this in truth, but gives only the illusion of employment and use for ends other than merely the play of the imagination in the viewing of its forms. [Pleasure gardening] is nothing other than the decoration of the ground with the same variety (grasses, flowers, bushes and trees, even water, hills and valleys) with which nature presents it to intuition, only arranged differently and suited to certain ideas. The beautiful arrangement of corporeal things, however, is also given only for the eye, like painting; the sense of touch, however, cannot furnish any intuitable representation of such a form.» [22]

[21] Carroll, Lewis, *Alice's Adventures in Wonderland*, Chapter I: Down the Rabbit-Hole.

[22] *Kant, Immanuel, Kritik der Urteilungskraft (Ctitique of judgement),* #51.2: On the division of arts.

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Bomarzo Gardens, Italy

The garden combines aesthetic pleasure with that of horror. Horror is an intense and seductive feeling. Hitchkock says that “People pay to be scared",[23] and it is no coincidence that this feeling was explored systematically in literature in the Romantic period. The feeling of horror is created more easily in fairy tales because transcending natural, which in them, contains by itself something terrifying. However experiencing terror in fairy tales is much “easier”, less terrifying, since this experience occurs within the safety offered by the awareness that it is a made up world where threat is not real at all – as in virtual reality – there we are mesmerized by danger with the safety offered by distance.

[23] Alfred Hitchcock interviewed in 1972 by journalist Pia Lindstrom and film historian William Everson, http://digitaldeconstruction.com/alfred-hitchcock-masters-cinema-complete-1972-interview/#.U1p3Z8Z63eI

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Abbatiale Sainte-Foy de Conques (Aveyron)

Bomarzo Gardens, Italy

Large rose-tree stood near the entrance of the garden: the roses growing on it were white, but there were three gardeners at it, busily painting them red. Alice thought this a very curious thing, and she went nearer to watch them.[24]

[24] Carroll, Lewis, *Alice's Adventures in Wonderland*, Chapter I: Down the Rabbit-Hole

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Spiral Jetty, Rozel Point, April 2005. 6,500 tons of basalt, mud and salt create a piece of land art, another type of hybrid between nature and construct, like the painted red roses of the fairy tale.

Man's control over nature in gardens varies. Sometimes it is very strong as for example in French gardens. However, already from the 17th century French painters – such as Nicolas Poussin (1594-1665) and Claude Lorrain (1600-1682) – reacted to the totalitarian regime and to the theologically or rationally inspired harmonious arrangement of the French garden, modeled after the Versailles gardens (in reality the reaction against the French gardens – which were a manifestation of the society's political organization – took place in the virtual environment of the painting: radical ideas for a political system less authoritarian than absolute monarchy found refuge in this constructed world).

Nicolas Poussin, Et in Arcadia Ego, ca 1638-40 (Musee du Louvre)

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Sometimes man's control over nature is relatively more limited as for example in English gardens, or even more in gardens that are allowed to grow freely such as Freshkills Park in New York.

An interesting reversal has been achieved there, which gives to the entire project a touch of fantasy: the garbage disposal area of a metropolis was gradually transformed into a breeding round of another, more natural, life, which, additionally, is much more accessible to a New York resident than the dump ten years ago.

FreshKills Park, past and present

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If the garden's image can generally be controlled (if so intended), climate can be controlled barely, especially compared to what can be done in modern interior spaces. There, in modern interior spaces, sensory experience is utterly manipulated and stimuli registered by our senses are completely guided. However, the garden in which nature cannot be completely controlled retains still today the trait of the intermediate world between human creation and natural environment.

The garden has been a source of inspiration, if not the raw material, for the construction of the most dreamlike (virtual according to a non-believer) reality: paradise. It is no coincidence that in many cultures the greatest form of utopia, the place of eternal happiness, is a garden, the paradise.

Paradise, has the meaning of a garden in which God place Adam and Eve and from which they were expelled after the Original Sin; Syn. garden of Eden [...]; an imaginary heavenly place in which according to Christian tradition the souls of the righteous settle after death; place of postmortem bliss according to the dogma of various monotheistic religions (e.g. Christianity, Islam, Judaism), according to the beliefs of those peoples who believed in the immortality of the soul. Probably of Persian origin had initially the meaning of "a grand enclosure or preserve, hunting-ground, park, shady and well-watered, in which wild animals were kept for the hunt."

Carpet from Baluchistan, Iran, depicting a scene from a poem by O. Khayyam

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Illusionary gardens were very popular during Renaissance as visualization of mythology, which offered an alternative model of viewing the world compared to Christianity's solemnity.

The garden is a medium, which transfers us elsewhere, outside the constraints of nature and the strict organization and predetermined sequence of events interwoven with the building (architecture also constructs worlds that did not exist before and tries to lure people in them – one could argue that it constructs myths with stones and mud, but the worlds it manufactures are more solid).

Garden-Labyrinth

Contrary to utopia as fictional model the garden, according to Michel Foucault, belongs to the category of spaces, which he called *heterotopias* and in fact in those that offer the possibility of coexistence of various 'other places', creating thus a miniature of the universe.

Foucault studied particularly the Persian garden: « Il ne faut oublier que le jardin, étonnante création maintenant millénaire, avait en Orient des significations très profondes et comme superposées....»

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Persian carpet from city of Qom

«Le jardin traditionnel des persans était un espace sacré qui devait réunir à l'intérieur de son rectangle quatre parties représentant les quatre parties du monde, avec un espace plus sacré encore que les autres qui était comme l'ombilic, le nombril du monde en son milieu, (c'est là qu'étaient la vasque et le jet d'eau); et toute la végétation du jardin devait se répartir dans cet espace, dans cette sorte de microcosme. Le jardin, c'est la plus petite parcelle du monde et puis c'est la totalité du monde.....»[25]

In fairy tales also this paradise has a boundary, since as long as we are in the magic carpet we are "safe".

Foucault stress that the Persian carpet was a sort of garden that can move across space with the flowers and animals depicted in it. This interior garden as 'flying carpet' was transformed into an escape vehicle to other lands and worlds: another interweaving of the fairy tale with the garden.

[25] *M. Foucault, "Des espaces autres (1967); Hétérotopies" (1984).*

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2. The awareness of non-real – security in myth

My daughter drinks water from an empty glass and my son mentioned to strangers the "secret" about the lion living in our balcony...

Children live the game, but they know that it is a game. They are aware that they live a virtual reality, they are playing war having snacks nearby.

Elizabeth B. Hurlock used in 1942 for illusion games a term borrowed from children playing "as if", stressing that children distinguish game from reality.[26] And Oliver Grau, referring to a 1988 study by Fisher and Watson, mentions that even six-year-old children are able to differentiate between reality and game. [27]

Theatrical game, "as if", after third year complex fantasy games are played (from the film Child Development McGraw-Hill. Source: Dr Elizabeta B Herlok, Razvoj deteta, Zavod za izdavanje udžbenika Socijalističke Republike Srbije, 1956, 337). Children live the game, but they know that it is a game. They are aware that they live a virtual reality; they are playing war having snacks nearby.

That's because even when we are immersed in virtual reality, we are confident that we can escape it with the press of a button.[28] A game, in which we would be forced to participate, would soon cease to be a game and would become the constraint from which we would like to break free.[29]

[26] See below.

[27] Grau, Oliver, *ibid*, 17

[28] Vasiliki Tsavou in her book *Ατίθασο αλαζονικό τακούνι* (*Renegade arrogant heel*) in her narrative about a personal erotic experience with an Internet "friend" describes her shock when he ejaculated in her video screen, so she immediately shut down her computer.

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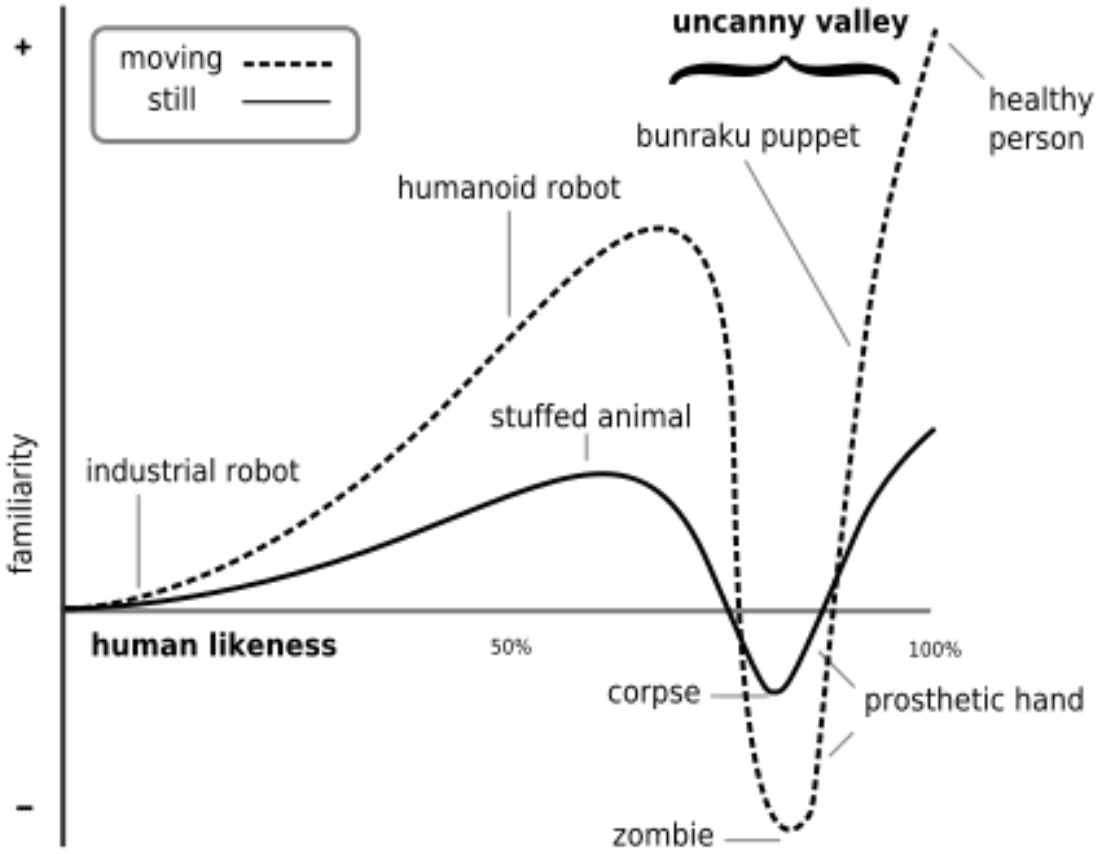
This very awareness that it is a fake world allows relaxation which is immersion's basic requirement The concept of "uncanny valley" is relevant: In robotics, as well as in animation movies, as long as the appearance of a human-like figure looks increasingly like a human, the responses of human observers are increasingly positive. Then, a point is reached, when the appearance of the robot or the human-like figure is almost human, but not entirely human –eyes having strange colors, a movement that is not that natural; the positive response turns to strong revulsion. When this point is overcome, and the robot or human-like figure becomes undistinguishable from a human, then the positive responses return, and eventually peak.[30]



The original graph by Mori (up), and a contemporary visualization (down).

[29] Roger Caillois, *Les Jeux et les hommes folio* 1979 [1967], 53.

[30] The concept of the "uncanny valley" was originally developed by Masahiro Mori, see Mori, M., "The uncanny valley", *IEEE Robotics & Automation Magazine,* 19(2), 1970, 98–100.

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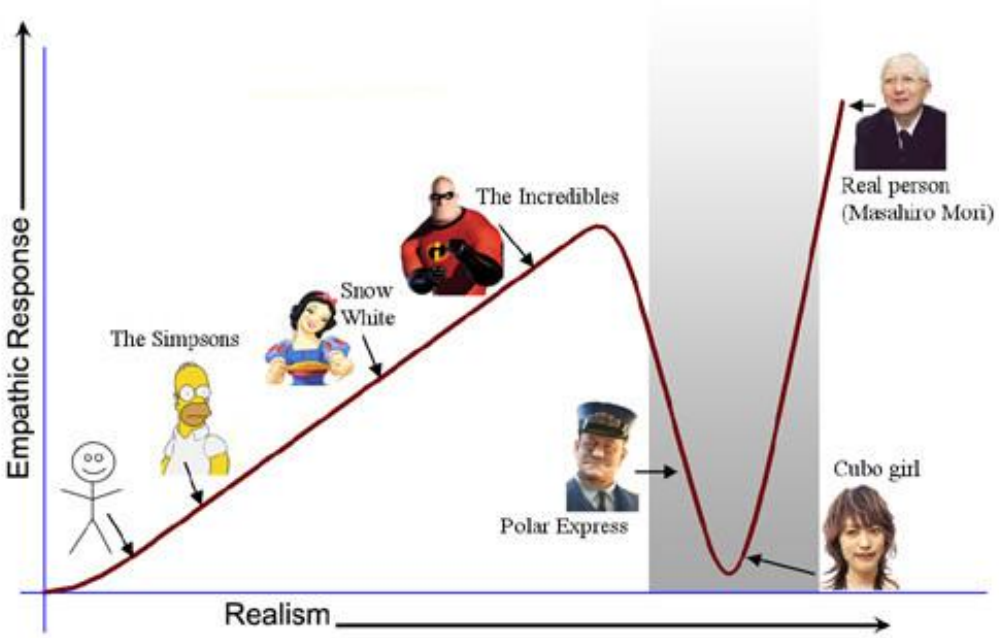

3. Aesthetical enjoyment

We experience illusion spaces by submitting playfully and consciously to appearance (i.e. to what we see), that is the aesthetic enjoyment of illusion.[31]

Who can resist quality aesthetics of any taste? If we stand in front of a beautiful palace we are it attract us to enter. We all want to rest in a magnificent hillside. Correspondingly we discern and are attracted to these qualities in all spaces – real and virtual. These are the experiences that we want to experience again and again, we revisit the spaces, we watch again the same movie.

The Parthenon. Images Sokratis Mavromatis

[31] Grau, Oliver, *Virtual Art: From Illusion to Immersion*, Cambridge, Mass. & London: MIT Press (Leonardo Books), 2003, 17.

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Marylin Monroe. Beauty ideals change over time. Image Gene Kornman

4. Concealing and unveiling

Virtual reality in order to attract and maintain undiminished the visitor's interest stimulates his curiosity by revealing certain features and hiding others. And here the magic of multiplicity is keeping the interest of the observer in the way like the "Ole Worm's "museum' of curious items is representing:

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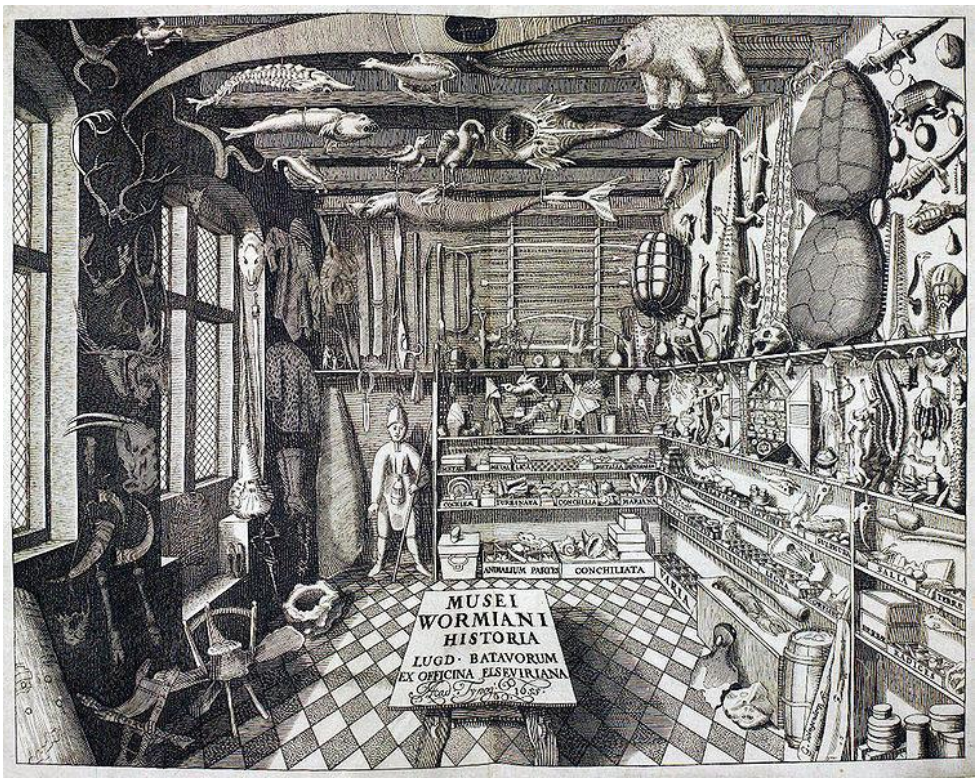

Ole Worm's "museum' of curious items

Jan Verhas - À cache-cache 19th century

The hide and seek[32] game has been popular in many cultures and in many time periods, and still is, probably because it offerss great fun and excitement -the surprise of hiding and discovering- which never allows for monotony.

[32] Hide-and-seek or hide-and-go-seek is a children's game in which a number of players conceal themselves in the environment, to be found by one or more seekers. The game is played by one player chosen at random (designated as

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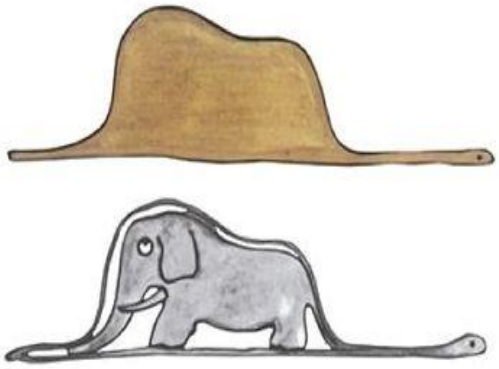

Drawing from Le petit prince, Antoine de Saint-Exupéry.

In his drawings for *Le petit prince*, Antoine de Saint-Exupéry explored the mystery inherent in forms, building on the suspicion which arises of what could be concealed beneath appearence; art knows only very well how to play with multiple and hidden meanings. John Berger points out: "Seeing comes before words. The child looks and recognizes before it can speak.... But there is also another sense in which seeing comes before words. It is seeing which establishes our place in the surrounding world; we explain that world with words, but words can never undo the fact that we are surrounded by it. The relation between what we see and what we know is never settled." [33]

Prominent surrealist Rene Magritte commented on the gap always present between words and images in his painting *The key of dreams.*

being "it") counting to a predetermined number while the other players hide. After reaching the number, the player who is "it" attempts to locate all concealed players. The game is an example of an oral tradition, as it is commonly passed down by children to younger children. The game can end in one of several ways depending on the geographical location in which the players learned about the game originally, and other cultural factors as well. In the most common variation of the game, the player chosen as "it" locates all players, the player found last is the winner and is chosen to be it in the next game. (Wikipedia, the free encyclopedia, accessed May 9, 2014).

[33] Berger, John, *Ways of seeing*, 9.

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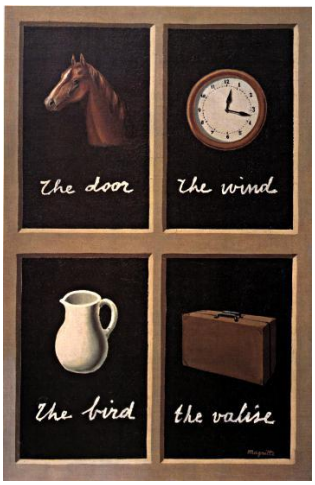

Rene Magritte, The key of dreams, and Ceci n'est pas une pipe

Artists have regularly created images full of mystery, like photographs shot in other worlds. Magritte's paintings destabilize certainties, constantly raising questions; each and every one of them is a conundrum allowing for multiple readings and interpretations. His way of depicting reality is hihgly poetic, aiming at creating mystery. Poetry is by nature cryptic. It's meanings, which are never explicit, arise from the juxtaposition of words normally not found next to each other. Magritte constantly plays with the visible and the invisible. In his *Golconda* painting we see a cityscape which seems to be somewhere in his homeland Belgium. Everything looks normal. The light on the building fronts, the sky, are conventionally depicted, quite in constrant with many others of his paintings. Typically of Belgium, it rains. It is a rain, though, of people in black suits and huts, a typical banker's garment, the painter himself used to wear.

These men swing with lightness, but they still do not seem to move at all. The absolute conventionality of their appearence, and the similarity between them, undermines our perception of reality. The painter depicts an unreal situation with convincing realistic means, which cannot simply be classified as false representation of reality. The viewer keeps on exploring the painting searching for an interpretation, which varies from the one of his/her fellow viewer. Mystery, surprise and uncertainty are the basic features of virtual reality Magritte constructs –the very fetaures that make this reality interesting.

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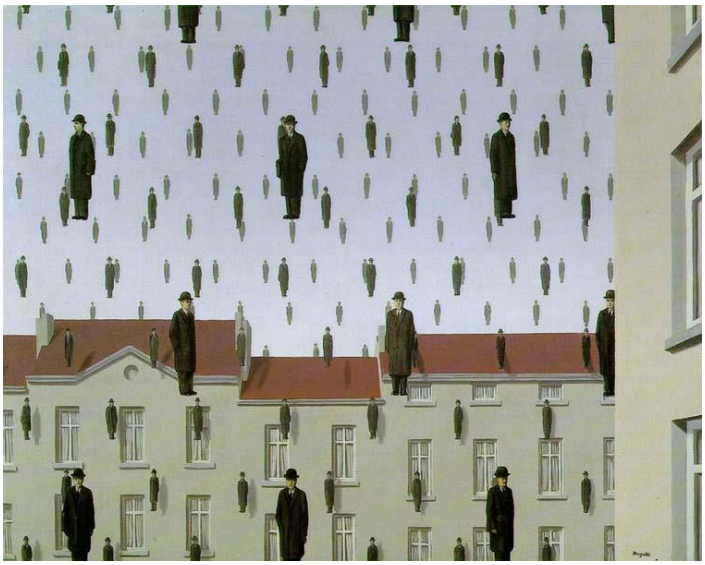

Rene Magritte, Golconda

5. Possibility of projecting the desired

"All human beings have three lives: public, private, and secret", Gabriel García Márquez [34]

The option of multiple interpretations of an object, according to Derrida's definition, but also the creation of spaces and objects without signaling concepts and symbols beforehand facilitate the possibility of projecting the desired. Sentimental and financial investment is smaller and controlled. According to psychiatrists when projecting an interpretation on something we can easier remove or reverse it because it is our own creation. Also incomplete forms/figures leave us room to interpret the object in our own way.

Claes Oldenburg, Cash Register, 1961

[34] In an interview with Gerald Martin, in *Gabriel García Márquez A life.*

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Interactive video installation created by the author in the Atelier-laboratoire: Scénographie par l'image numérique for Caroline Marcadés show, Champs de guerre, chants d'amour, d'après roméo et juliette de Shakespeare, acte iii, scène 5, Le Conservatoire national supérieur d'art dramatique, January - April 2014: The code was built in a way that allowed for every form drafted with the mouse to constantly change without ever returning to the starting point. Here shown is a Voronoi pattern of lines drafted between points; both lines and points move in relation to the actors' – dancers' movements on the scene. (Image Nora Demjaha)

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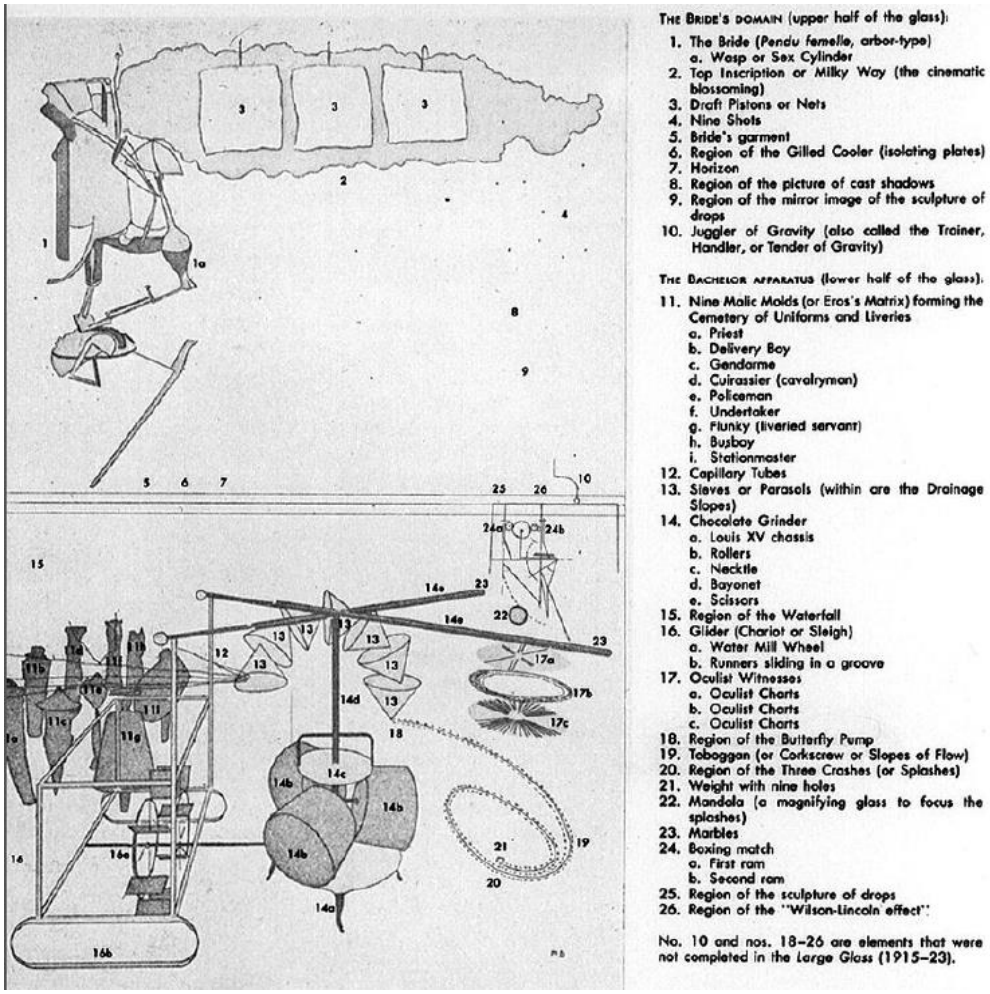

Virginia Swain, Grotesque Figures, and the Aesthetics of Modernity (Baltimore, 2004) Nicolas Bourriaud, Postproduction (New York, 2002) Diagram of components of Duchamp's Large Glass, from Marcel Duchamp, ed. Anne d'Harnoncourt and Kynaston McShine, ex. cat., Philadelphia Museum of Art and the Museum of Modern Art (New York, 1973)

Marcel Duchamp's *The Large Glass* attempts to visualize the forces governing sexual drive— ego and desire. To depict them, Duchamp created a world of enigmatic but suggestive symbolic objects. *The Large Glass* is a kind of diagram connecting objects standing for abstract forces; it is a work of art open in time, since it was never finished, and open to projections of the desired.[35]

Incomplete, enigmatic scenography should allow for immersion (Bertolt Brecht could object the idea of immersion altogether) but not undermine the power of the dialogues and not impose a certain interpretation thereof.

[35] Duchamp worked on *The Bride Stripped Bare by Her Bachelors*, also known as *The Large Glass* for eight years until 1923, when he abandoned it in what he called a "definitively unfinished" state. Years later, a network of cracks was accidentally added when it was shattered while being moved. http://www. understandingduchamp.com/text.

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We could argue that in architecture spaces created without architects fall into this category – such as Romani people's space that is separated anew with sheets each time. The question is whether projects with interactive or mobile architecture capabilities facilitate projection ending up being more acceptable aesthetically.

6. Embodiment and navigation through 3d avatar

Random House Webster's College Dictionary: **AV * A* TAR** Incarnation of the Hindu god; an embodiment or personification, as of principle, life [1775-85 Skt*avatara* a passing down].

The avatar is in some sense an entity outside ourselves, onto which we could enforce variouls roles, to intergrate ourselver into it, and at the same time to distance ourselves from it, as much as we need. This entity wears many masks and we acquaint it in many places and in many forms.

As L. Blinka points out, "some authors (e.g. Allison et al., 2006 and Turkle, 1995) compare the player and avatar's relationship to a transmission field, as roughly defined by psychoanalysis: the avatar is not in exclusive competence of the player, while not being completely separated from them. It lies somewhere near the boarder of external and internal (psychological) reality. From the player's viewpoint, the avatar is a kind of individual overlap owing to which they may experiment with their identities. Wolfendale (2006) then describes directly the player and avatar's relationship as an attachment, i.e. as if with an absent or idealised or unreal person, while the feelings created around this relationship are real."[36]

The avatar visualizes better our presence in virtual space. For example when we sit on bench in virtual space we feel it better when we can see our avatar sitting.

We can shape our avatar as we want. We define both its appearance and behavior and especially with programming's option of attributing natural traits.

[36] Blinka, L. "The Relationship of Players to Their Avatars in MMORPGs: Differences between Adolescents, Emerging Adults and Adults". *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 2(1), 2008. http://cyberpsychology.eu/view.php?cisloclanku=2008060901&article=(search in Issues)

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We live the experience through an avatar and simultaneously keep our distance from virtual space. The avatar is feeling cold, attacked violently, exposed, and not “us” something resembling Dr. Jeckyll and Mr Hyde. It allows the visualization and materialization of various selves and especially in a space not threatened by the “medical gaze” which controls society according to M. Foucault.

Case Study: Contemporary and older avatars

Apart from voices accompanying us on trains and the car (GPS now give us direction in male or female voice, in whichever one chooses), we receive automated calls with prerecorded voices engaging us in dialogue, giving answers depending on what their living, real “interlocutor” would say (the other day I raised my voice to an interlocutor monitor thinking that she was real. We live many years among them without realizing it).

Gordana Bonetti, Radio Zagreb’s anchor, who was given many awards for her linguistic ability and the special color of her voice, answered the phone number “95” for another twenty years (1972-1992) after her death giving the correct time. This was a reason for many people not to wear a watch. This time thread, which was given substance with the direct contact with the familiar voice, created a complex atmosphere. At any given time of the day it could prove that it is there: *in the next beep the time will be*… The tendency to keep our loved ones alive exists since antiquity, dates back at least to the Egyptians who mummified the most important members of the society after their death. This tendency exists even today and is supported by modern technology, and it seems that even our disposition to keep some people “alive” pushes technology even further ahead. We argue that this is the case with Gordana Bonetti in 1972 but also for new examples with more advanced shape such as the Galaxy Chocolate advertisement starring digitally reconstructed Audrey

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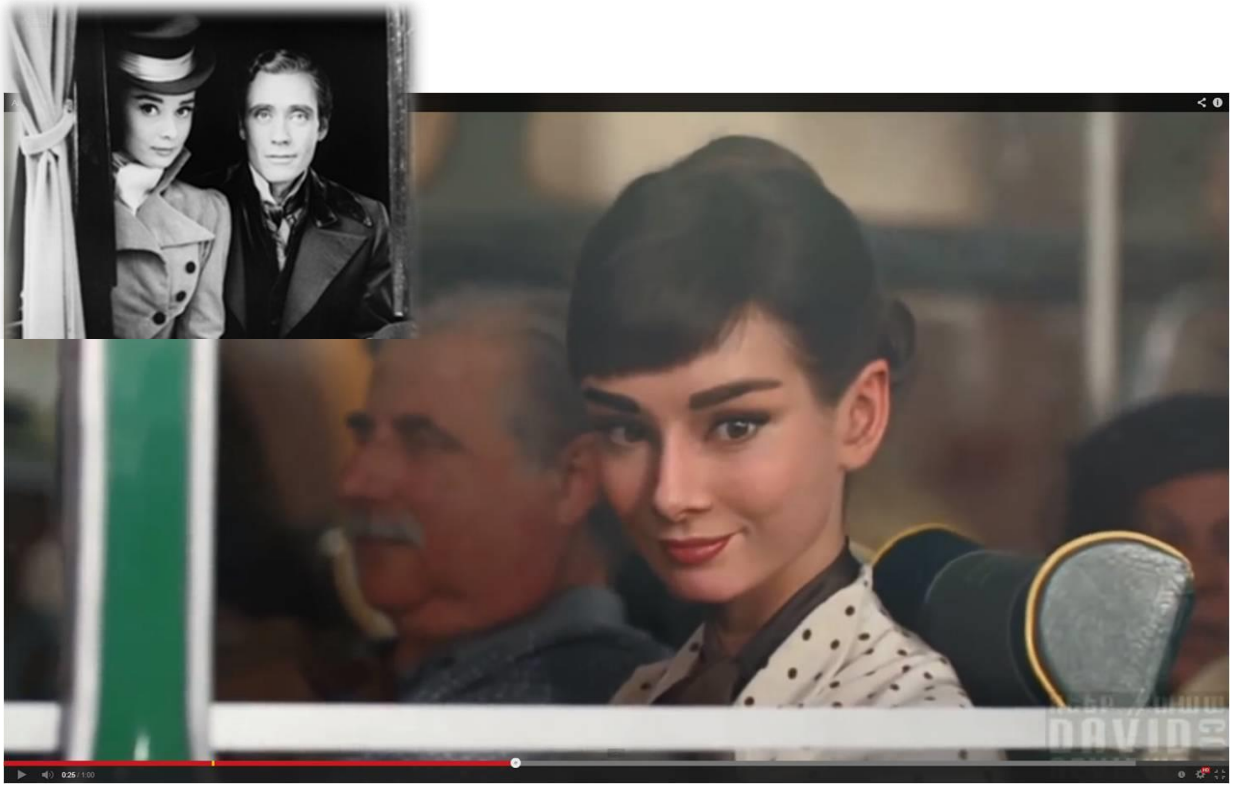
Hepburn.[37] This advertisement was created in 2013, twenty years after Hepburn's death, who is now available to play on many new movies.



Audrey Hepburn and Mel Ferrer on the set of War and Peace 1952 (top), and in the Galaxy Chocolate commercial, 2013 (below)

J. J. Winkelman invited, in 1755, his contemporaries to imitate ancient Greek statues and their surrounding nature in order to be even closer to perfection by improving an already highly sophisticated model (which in turn was modeled after much prettier than its contemporaries objects – bodies, landscapes, light etc.). He notes that "it is not only Nature which the votaries of the Greeks find in their works, but still more, something superior to nature; ideal beauties, brain-born images, as Proclus says. The most beautiful body of ours would perhaps be as much inferior to the most beautiful Greek one, as Iphicles was to his brother Hercules. The forms of the Greeks, prepared to beauty, by the influence of the mildest and purest sky, became perfectly elegant by their early exercises".[38] So today we attempt constructing avatars to eliminate physical defects and to perfect our model: the depicted person (either an actor or us) can be "cleaned" from the marks of time – in Audrey Hepburn's case death can be cancelled in the picture.

[37] Thanks go to Cedric Plessiet for showing this video in the atelier Creatic.

[38] Winckelmann, Johann Joachim, *Thoughts on the Imitation of Greek Works in Painting and Sculpture*.

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The avatar became even more convincing at “Michael Jackson”’s public “appearance” at the Billboard Music awards, on Sunday, May 18, 2014. It was a computer generated -and reportedly amazingly realistic- hologram that performed onstage.

"We knew we didn't need to go so far left field with his dance moves -- we just kept it within his world," Rich Talauega says, who helped draw up Jackson movement. "Its just the way you reconfigure his steps so it looks different. You're still speaking the same language, it's just a different dialect” he added. [39]

Michael Jackson’s hologram performing at the Billboard Music Awards 2014

[39] Galo, Phil, Michael Jackson Hologram Rocks Billboard Music Awards: Watch & Go Behind the Scenes, Billboard, http://www.billboard.com/articles/events/bbma-2014/6092040/michael-jackson-hologram-billboard-music-awards

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A Doll

There is a type of avatar whose roots go well back in history: the dolls.

Nora:....And you've always be kind to me. But our home has been nothing but a play- room. I've been your doll-wife here, just as at home I was Papa's doll-child. And the children have been my dolls in their turn. I liked it when you came and played with me, just as they liked it when I came and played with them. That's what our marriage has been, Torvald....[40]

What is a Doll?

Random House Webster's College Dictionary: 1. a small figure representing a baby or other human being, used esp. as a child's toy… Webster's New World Dictionary describes a doll as - "a child's toy, puppet, marionette, etc. made to resemble a human being."

Musée de la Poupée-Paris. (Image Nora Demjaha).

[40] Ibsen, Hendrik, "A Doll's House". In: *A Doll's House and other plays,* (transl. Peter Watts), London: Penguin classics, 1965, 226.

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The oldest doll was found in Egypt, but possibly this toy was invented earlier. It seems that children played with dolls for thousands of years, whether the doll was a simple tree twig with branches resembling legs or hands, or an anthropomorphic clay figurine, or a piece of cloth tied properly.

"Bell-shaped" terracotta idol from Boeotia ca. 700 BCE in the Louvre Museum. Its neck is elongated terminating in a small head. Its features are modelled except the eyes and hair, which are painted. The upper limbs are also modelled. The lower limbs are moveable. At the top of the head there is a suspension hole. Source: Argyriadi, Maria, Dolls in Greek Life and Art from Antiquity to the Present Day, Athens: L. Bartzioti 1991, 19.

Small idols (statues) were perhaps used initially for cult purposes. But it is certain that from some point onwards, if not from the start, they began to be used as toys, i.e. to be dolls.

According to experts at the latest since these figurines became joined, i.e. when they could depict movement ca. 600 – 500 BCE. Maybe then the puppet shows began; Aristotle mentions that the dolls were manipulated by a string.[41]

Dolls are "soulless avatars" that are given a soul through our imagination: we give them the role we want, we make them the protagonists in the stories created by our minds. This is why a visit to Musée de la Poupée in Paris is convincing. Its exhibits are of exceptional beauty offering a nostalgic return to an old world that of the 19th century. The incredibly detailed dolls are exhibited with their personal effects. In the pictures I have focused on their facial expressions, which demonstrate the great effort to create liveliness – a liveliness resulting from their shape which helps us imagining them as real.

[41] Argyriadi, Maria, *Dolls in Greek Life and Art from Antiquity to the Present Day,* Athens: L. Bartzioti 1991, 48.

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The psychologist John Markey observed already in 1928 that children under three years old showed excessive interest for personification and communication with their doll or other inanimate objects and also with imaginary friends.[42] It is estimated that until about the age of 7 37% of the children take one step further the imaginary game and create an imaginary friend.[43]

Dolls, Musée de la Poupée-Paris. (Images Nora Demjaha).

[42] Markey, John, *The Symbolic Process and Its Integration in Children: A Study in Social Psychology*, New York: Harcourt Brace and Company 1928.

[43] Article by psychologist Niki Nikolaou in http://www.vita.gr/blogs/psixologia/article/31208/fantastikoi-filoi/ accessed on February 3, 2014.

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We can also distinguish in their faces a sort of mobility ascribed by expressions. If we place these dolls around a table and add objects for them to “play”, then a “relationship” between them will be created, a “motion” will be created, a story despite their immobility.

Dolls, Musée de la Poupée-Paris. (Images Nora Demjaha).

The objective to make the dolls seem “real” goes back many centuries: as we have seen, dolls with jointed limbs are constructed already by 600 or 500 BCE. The aim was to make them easier vehicles of our projections, accepting the character that we want to attribute to them.

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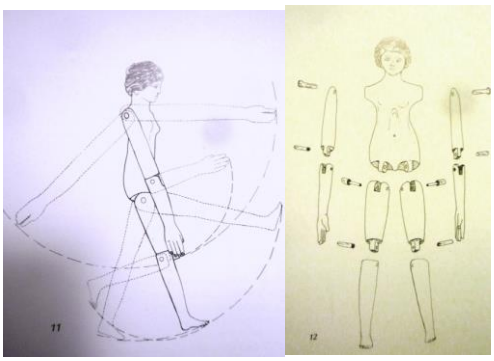

A standing type of doll dated ca. 450-440 BCE, produced in Boeotia, Cyrene and Sicily and also recovered in a child's grave in Delos and in Kerameikos in Athens.

Ivory doll from the Grottarossa Mummy sarcophagus, Palazzo Massimo, Rome

Drawings by Count Franz Pocci for his poems about shadow figures, "The Fat Gentelman" and "The Serenade"

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We can deduce from the worldwide spread of the shadow theatre and the marionette theatre that motion is one of the most important tools used in order to maintain interest – perhaps more important than shape.

The shadow theatre was developed in Han China (206 BCE – 220 CE), India and Arabia before spreading in the entire world. In the Shadow Theatre figure imperfection functions positively, allowing the imagination of each viewer to complete the missing image, under, however, a figurative shadow. Referring to the shadow theatre's reception in ancient China, René Simmen writes: "coming back to the [emperor's] Wu-Ti legend, the story corresponds in every way to what the shadow show meant at its religious origins: an evocation of the dead. The shadows were originally spirits recalled by evocators, or remembrances of the dead. These spirits were represented by figures artistically cut out from paper or leather and seen in profile on the screen. For this reason, the screen, the stretched cloth those who make it move, is called in China "Screen of death". In Java it is called "Fog and Clouds"; in Turkey "Curtain of the Departing" (of the hour of Death), in Arabia "Screen of Dreams, Veil of the Omnipotent Secret". With the shadow show, we find ourselves in the area where shadows, dreams, and death meet. In many countries the shadow is equated with death, and kind of show is, as no other, a secret spell, magic".[44]

Puppets are attested in Greco-Roman antiquity. Imagination works differently in marionette theatre that in shadow theatre. The marionette has to be movable. Its movements reproduce, in a simple form, those of living being. It is this for reason that the marionette is build much like the skeleton of the living creature being represented. René Simmen refers to Hans Jelmoli: "the Marionette, this enigmatic creature of the theater, receives from the music its genuine soul. Its movements... taken by themselves, are stereotyped and jerky... The musical rhythm corrects the primitive qualities of the puppet and transforms it into an expressive interpreter of every human sentiment".[45]

Kasper, typical figure of German puppet theatre

[44] Simmen René, *The world of puppets,* New York: Thomas Crowell Co., 1975, 80.
[45] Simmen René, *The world of puppets*, New York: Thomas Crowell Co., 1975, 54.

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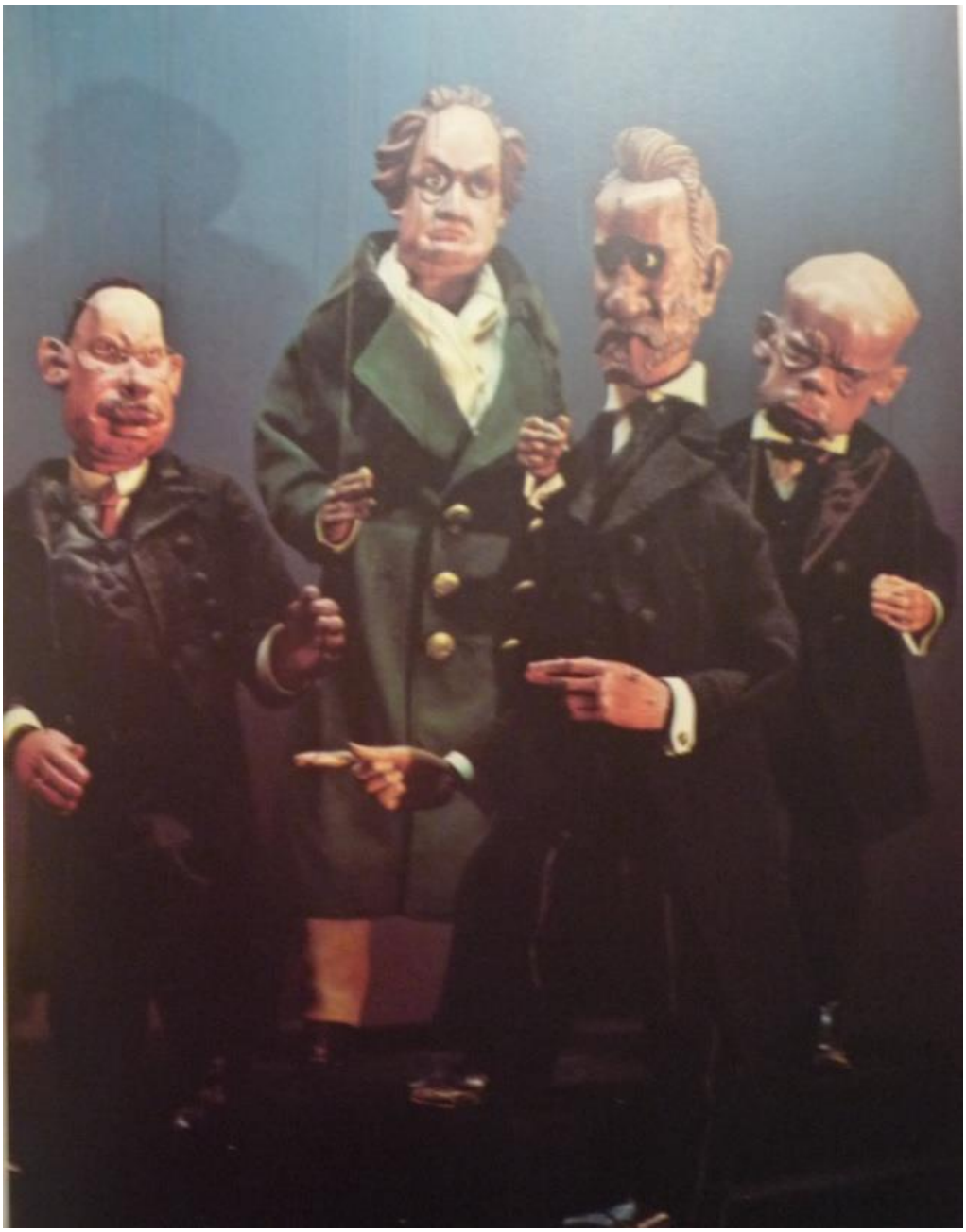

Marionettes used for the grotesque play "Goethe at the Examination" by Alfred Polgar and EgonFriedell, presented for the first time in 1925. They were planned by Olaf Gulbransson for the Marionette and Artists Theater of Munich, whose director, Paul Brann, through collaboration with writers theatrical people, painters architects, and musicians tried to bring the idea of an artistic marionette theatre.[46] *It is obvious here the objective and perhaps the need of immersion to clearly fake entities in which was attempted with great effort to attribute real – something that would be simpler with live actors*

[46] The information for the marionettes seen in the pictures are from Simmen René, *The world of puppets.* New York: Thomas Crowell Co. 1975, 53, 55.

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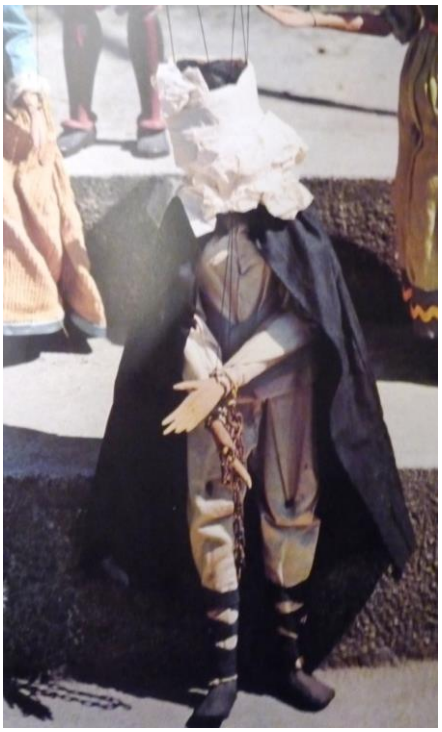

Scene from "Livietta and Tracallo," comic opera by Giovanni Battista Pergolesi, presented by Ernest George in Ruegg in 1925 at the Swiss Marionette Theatre

It seems that the attempt of autonomous mobility and activity was the goal in the production of the mechanical doll – in Greek-Roman antiquity Heron of Alexandria invented the famous “automata”, although these addressed adult audience since it were used in theatres. In modern age movement was initially achieved with gear mechanisms that could be wind up: many dolls are triggered when a box was opened in which it were places and started to dance or play the piano.

The doll in the picture below is an 1880-90 wax figure of the Infant Jesus. Thanks to an unseen mechanic it plays music, nods its head and opens and closes its eyes, to the delight and wonderment of the beholder. It was given as a gift by the Pope to the Armenian Archbishop of Greece, Ovanes Chazdian, and it was used every year in decoration the Christmas Crib of the Armenian Catholic church of Saint Gregory.[47]

[47] Argyriadi, Maria, *Dolls in Greek Life and Art from Antiquity to the Present Day,* Athens: L. Bartzioti 1991, 25, 61.

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Wax figurine, 1880 -90

With the invention of electricity began the manufacture of dolls with batteries walking and bowing. Now dolls speak and reply to the children's voices, immersing those who play with them even further in their fantasy world.

Toy story – the first feature-length computer-animated film – states with clarity the desire of the children. Dolls come to life whenever the child is not present, have feelings and fears and insecurities.[48] Toy Story follows a group of anthropomorphic toys who pretend to be lifeless whenever humans are present, and focuses on the relationship between Woody, a pullstring cowboy doll, and Buzz Lightyear, an astronaut action figure.[49]

Toy Story

[48] *Toy Story* is a 1995 American computer-animated buddy-comedy adventure film produced by Pixar Animation Studios and directed by John Lasseter, released by Walt Disney Pictures. Among its production managers was Steve Jobs. *Toy Story* was the first film produced by Pixar.

[49] http://en.wikipedia.org/wiki/ToyStory accessed in

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A.I. Artificial Intelligence

However, detailed depiction of characteristics and movement are not completely necessary elements in order for a doll to welcome its attributed role. Although exist marionettes and modern moving and talking dolls and films with characters giving the impression of being real, simple dolls are continued to be made and films with figures that are schematic rather than realistic. Steven Spielberg's A.I. tells the story of David, a childlike android uniquely programmed with the ability to love.[50] The extraterrestrial figure's behavior is the one that makes it dear and, mainly, believable, and not its shape, which is completely formatted.

Our need to live the experience and immerse into a virtual world is so great that we recognize as such even the world described with the simpler means. In the Charlie and Lola TV series broadcasted on BBC nowadays the drawings are rudimentary and the animation technique very simple.

[50] *Artificial Intelligence* was an American science fiction drama film written, directed, and produced by Steven Spielberg, and based on Brian Aldiss's short story "Super-Toys Last All Summer Long". Set sometime in the future, http://en.wikipedia.org/wiki/A.I.ArtificialIntelligence

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Scene from Charly and Lola TV series

A scene from the Child Development film by McGraw-Hill (1958), in which Dr. Elizabeth Hurlock refers to, where to chalk drawing comes to life and criticizes the naughty pupil is interesting.

The chalk drawing comes to life and criticizes the naughty pupil (from the film Child Development McGraw-Hill 1958) http://www.youtube.com/watch?v=pXKPwYNBL0E

The chalk drawing is the avatar of the pupil's conscience. What animates it is mainly the voice, while movement is rudimentary. Three decades after the first animated films and four decades after

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Sergei Eisenstein's pioneering montage the virtual reality of animation engages with the reality of the actual person-actor, giving images recorded on film.

7. Multiplicity and condensation

Complexity is a prerequisite to maintain the viewer's or the reader's interest: the moment that he believes that he knows the object/topic, unravel other unknown levels. Each object is not an object but a compilation of things. We meet this multiplicity more or less in other features: time, movement, scale, and especially when an object or a situation is signified with more than one concept, i.e. when it is not exhausted with a single given meaning.

This complexity could be compared with pictures from Prada's Christmas window shops in Paris. Containing motion and many components and themes it travels you in time. Placing the "scene" in an important street of Paris (as seen from the reflected buildings) is conceptually loaded. Like a theatrical performance without narration and despite this it begins stories, something proved by the visitors' length of stay in front of it, young and old.

Prada shopping window, Paris, Galleries Lafayette, Christmas 2013. (Image Nora Demjaha)

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Prada shopping window, Paris, Galleries Lafayette, Christmas 2013. (Image Nora Demjaha)

Multiplicity and condensation could be considered to resemble a never-ending story. It's like being in the middle of a favorite book and discovering that you can never reach the end, that you keep on reading in the circle with no numbers on the pages; and, nevertheless, never reading the same text again. Nothing is static.

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Musée de la Poupée-Paris. (Images Nora Demjaha)

Virtual reality cannot obviously provide the smell of coffee, but it seems to know well the power of detail…

8. Escape to a dream (clown syndrome)

It seems that the more difficult reality is, the greater the need to escape it. An entire field of literature and cinema is built upon this need. Businesses servicing entertainment contribute actively to economy. We observe in the virtual world of video games and especially in “Second Life” that in an already “fun” environment another entertainment was created. Communication and fun develop easier by organizing partied, exhibitions, weddings in “public space” as seen bellow in the screen shots from Sim City, where the game is completed when the inhabitants of the city become happy.

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"Second Life": we observe that communication and fun develop easier by organizing parties, exhibitions, weddings in "public space" as seen bellow in the screen shots from Sim City. Personal experiment for the course of Dr. Nefeli Dimitriadi.

And on the other hand, we often attempt to see reality as virtual reality. Why we do so? Emir Kusturica once said about his film *Underground*: we cannot stand reality itself, so we have to see it as comedy.[51] Under these circumstances virtual reality seems to us more normal than reality.

During wartime in Sarajevo (1992-1995) its residents did everything in order to show that they were living normally. Lessons were still offered in shelters and theatrical plays were performed in basements. The famous first Sarajevo Film Festival took place in the besieged city in the summer of 1995.[52]

[51] Author's personal note

[52] http://www.sonar.ba/content.php?id=1&lang=ba accessed April 4, 2014

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9. Movement

The movement does not only serve the representation of reality, but also visualizes memories of things already bygone. With just a few means highly complex environments are created.

When we are among the crowd and we want to attract attention, we wave our hand. In danger we attempt to attract attention by moving vigorously and by using our voice.

On the one hand in some cases we integrate movement mechanisms in objects that are motionless – we «animate» them. On the other hand we freeze movement of moving objects in order to make it more visible. In both cases movement is representent in an efficient way –probably the reason why it is used extensively in advertisement.

Movement in space is regularly designed with the same diligence as intervals or pauses, as is the case with Pina Bausch's choreography in the attached image. The same applies for music: moments of intensity are as important as moments of pause.

Movement must be conceived not literally –passing of time, evolution, change are kinds of movement, too. Movement in such form gives reality its complexity that we instinctly identify with life.

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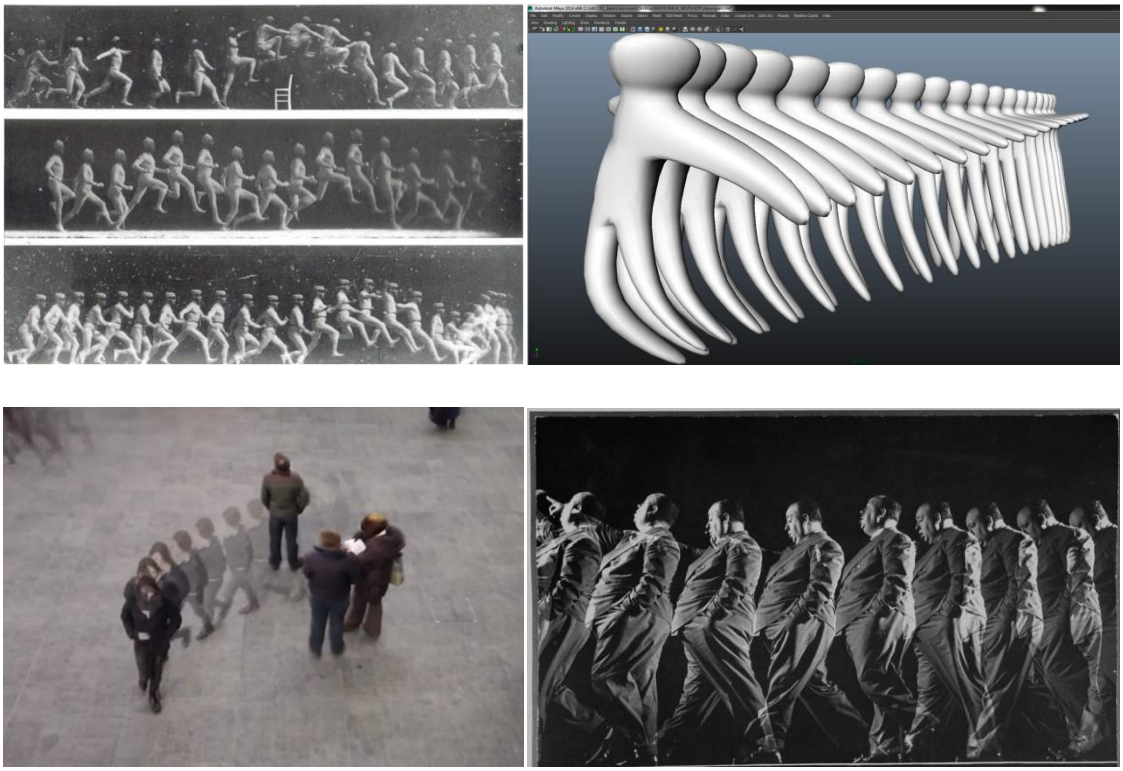
Philippe Halsman 1941



Clockwise from top: Salvador Dali shot by Philippe Halsman 1941; Peronal experimentation with Maya programme; Alfred Hitckock photographed by Gjon Mili, Life archive; Étienne-Jules Marey, Chronophotography, 1880.

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Marcel Duchamp, Nude Descending a Staircase, No. 2, 1912 (l.); Pina Bausch, Blaubart (Bluebeard), 1977 (r.)

10. Scale

In fairy tales size changing ability is very often: Herman Hesse's prisoner has painted on the wall of his cell a landscape: «I made myself small and stepped into my picture, got aboard the little train", and rode in the little train into the black tunnel.»

Alice changes size constantly:....'What a curious feeling!' said Alice; 'I must be shutting up like a telescope.' And so it was indeed: she was now only ten inches high, and her face brightened up at the thought that she was now the right size for going through the little door into that lovely garden..... ' She got up and went to the table to measure herself by it, and found that, as nearly as she could guess, she was now about two feet high,..... However, she soon made out that she was in the pool of tears which she had wept when she was nine feet high. 'I wish I hadn't cried so much!' said Alice, as she swam about, trying to find her way out..... 'Hold your tongue!' said the Queen, turning purple. 'I won't!' said Alice. 'Off with her head!' the Queen shouted at the top of her voice. Nobody moved. 'Who cares for you?' said Alice, (she had grown to her full size by this time.) 'You're nothing but a pack of cards!' [53]

Gulliver's travels and many more stories are structured based on scale. Here as well architecture is an important permanent witness of the importance of scale.

[53] Carroll, Lewis *Alice's…* Chapter I, Down the Rabbit-Hole, Chapter II. The Pool of Tears, Chapter XII. Alice's Evidence.

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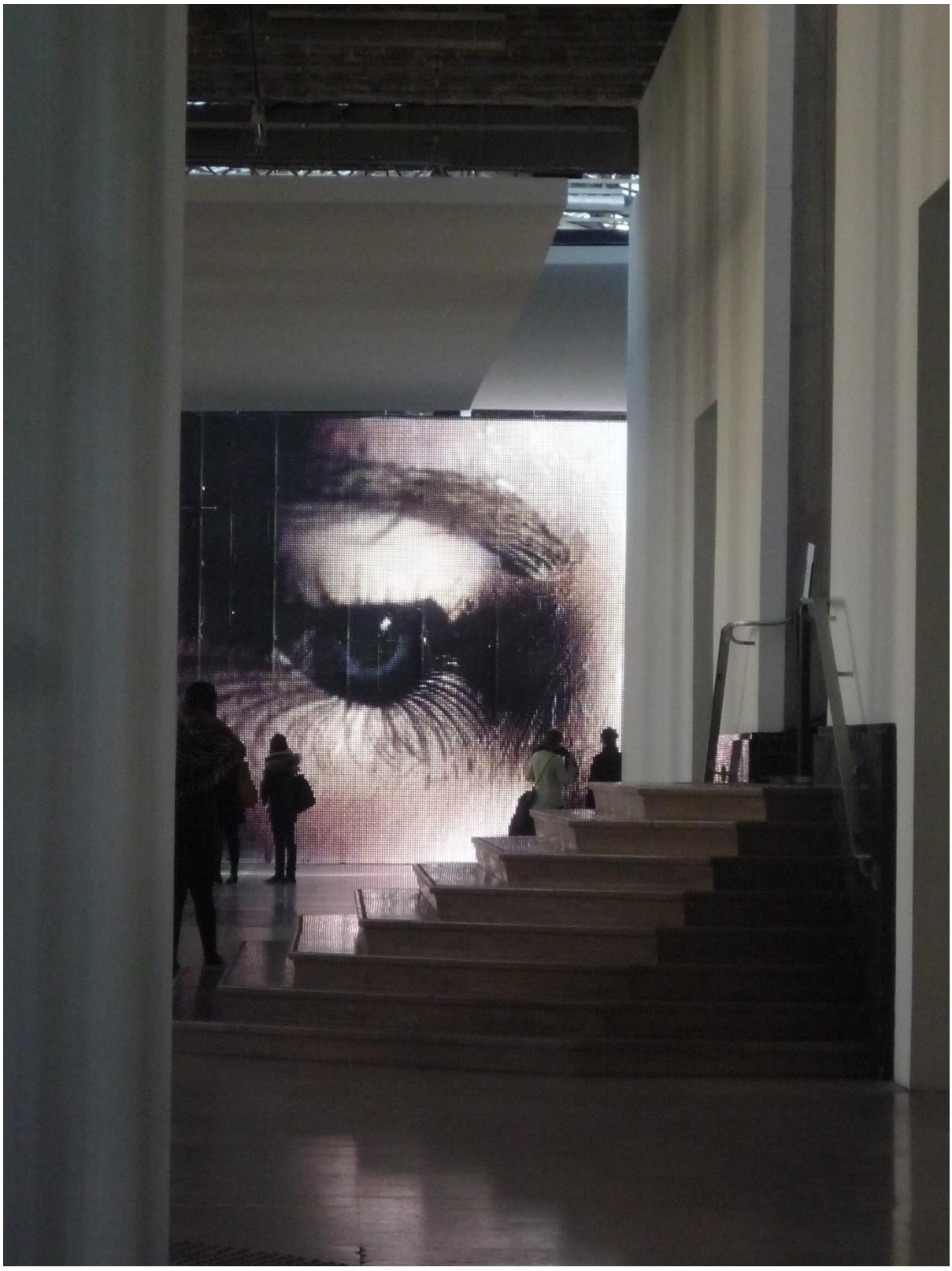

Freezing with the camera Philippe Parreno's video we discern a relationship with the visitors even though the specific project does not technically have an interactive character. Scale generates this sense of awe even though the projection surface is perforated... (when you get close you can see through the wall). Pallais de Tokyo, 20/12/2013. (Image Nora Demjaha)

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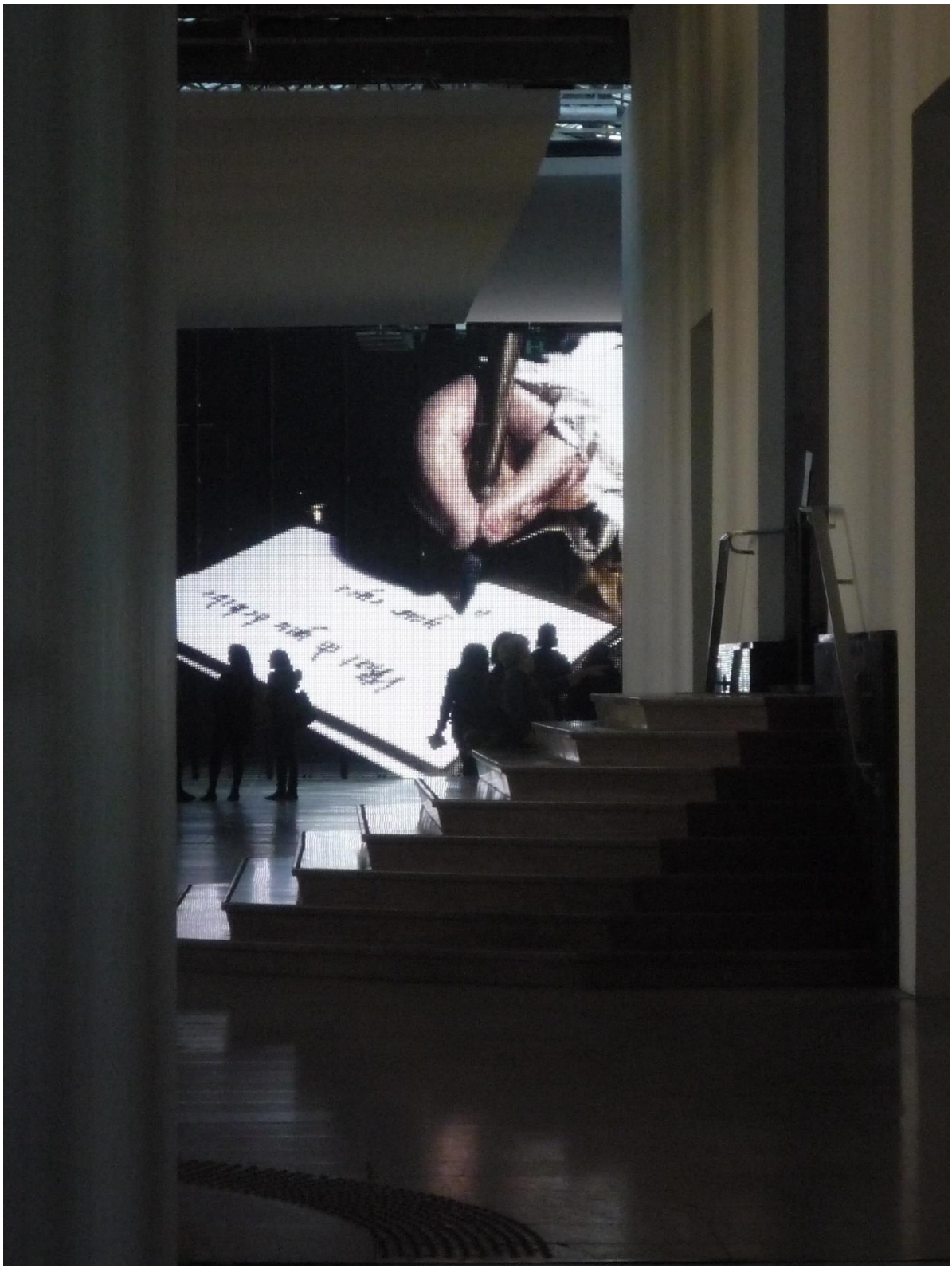

Pallais de Tokyo, 20/12/2013. (Image Nora Demjaha)

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11. **Limits and boundaries**

People queeing at Elephant and Castle Shopping Center ATMs. (Image Nora Demjaha)

How would the world be without limits? To run in the street without meeting borders, to be in a park or labyrinth without knowing its end, to see a never-ending performance or to hear constantly a melody, to not be afraid of the passage of time...

Michel Foucault argues that prisons were created and function as institutions controlling non acceptable behavior. At some point psychiatric hospitals were added to prisons. Mental hospitals do not have high walls as prisons do but the boundary of “inside” and “outside” is very clear, based on the fact that psychiatrists threaten and impose behaviors with “medical gaze”. Therefore, a limit supported by punishment mechanism can be a simple line on the ground both in game and real life.

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Case study: Game

The boundary is the key feature characterizing a game – actually it constructs the game in space and time.

Playing is a good way to understand and adopt boundaries. Child-psychologists argue that children need limits and without those they would be unhappy. Playing is an especially important activity. Through playing children learn things, constitute their view about the world and socialize. We could argue that everything begins from this. During playtime children are allowed to live stimuli "outside" taboos and mainly to defuse his not socially acceptable aggressiveness. In this sense we could argue that game is a mirror of the players reflecting character, manners and morality which under the concept of "play" is more liberated and exposed.

The game is defined firstly by whether it is played indoors or outdoors. The child psychologist, Elizabeth Hurlock, who studied children psychology via game, distinguished games according to the climate and season of the year and the environment where each of these games is played. The difference between indoors and outdoors games is great, since one can identify and find very significant differences in children's behavior in these games. Very often the same game is transferred inside and outside – this occurs mainly with prestigious games and those with long tradition. Gaston Bachelard argues that "Dehors et dedans forment une dialectique d'écartèlement et la géométrie évidente de cette dialectique nous aveugle dès que nous la faisons jouer dans des domaines métaphoriques."[54]

Much more important, however, is the boundary in game rules.

While searching this boundary in game, sports initially come to mind. In these the boundary's importance is obvious. Firstly, the starting and finishing line of track races, which take the most dramatic form in the Marathon: the athletes often collapse immediately after crossing the finishing line; the parallel lines separating the lanes that athletes have to follow within the stadiums; the drawn on the ground limits of the playing field of stadiums etc. These boundaries are very strict, in the sense that their violation carries punishment varying per case. In running sports usually is the athlete's cancellation. In team sports the rules are more complex. In basketball if you place your foot outside the court line the ball goes to the other team. If you shoot inside or outside the line, the field goal counts for 2 or 3 points respectively. In football if a foul is committed in the penalty area, which is noted by a line, it is a penalty kick and the chances to score a goal are greater.

[54] Bachelard, Gaston, *La poétique de l'espace*, Paris: PUF 1957, 237.

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In all these cases the boundary is not implemented by a very strong architectural element, a wall for example. The game boundaries are simple lines on the ground and what make us respect them are the consequences of their violation. The violated boundary's consequences for the professional athlete are different from those for someone who plays as a hobby and obviously the consequences for someone who loses in a board game are in no way compatible to those for a citizen violating social norms.

An interesting game that elegantly but obviously implies the boundary is the so-called hopscotch. This game despite its simplicity (drawn on the floor with chalk) withstands the passage of time and is spread in many civilizations.[55]

[55] There are references placing its origin in ancient Rome. "There are occult stories that hopscotch was invented by the Romans or the Chinese, but the first recorded references to the game in English-speaking world date back to the late 17th century, usually under the name scotch-hop or scotch-hopper(s). Since the game was known and popular in the seventeenth century, it is logical to suppose it may have existed at least a few decades (or perhaps even many centuries) before its earliest literary reference; but no conclusive evidence has yet been presented to support this theory"http://en.wikipedia.org/wiki/Hopscotch, accessed on April 5, 2014.

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Hopscotch and its various variations as it is played in different parts of the world today.
http://www.dodirnime.com/zanimljivosti/skolice-%E2%80%93-igra-koju-i-danas-igra-ceo-svet/

Professor of neurology, Oliver Sacks, describes in his autobiographical book, *Awakenings*,[56] his observation that the patients' movement in the clinic's areas was limited is a surface consisting of white and black tiles arranged alternatively, like a chessboard. At the spot where the black and white floor stopped and a plain floor continued the patients stopped and returned to their familiar squares. Sacks believed that this behaviour was possibly connected with the memory of the hopscotch game. He asked for an extension of the black and white floor and when the floor expanded, the patients' walking space was also expanded…

Chess

Chess travels back many years and in many cultures and each time colored with the marks of the place and the time period where is played. Yet it maintains its unique, strong character. Due to its complex structure that combines many functions, but also its persistence in time through many civilizations, it can be used as a study tool of the history and culture of various peoples. Besides, we find chess in classic literature, theatre and cinema. It is a game that originally was a war game. Its aim was to represent accurately in the chessboard the events of a battle. The Indians, Persians and Arabs upgraded it in a serious intellectual game. The concept of time is perceived by successive moves in the chessboard. Every move changes the position completely as man's life and destiny change over time.[57]

[56] Sacks, Oliver, *Awakenings*, London: Vintage Books 1990 [1973]
[57] http://www.kydonchess.gr/pages/istoriask.html, accessed on April 7, 2014.

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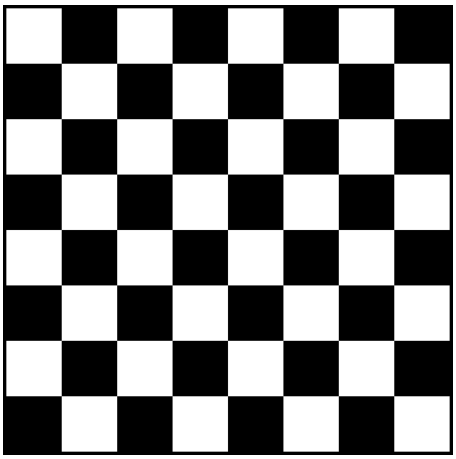
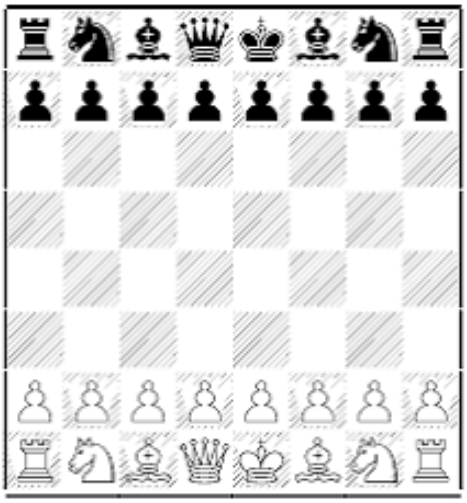


Chessboard

Observing this familiar shape, it initially gives us the impression of the absolute boundary. This is achieved with parallel horizontal and vertical lines creating small squares clearly defined with obvious geometrical corners and on the other hand with intense contrasting colors.

This impression changes as soon as we place the pieces. The field is enriched with conceived shapes resulting from the pieces' movement. During the game the image is different every time depending on the choices of each player and in a different way for each player and for outside observers. With these moves the boundary seems to lose its strictness and importance. If we used a mind reading machine, then the moves would negate the black and white squares. If we recorded these imaginary moves, the result would be something like a child's drawing and released from the grid's boundary (as seen, for example, in the picture below).



Chess set-up at the start of the game http://www.sah.ba/pravilafide.htm

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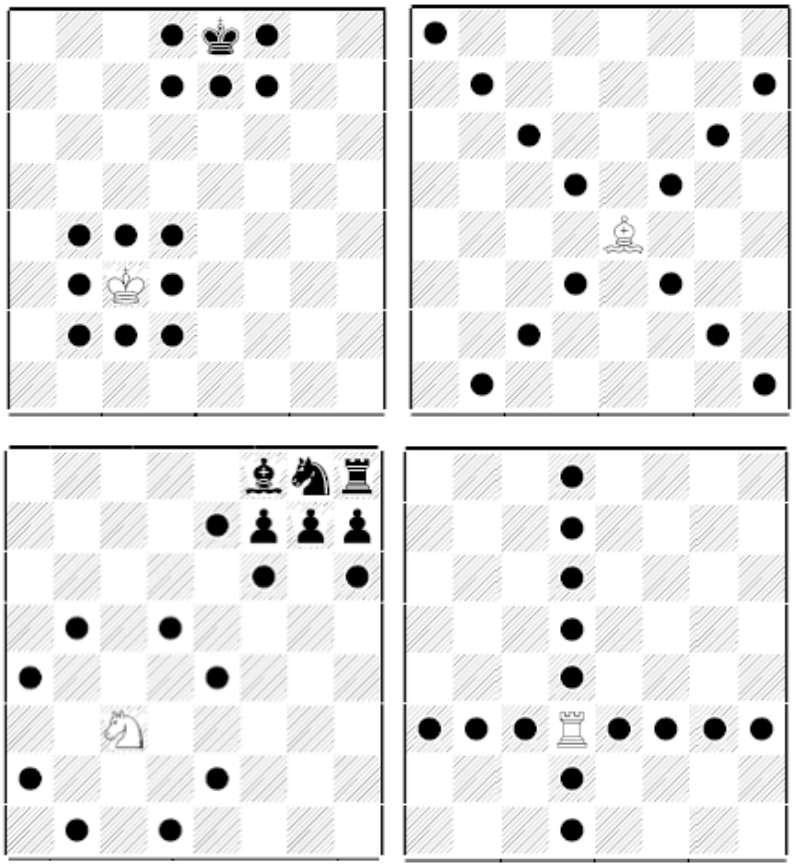
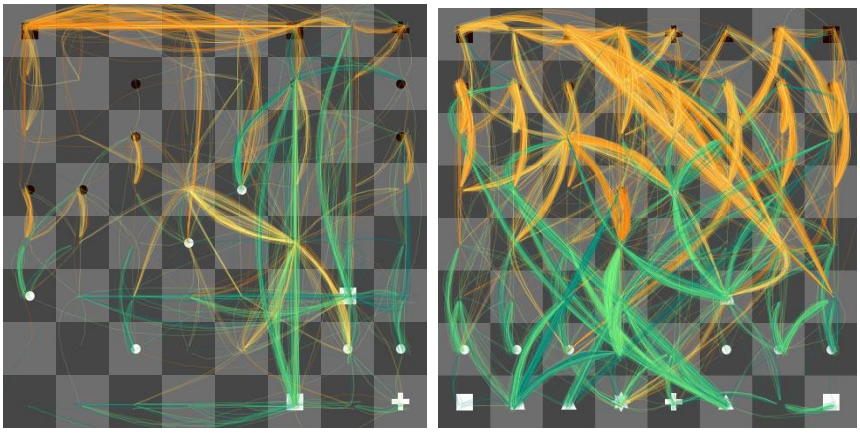


Imaginary pieces moves in a chess game

This game is also defined by time restrictions. The player has limited time to make his moves resulting to boundaries' negation and image's changes with greater speed.



Possible pawn movements

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If we removed the black, the impression of the boundary would be reduced or change character. Perhaps it would remind us the crosswords game or even a grid in a drawing surface, which is everything else than a boundary.

What is particularly interesting is that in chess each square is clearly defined by the other squares. This clarity is somewhat lost during the game, but it defines a very different position than each adjacent. This makes the boundary during the game much more strong than the boundary between the squares before the game, in an empty chessboard, even though before the game in an empty chessboard the boundaries are much stronger visually. Each different position, each square (that a piece is in A4 or in B7) means different move possibilities, different attack and defense possibilities, different chances in winning the entire game, or if you were the pawn, different prospects of losing your life or capturing the opponent's queen.

In architecture the chessboard's shape reminds us the floors at the entrances to palaces interior and exterior spaces (…) we walk through often at normal pace, of course with a different sense than the plain floor, perhaps with the sense of awe that the memory of this game give us. If we place ourselves in the game, taking the paws' position and role on the white and black floor, obviously the boundary would be strong since it would define positions much different from each other, but we would not realized these differences since we do not have an overall view of the chessboard and not control visually as a whole. This is exactly what happens in existing outdoor chess games, even though the pieces are in 1/3 of our size and they do not have the size of a normal person. Depending, therefore, on the chessboard's size we perceive boundaries with different intensity, although the consequences for respecting or violating them are the same in small and large size chessboard.

The boundary's strictness does not depend only on its construction material (wall or line) and the rules associated with it; the boundary's strictness depends also on its size, perhaps because we perceive differently its rules.

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Chess game with people http://www.caineletau.ro/tag/sah

12. Narrative

"A strong grasp of narrative structure is as essential to a novelist as a sense of empathy and a reasonable vocabulary. The secret to a great novel isn't just what you say, or how you say it, but where it's said, and when. The way a story is structured enables a writer to build and release tension, reveal and resolve conflict, and to lead the reader from a gripping introduction to a satisfying conclusion", says Orange Prize-longlisted author Kathryn Heyman[58]. Story telling gives the

[58] http://www.theguardian.com/global/2014/may/15/narrative-structure-for-novelists-kathryn-heyman-writing-course, retrieved May 16, 2014

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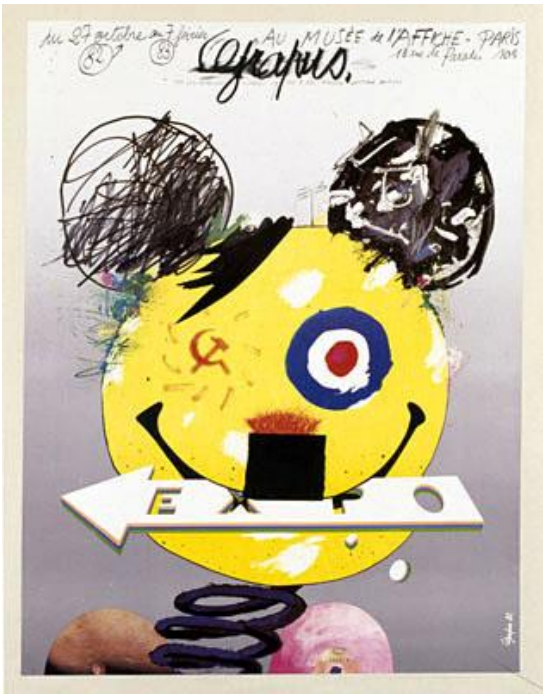
illusion of the passage of time, builds pace and momentum, and give visitors time to reflect.

The narrative is the most essential guide, on which the visitor is attached (or even hooked) in order to explore the environment he/she has entered. It is most important in fiction and non-fiction literature, and in story-telling, where is clearly apparent; but also –although less visible, sometimes almost non-discernable- in architecture, in theater, in music, in painting, in video-games…

The TV series' seductive power is based on narrative, which is practically their only merit. Just after the war in former Yugoslavia, people in all areas of the country used to get home at 20:00 hours to watch the TV series Kassandra that was aired by Belgrade national television network.

The narrative carries in itself complexity and multiplicity. 1. It handles the guidance through the artificial environment, so that the visitor hasn't to create his/her own points of interest. 2. It elevates or suppresses the spirit, it tires or it relaxes the visitor. 3. It connects and disconnects. 4. It binds things together and creates associations and sequences rich in meanings and connotations.



Grapus, au musée de l' Affiche, Paris, 1982 (l.); Guy Aulenti, Collector's house, Milano, 1969
In those examples we can see the use of different elements. Every one and each of them carry its own history and significance; their combination composes a new environment (Thanks to Prof. G. Parmenidis for introducing me to these images).

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CHAPTER 3

Comparison of virtual reality with reality

Henri Cartier-Bresson

We could apply the conceptual tools developed to analyze both reality and virtual reality that allow for immersion to be achieved.

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Ships are mainly escape vehicles to other places and worlds allowing the projection of the desirable. They offer the passenger the feeling that he is not in danger while he is within their boundary, within the “paradise” of a modern magic carpet (used by Foucault as a metaphor for the garden), but also give him (when reaching the port) the option of abandoning it and return to the steady, “real” world.

Rail stations besides being places of escape as well, they have strongly other traits, such as surprise and unpredictability. They are favourable places for dreams. They contain simultaneously permanency and instant…

Hotels, motels offer the opportunity to live a different life within a temporal and spatial framework under specific terms of relations: to change social class, to redefine our personal relationships away from everyday life’s commitments.

Nightclubs We go predisposed to leave from everyday problems and let ourselves to momentarily easy-goingness with our mind focused almost exclusively on music and the show.

There are, however, some buildings/spatial constructs that due to their specific structure allow immersion. Here shape has crucial importance.

Berlin Philharmonic Entering this building, its layout with the seats and also the walls and ceiling surfaces set towards the stage (the walls and ceiling serving acoustic fidelity) turn our attention compulsory to the music and the spectacle that we will see.

Musée Orsay With the small “kiosks” inside the great hall, we have the sense of small shelters somehow in one room that does not resemble a museum at all (of course since it was a rail station) and yet it is filled with statues and paintings. The multiple levels of denial of the expected prompt the conditions of immersion.

Hagia Sophia is maybe the most typical example. The space itself is very impressive and mysterious. Furthermore, God and the saints were present through their avatars (their icons) who looked from above, and especially from the dome/sky, the visitors (who, as with all religious buildings, entered the church with awe), imposing on them detachment from the real world.

Park Güell Gaudi’s architecture is another typical example but especially this park. It is not the negation of the horizontal and the vertical and the color craziness that intoxicate the visitor. It is the denial of every rule, the tilted columns, the shapes that one cannot distinguish if they are by nature or manmade, the constant surprises…

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MoMA (Museum of Modern Art NY) Immersion is achieved not only with an architecture so explosive as such of Gaudi. The aesthetic of especially MoMA's new wing is indeed very frugal, bur our eye is impressed with the lines' clarity, the classical analogies, the openings and visual escapes and our mind is completely absorbed.

Aristides Arcade, Athens A multiple journey in time. You do not see sky, buses and cars anywhere, only small shops, hunched craftsmen trying to repair old appliances, each of which with its own story; and in the second basement, next to other areas, pieces of the ancient wall of Athens behind a locked gate.

Virtual reality takes us a step further. There we have the ability to project our needs with different speed and to change intentions and often with less investment and fewer consequences. This lack of weight is the condition allowing deeper immersion – immersion, however, is achieved mainly with the ability of having experiences in these spaces similar to the ones we have in real spaces: we can do internet shopping in whichever capital we want. We can live a "second life", to experience space through our avatar, to exhibit our work, to organize meetings, to buy real estate, whole islands. In Sim City the aim of the game is not to win but to interact with the system and its successful conclusion is when we reach utopia, i.e. when the player manages to the make the inhabitants happy.

Intervention and action in virtual reality games is deeper than in simple virtual spaces. According to Freud, playing in general allows experiencing an alternative reality that corresponds to a non-acceptable, illegal desire. The child is relieved from the pressures of the real world. When the child plays it is allowed to live stimuli "outside" taboos and mainly to defuse his socially unacceptable aggressiveness… Virtual reality games offer another type of public space, with different rules that must be respected.

In the constructing process of immersion space the creator of digital or real space uses certain parameters in order to control the user. We can get out from the immersion in real space with an abrupt change of rhythm, with an opening, a sudden exit to a closed space; in virtual immersion by reminding us with a glass of water that we are thirsty, needs that cannot be met here, we cannot take a pill for the headache or bit the shining red apple…

Creator Many factors create the city. In virtual reality the creator is only one, for now. Manipulation is less planned in the city, but perhaps that is why environment is more complex/charming.

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Time/turn: in virtual reality games time accelerates, we can fly between and above buildings, to achieve a more rapid turn of impressions. To change places. Architecture is not only slow (Kohlhaas[59]) but its experience is slow as well.

Convertibility: in real architecture the user's abilities to change his environment are minimal. The abilities are limited even for a state. In virtual reality the possibilities for change are enormous.

Predictability: we know that in reality the sixth floor cannot suddenly became basement. Certainty is converted into doubt in virtual reality games. But in architecture itself, predictability is not the same. We know what to expect in our next step in a neoclassical building; deconstructivism holds greater surprises.

Orientation: in virtual reality elementary properties of physical space are copied/adopted with simulation graphics, providing not only the perspective of the third dimension of real space, but also allowing psychological involvement and viewer's transportation into virtual space, giving him a sense of spatial location and presence.

Privacy: different possibilities of hiding or changing identity. Sex, religion, nationality, social status can be defined without any commitment. Messages are typed and you cannot understand the other person's nationality. Permissible behaviors are different; dress codes, social relations, approaching the opposite sex, socially deviant behaviors without consequences in professional and social life.

Freedom of movement: In virtual reality we are after all safe and so we can do things that we would not dare to do in reality. Standing rules in public space change more easily in virtual than in real space and we can choose the public space with standing rules that we want. We can migrate without a green card.

If we attempted to systematically (albeit schematically) catalogue how much selected real artefacts and spaces correspond to the above-mentioned traits of immersion, we would end-up with something like the following table:

[59] Koolhaas, Rem: *Content*. Taschen, 2004, 118

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	1. The interface of real and non-real	2. The awareness of non-real – security in myth	3. Aesthetical enjoyment	4. Concealing and unveiling	5. Possibility of projecting the desired	6. Embodiment and navigation throu 3d avatar	7. Multiplicity and condensation	8. Escape to a dream	9. Movement	10. Scale	11. Boundaries	12. Narrative
Ships	X	X	X	X			X		X	X	X	X
Railway stations	X		X	X	X		X	X	X	X	X	X
Hotels	X	X	X		X	X	X		X	X	X	X
Churches	X	X	X	X	X	X	X		X	X	X	X
Brothels	X	X	X	X	X	X	X	X	X	X	X	X
Museums	X	X	X	X	X		X		X	X	X	X
Arcades	X	X		X	X			X		X	X	

Dolls	X	X	X		X	X	X	X	X	X	X	X
Clouds	X		X	X	X			X	X	X		X
Gardens	X	X	X		X	X	X		X	X		X

Berliner Philarmonie	X		X	X	X		X	X		X		X
Musee d' Orsay	X	X	X		X	X	X				X	X
Hagia Sophia	X	X	X	X	X	X	X	X	X	X	X	X
Park Güell	X	X	X	X	X		X	X		X		X
MoMA NY	X		X	X	X		X			X	X	X
Aristeidou Arcade	X	X		X	X		X				X	

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CONCLUSION

From reality to virtual reality, and from virtual reality to reality

The modern art of new media can achieve the viewer's immersion into the environment it creates with an ease that was inconceivable a few decades ago. Moreover, fantasy cinema takes over an increasing share of film production and films not using special effects and computer simulations are increasingly fewer. People immerse more frequently into increasingly convincing virtual worlds and end up perceiving reality through the lenses of virtual reality, and further on, perceiving virtual reality as the ordinary reality; and wanting to create a reality resembling virtual reality. In science fiction film *Avatar,*[60] as is the case in many other films of its kind, the avatars –humanlike creatures- designed digitally on the basis of real actors' 3D scans are animated in resemblance of the real stuntmen movement recorded by movement capture devices. This obviously helped avatars move in a manner perceived as "natural". The movements of the stuntmen, though, (who have considerably more capabilities in regard of body movement than the real actors they replace), were inspired by the movement of cartoon and comics figures. Reality gets increasingly intertwined with virtual reality…

If in the past (as is the case with the motion picture *Child Development*) the actor's movement are predetermined and coordinated with those of the avatar/chalk drawing. Today there is no longer need to do this.

We have the duality real actor/ virtual actor. It combines together – body, facial expression, tone of voice, animation. It reproduces not the best movement possible, the ideal movement; it is actualized rather with the capture of real movement and attributes (in its more complete version) artificial intelligence. It is the completion of an effort that took centuries: the possibility of communication of the real actor with the virtual actor creates the perfect avatar.

In the case of the Atelier "Du geste capte au geste d'interactivité numerique", held at ATI, Paris 8, in January 2014, the virtual actor did not act on his own initiative but followed the real actor. Then they both continued independently of each other in almost equal relationship. Reality and reality's projection interacted. When the real actor caused a virtual actor's reaction by pushing him and he/she replied with a loud voice (transferred in the physical world with speakers), then in some cases the real actor who was in the real world got frightened or closed his/her ears … (giving orders depending on the speed and momentum of the movement). Also as the real actor influenced sound,

[60] *Avatar* is a 2009 American epic science fiction action film directed, written, co- produced, and co-edited by James Cameron.

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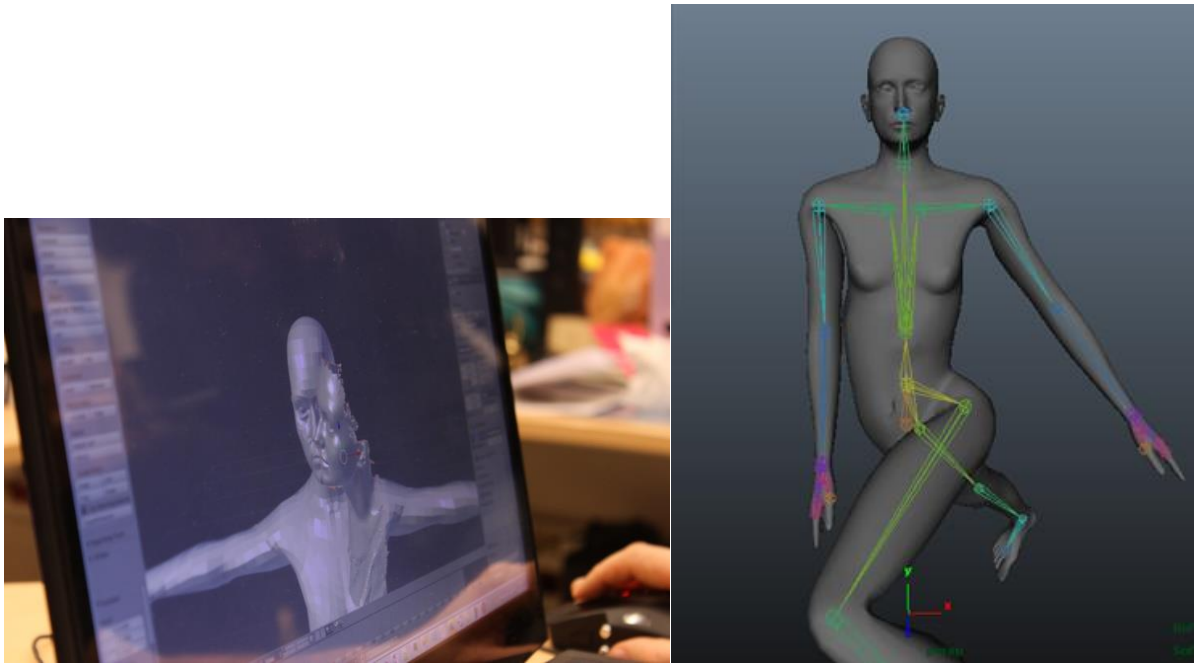
with his/her movement changed the environment both audibly and visually, making stronger the sense of reality and favoring immersion.[61] The boundary between reality and virtual reality existed still, on the one hand because there still was the projection or the screen, and on the other hand, since these two entities did not both live the experience of temperature, breathing and smell and they could not share a glass of wine. The security that this boundary offered was necessary in order to immerse freely into this new reality.



Atelier "Du geste capte au geste d'interactivité numerique", ATI, Paris 8, January 2014.

[61] Typically, in the said atelier, it was stated that «Le déroulé du laboratoire se fera en cinq étapes: présentation des techniques de capture de mouvement, création de dispositif interactif simple, improvisation «acteu rréel–avatar», improvisation «acteur réel-environnement virtuel, improvisation «acteur réel-acteur virtuel». Instructors Cedric Plessiet and Chu-Yin Chen.

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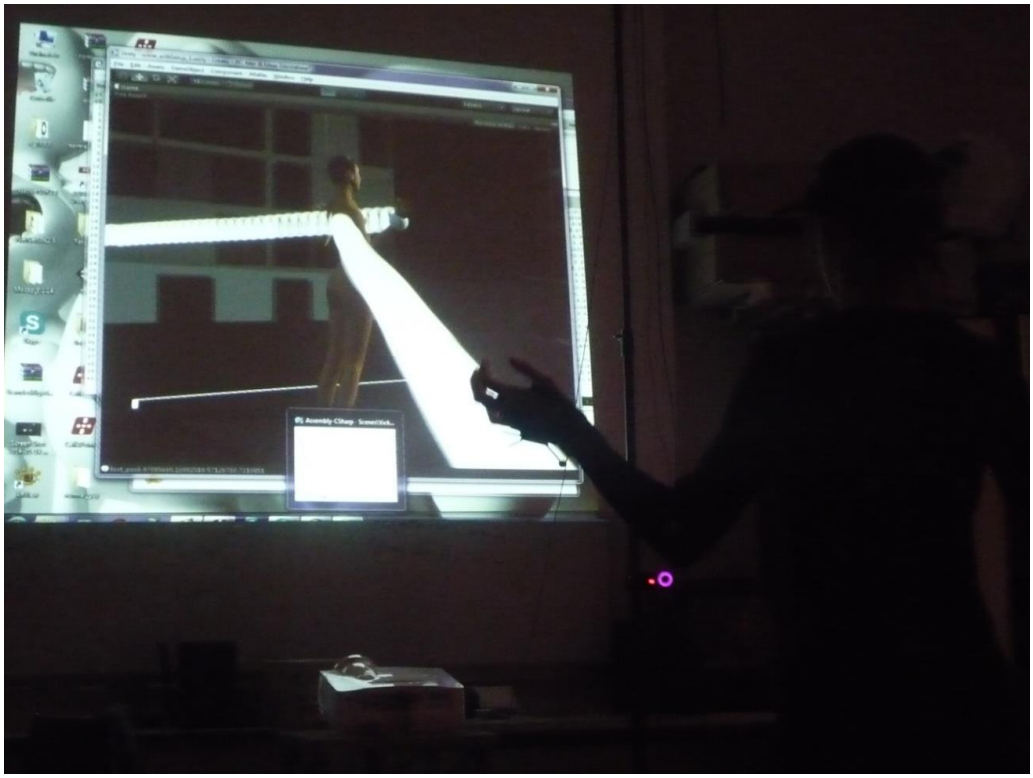

Atelier "Du geste capte au geste d'interactivité numerique", ATI, Paris 8, January 2014. (Images Nora Demjaha).

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From reality to virtual reality:

Scene from "Avatar" movie

From Virtual reality to reality:

The man and woman who altered their bodies to become real-life Barbie and Ken did not hit it off. The two met at a photoshoot and it was not a love connection. Instead, Justin Jedlica and Valeria Lukyanova started insulting each others overly-plastic bodies.

Valeria Lukyanova

If we adopt in reality features used in virtual reality, then we might create considerable confusion, relative to the one we are subjected to when facing Valeria Lukyanova, the woman who aspired to become a real life "Barbie". Does the adoption of any feature obviously originating from the virtual reality leads us to a deconstructive perception of reality in which no certainty exists?

The question is whether the immersion into virtual reality causing so much awe and wonderment negates inevitably the person's personality or whether can be achieved an immersion benefitting individuality and critical approach. Immersion into conceptually loaded projects, structured under a certain set of distinct concepts, most likely help the immersing person perceive and "read" the virtual environment according to these concepts, so that this perceiving and reading is not a "flat" one, but has a considerable "depth". Self-conscience and ability to a deep understanding resulting from immersion into environments of this type do not negate the magic of virtual world.

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EXPERIMENTAL PROJECTS:

1. The shape of sound. A cloud of whispers.

Unity 3d, archicad, Audacity, kinect

According to Semir Zeki perception relies on the brain: "the eye does not see, the brain sees".[62] Synesthesia theory argues that the brain while perceiving the environment (and the work of art) combines stimuli in an unusual and imaginative way, which seems to be more akin towards atypical blending than separating various sensational qualities

The image in the screen is unclear maybe black. Sound is the only thing that clearly changes: whispers in various languages are distributed in space. As we approach their source, the stronger they become.

Space is defined only by sound. The artist has not used any of the conventional means of defining space, has not used shapes and forms, but the "visitor" seeing the screen in front of him expects a picture. Since lines and colors do not define it as well, the visitor creates it in his mind based on the only stimuli he has: whispers.

So, wherever he hears a louder and more confusing sound, many whispers together, the impression of a density, perhaps of a metropolis, is created. Where the sound is weaker he feels/sees a quieter, more isolated landscape.

Thus, there is the possibly of transcending the boundaries between the senses. One stimulus in one only sense can cause obvious impressions in more than one senses, providing thus the possibility of transcending the boundaries between the various senses. Its more common form is *chromesthesia* in which auditory stimulations also cause colored impressions.[63]

Because visual stimuli are missing, everyone can project whatever he desires in this virtual "space". This space is, therefore, open to interpretations.

[62] Semir Zeki, *Inner Vision: an exploration of art and the brain*, OUP, Oxford, 1999

[63] Fay Zika, "Ο ήχος του χρώματος" («The sound of colour»), in *Φιλοσοφία και τέχνη (Philosophy and art)*, Athens: Okto editions, 2011.

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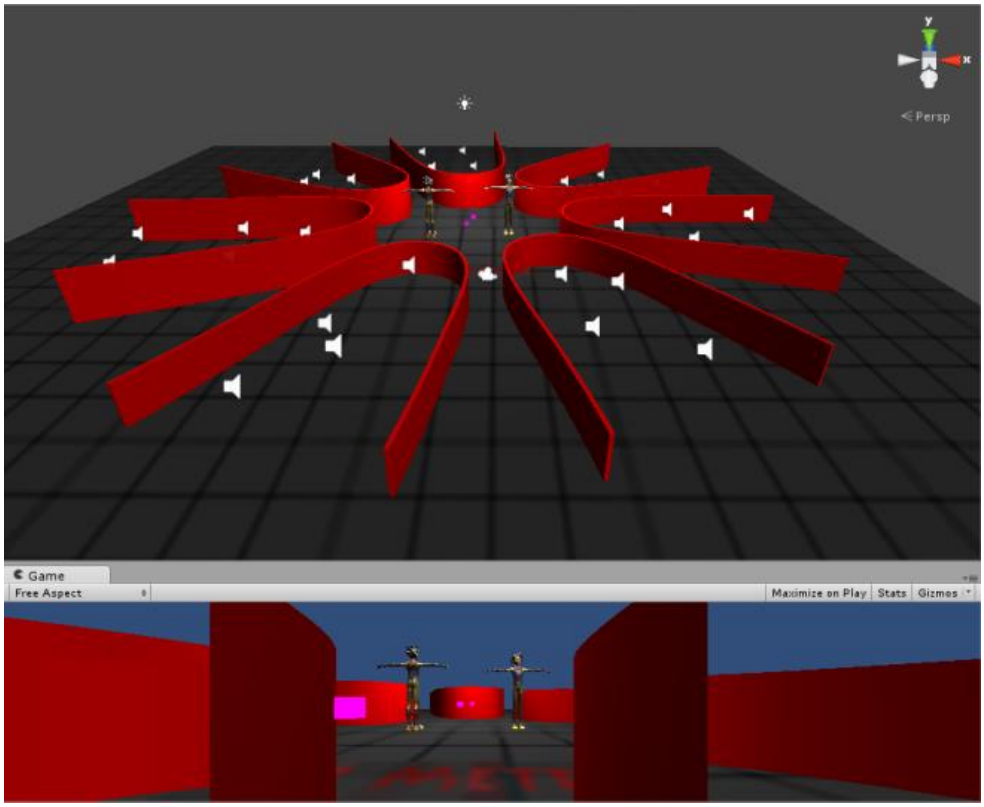

Visualization of sound boundaries in the Unity experiment with Kinect (in the course of Voula Zoi)

	1	2	3	4	5	6	7	8	9	10	11	12
Whisper Cloud	X	X	X	X	X	X	X	X	X	X	X	X

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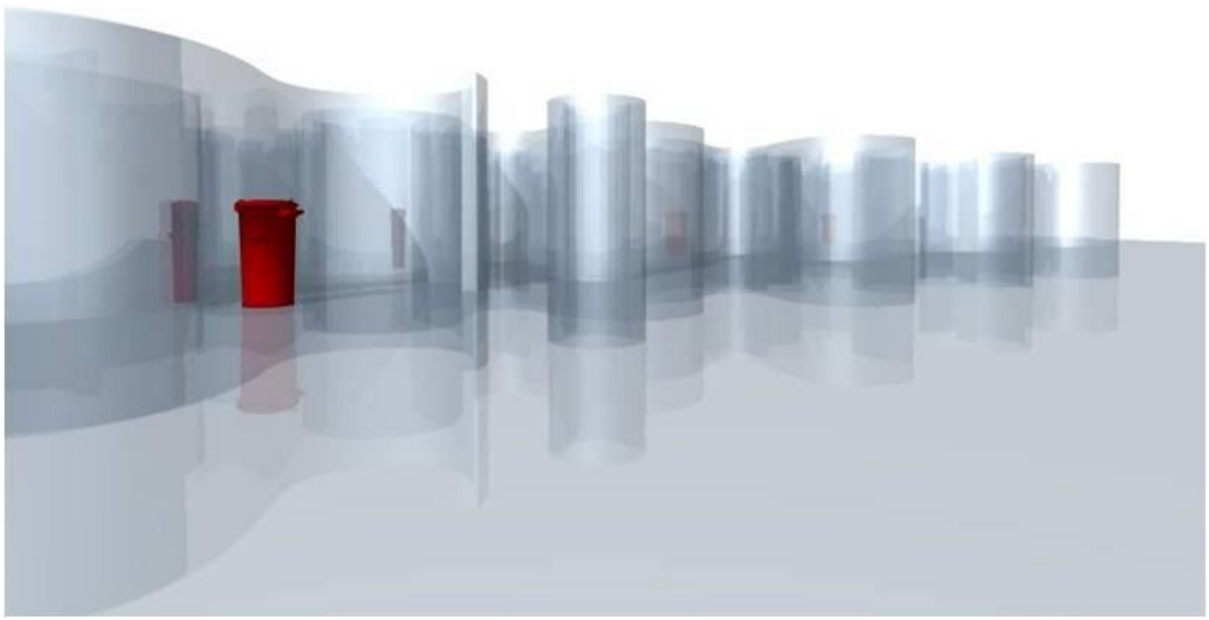
2. Transparent Labyrinth

Unity 3d, archicad 3d, Audacity.



In mythology Ariadne holds the key to Theseus' salvation from the labyrinth and the monster hiding there; the key is the thread. Ariadne unfolds the threads of labyrinth she has constructed to be led to the fringes of subconscious, where reside the primordial knowledge, the eternal forgiveness and the union, by quelling the defnce mechanism of the conciousness' guardians achieving the liberation from the suppressed sense of guilt's projection related to a further primordial relation –that of love and of death…

Let us interpret the city as a labyrinth; when we cross it, for instance, to get to our destination, we may devout our attention to features that we define as signs, like the geographical ones, the density of the crowd, its buzz, or smells, etc. Designing a labyrinth, respectively, is like designing a city. We guide the guest, from the open space to the city centre, the central square and then we trap him/her or we hug him/her in a neighborhood or a market, we conceal or we disclose clues, and we often define his interrelations with other inhabitants or visitors.

The labyrinth manipulates, seduces the guest in a static and congealed manner.

Simplicity: Its structure is simple, designed on the repetition of two elements. Everything is made of the same material –glass-, in order for two functions to be served: transparency and reflection.

The guest is entering the labyrinth spontaneously placed at the point shown on image 2. Not being able to cut loose, he/she may repeat some routes and search for new signs to the exit. The guest can move one third of the walls. There are five points of exit that lead to the next level, as shown in the

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following image. The red trees indicate the points where the sound sources are placed. If the guest decides to follow the sounds to get out of the labyrinth, he/she will be drifted away from the exit gates marked in red; on the contrary, the sound leads towards the interior of the labyrinth (images 8 and 9). In this way, on one hand the seduction of the guest goes on, and on the other hand a better spatial balance is achieved, which is congruent to the structure and the texture of the labyrinth.

The music played is Tomaso Antonio Vitali (1663 – 1745) interpreted by Jascha Heifetz (1901–1987) (http://www.youtube.com/watch?v=97xlBipnzG8).

On top of the above said, the sound enriches the atmosphere, it complements it, and –because of the perfection of the interpretation by the violinist- scares the guest. Placed in a three-dimensional canvass, the sound adds to the percepted image depth, and helps the guest immerse into the game.

	1	2	3	4	5	6	7	8	9	10	11	12
Tranparent Labyrinth – ASFA	X	X	X	X	X	X	X	X	X	X	X	X

3. Fairytale

Unity 3d, Maya, blender, Audacity.

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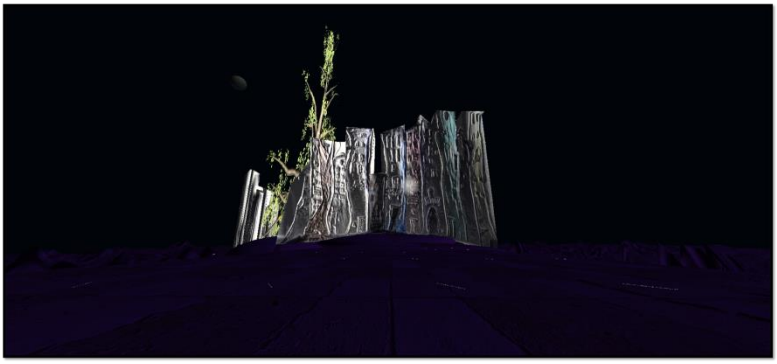

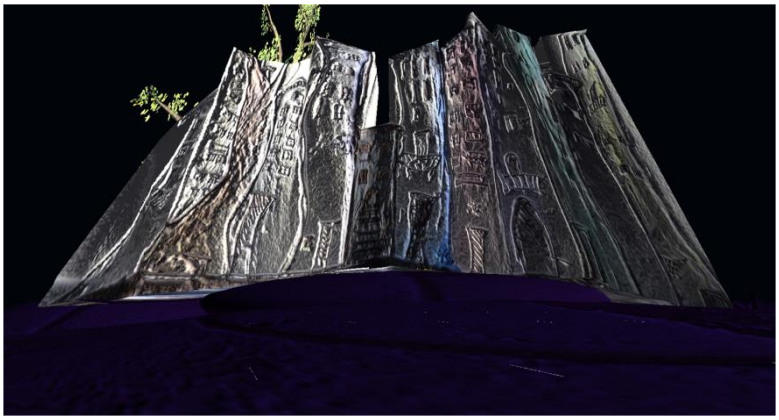

The *fairytale* is an attempt to create an artificial environment most clearly stating it's being unreal; this statement is made to help research the implications of the visitor being aware of the non-real nature of the environment he/she is entering and of enjoying the security provided by myth. With its specific atmosphere, the space created leads you smoothly into the virtual world, making plain for everybody to see that it is simply a child's painting, you are not in danger.

Initially a hand-made pencil draft was made; then Unity Bump Mapping was applied on it. Bump mapping is a technique that helps a rendered surface look more realistic by simulating small displacements of the surface where the geometry is not modified. The lighting is changing in the real time the deepness and the way of seeing the object. In the same way, on the ground, tessellations were applied to be generalized to higher dimensions. There is also the tree moving by wind to confuse the visitor an whether the environment is real or unreal.

	1	2	3	4	5	6	7	8	9	10	11	12
Fairytale	X	X	X	X	X	X	X	X	X	X	X	X

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4. Barcelona neighborhood revitalization project

Autocad, Archicad, Photoshop

Time passes and a reality has emerged into which **local elderly don't fit**, many of which are ladies over 65. The empty spaces have become the venues of illegal or anti-social activities.

The project seeks **to win back** for the elderly these lost spaces by enhancing the sense of **collectiveness** and by helping build a **real social network**.

Knitting can be the catalyst for the actual as well as the symbolic **coming together** of the lonely ladies of age. It can help recreate the **warmth** once typical of those neighborhoods. The proposed architectural and artistic project will built on **nostalgia** and turn it into **creativity**. It will provide the necessary means to turn the unfamiliar into **familiar**, the abandoned into cared-for, and consequently the unsafe into **safe**. Ladies will be given a pivotal role in the **revitalization** effort. Children and adolescents may follow suit. Threads will be provided for free, as well as a table and some chairs -anybody could join, bri in her/his own chair, her/his own threads, her/his own knitting models. The public will be turned to private and back to public: **Revitalizing the neighborhood** Nora Demjaha

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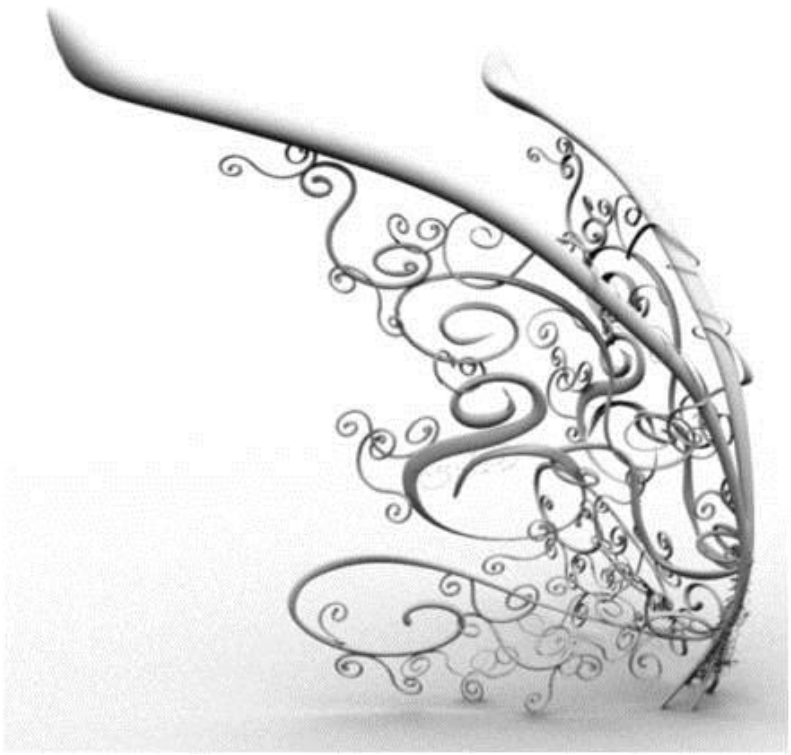
The objective was to revitalize a run-down neighborhood in Barcelona, inhabited by an aging population, with a high percentage of old, ladies and widows, living alone. The project submitted proposed to install, in place of an torn-down building, a table with chairs and knitting material in an attempt to become a focal point for informal gatherings and spending time together.

	1	2	3	4	5	6	7	8	9	10	11	12
Neighborhood revitalization	X	X	-	-	X	-	X	-	-	X	X	X

5. Butterfly

Unity 3d, Maya, photoshop



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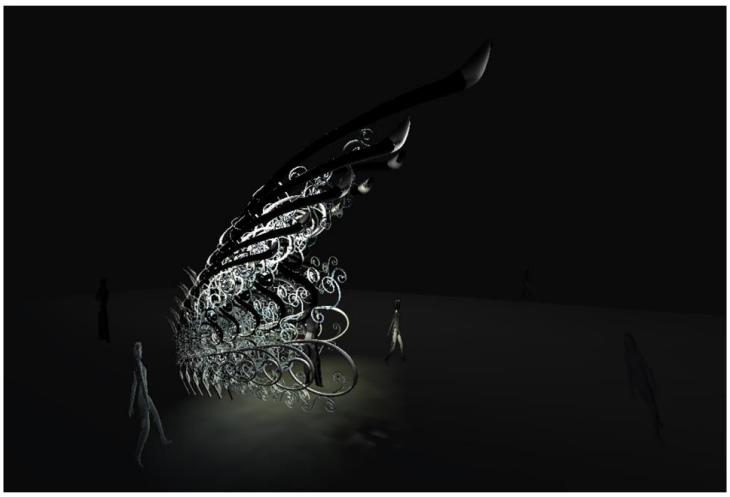

Created with the logic of fractals, a repetition of a form in ever increasing magnitude creates the butterfly that can serve for street lighting. The minute detail and the repetitive motifs absorb the passer-by and let him immerse in the magic of a familiar, yet uncanny object.

	1	2	3	4	5	6	7	8	9	10	11	12
Butterfly	X	X	X	X	X	-	X	X	X	X	X	-

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6. Nostalgija

Unity

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Twenty years ago there was my Sarajevo, my life, my people, my dog, my hangouts, my home… In this digital reconstruction its fragments are juxtaposed to each other, constituting my “invisible city”. (With special thanks to Prof. Nikos Lascaris)

“Sarajevo” is a virtual reality installation. The visitor can navigate through the fragments of what constitute the artist’s personal recollection of the city where she once studied, juxtaposed to each other two decades after she fled the city because of the war. Whispers are heard each time one approaches an abandoned building, a vacant plot, the empty tram carriage; somewhere a telephone rings, Rade Šerbedžija reads poetry and Jasha Heifetz plays Tomaso Vitali’s ‘Chaconne’.

	1	2	3	4	5	6	7	8	9	10	11	12
Nostalgija	X	X	X	X	X	X	X	X	X	X	X	X

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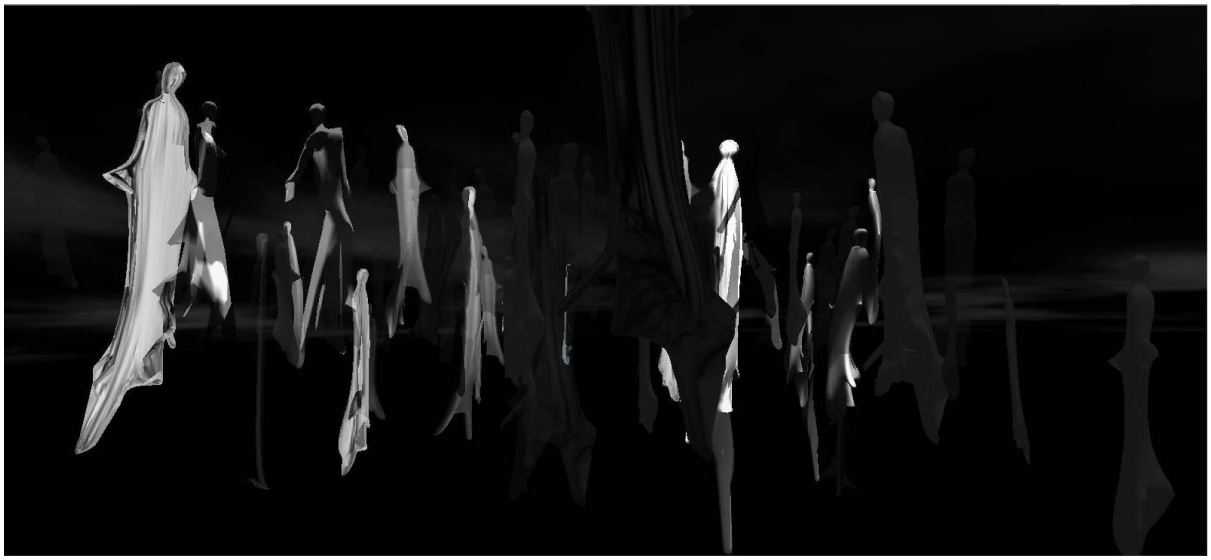
7. Human cloud 3

Unity 3d, Maya, Audacity

Ye who read are still among the living; but I who write shall have long since gone my way into the region of shadows. Edgar Allan Poe, *Shadow.*[64]



[64] *First published in 1835. This quote from ebooks@adelaide.*

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The “human cloud” has a realistic aspect, since it consists of human-like figures. It also has an intensively anti-realistic aspect, since these figures swing in the skies, forming a cloud, among other clouds. Some of the properties of the human cloud are realistic, some are not. The figures move smoothly up and down, left and right; they also become more slender, and they bend as seen through a deforming lens. They get out of the way of the visitor, or they stand still. The atmosphere created is a mixture of serenity and melancholy.

	1	2	3	4	5	6	7	8	9	10	11	12
Human Cloud 3	X	X	X	X	X	X	X	X	X	X	X	X

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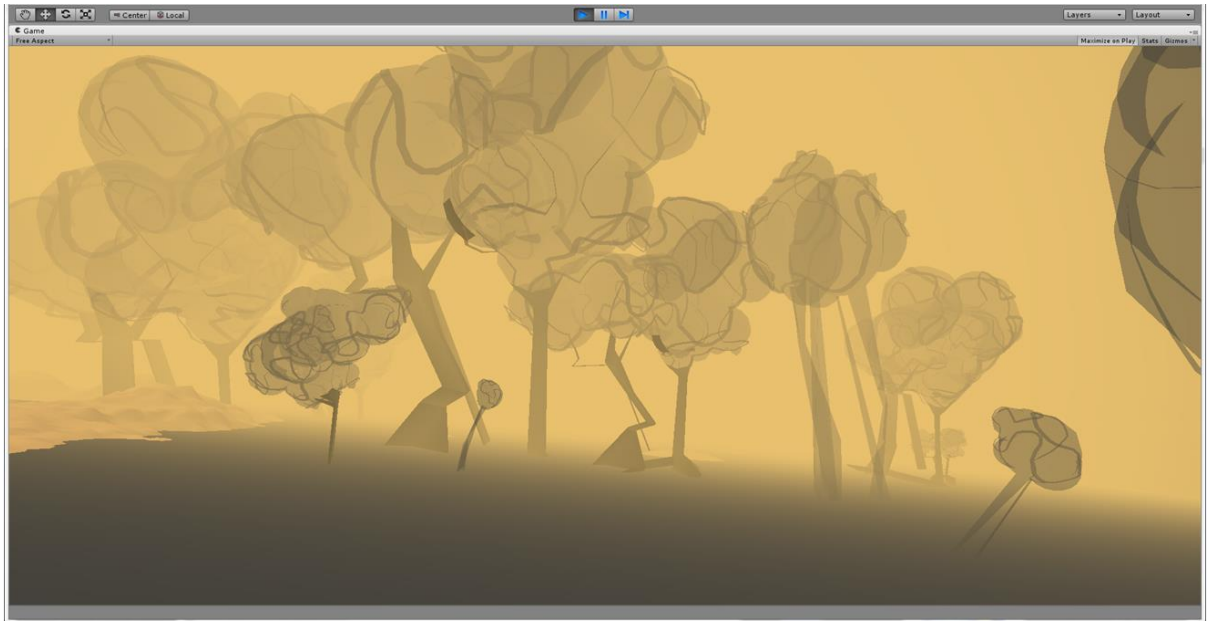
8. Cloud trees

Maya, Unity



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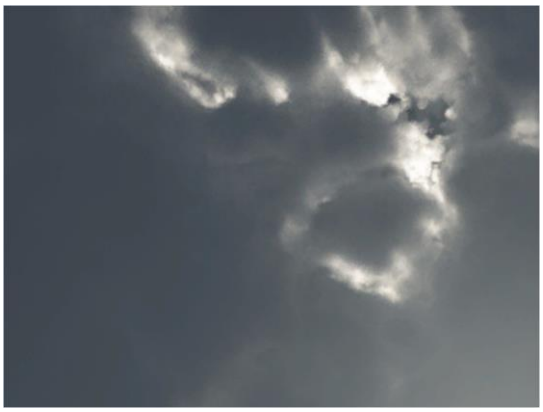

Clouds are elusive entities –not only their forms constantly change, their very substance comes into existence and vanishes in thin air. In a sense clouds are like virtual reality itself: present but not there to stay, temporary but massive and powerful.

	1	2	3	4	5	6	7	8	9	10	11	12
Cloud trees	X	X	X	X	X	X	X	X	X	X	X	X

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