THE COMPUTER GENERATED ART/CONTEMPORARY CINEMATOGRAPHY AND THE REMAINDER OF THE ART HISTORY. A CRITICAL APPROACH

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Abstract: The paper analyses the re-conceptualization of the intermedial trope of computer generated images/VFX in recent 3D works/cinema scenes through several examples from art history, which are connected with. The obvious connections between art history and images are not conceived primarily as an embodiment of a painting, the introduction of the real into the image, but prove the reconstructive tendencies of contemporary post-postmodern art. The intellectual, the casual, or the obsessive interaction with art history shown by the new film culture, is already celebrated trough 3D computer generated art, focused to a consistently pictorialist cinematography.

Keywords: computer generated art, Medieval Age Art, Renaissance, pictorialist cinematography, animation.

In the 21st century, the confluence of art and technology was widely heralded and accompanied by the establishment of an array of new genres generally comprised in the larger topic of CGI (computer generated imagery). The serious study of CGI culture has provided fertile ground for the development of sophisticated forms of critical commentary. At the same time, CGI has stimulated a wide range of analyses drawing from the traditions and theoretical engagements of many other disciplines, including film, television and media studies, art history and criticism.

In the 21st century cinema and television industry, computer animations have become more important than ever. Imaginary characters, objects, as well as people, events and places that are either difficult, costly, or even impossible to shoot, can now be produced and animated through computer modelling techniques.

Today, we might say that Bazin's myth of total cinema has come closer than ever to realization, albeit in a manner that Bazin himself did not anticipate, and would not have appreciated. For what has happened in the last half century is that, instead of the movies becoming more like reality, reality has become more like the movies. The world we live in is saturated with images, and especially moving images.

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The fast development of technology and its impact on all production industry has enabled computer-generated animation techniques to become varied and widespread. Computer animation techniques not only save labour input and money, but also give the producer the option of applying the technique in either two dimensional (2D) or three dimensional (3D), depending on the given time frame, scenario, and content.

New digital possibilities could not dissolve the continual fluidity of versatile cinematic imagery approaches, which transcend since Middle Ages.

The genuine Tapestry at the Centre Guillaume le Conquérant in Bayeux is commemorating the Normand Conquest of England of 1066. According to Richard Burt's thesis, the Bayeux Tapestry could be seen as cinematic analogue and its broader implications for the way we understand both medieval visual and pre–print culture are to be considered[1].

Many scholars draw up the same theory as: Marie–Thérèse Poncet who includes a screenplay of the "film" and divides the Tapestry into seventy–three shots[2]. Michel Parisse discusses the Tapestry in terms of montage sequences, mise–en–scene, flashbacks, and jump cuts; also he divides the Tapestry into sections that make up a screenplay[3]. Similarly, Suzanne Lewis refers to sequences, scenes, cuts, fast cutaways, and faded shots in the Tapestry[4]. More broadly, François Amy de la Bretèque sees reciprocal equivalence between the Bayeux Tapestry and film: "One may consider that, in the minds of many of our contemporaries, the embroidery (Bayeux Tapestry) represents a kind of medieval equivalent of cinema… The embroidery was a form of precinema"[5].

Perhaps coincidentally, not long after scholars began to draw an analogy between the Bayeux Tapestry and film, the Tapestry itself began to appear in film. These cinematic citations of the Bayeux Tapestry invert the analogy frequently drawn by scholars between the Tapestry and film, making these films related to the Middle Ages analogous to the Bayeux Tapestry.

In science, architecture, engineering, and graphics, there is the assertion that the graphic performed on the computer is indispensable for the comprehension of complex phenomena. Behind this sentence is the concept of spatial thinking, the viewport.

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[1]Richard Burt, *Re-embroidering the Bayeux Tapestry in Film and Media: The Flip Side of History in Opening and End Title Sequences,* in *Exemplaria*, vol. 19, no. 2, Published by Money Publishing, California, 2007, p. 328.

[2] Marie –Thérèse Poncet, *Étude comparative d*es *illustrations du Moyen Âge et des dessins animés, — L'esthétique du dessin animé,* Nizet, Paris, 1952, p. 5.

[3] Michel Parisse, *The Bayeux Tapestry,* Denoel, Paris, 1983, p. 53.

[4] Suzanne Lewis, *The Rhetoric of Power in the Bayeux Tapestry,* Cambridge University Press, Cambridge, 1999, pp. 11-12.

[5] François Amy de la Bretèque, *L'imaginaire médiéval dans le cinéma occidental, Champion,* Paris, 2004, p. 144.

Numerical graphics are inextricably connected to the Western artistic archive, in the manner of realism, as opposed to the Eastern artistic sphere which counts on several realities transfigured, spiritualized, photographic realism without tyranny[6]. The expressive significance of artistic strategies and the conventions of the genre continue to exercise influence on contemporary graphics. The assertions below substantiate the intimate association of the history of art with computer-aided exploration of imagery.

The view is a phenomenon that finds elements of Platonic thought[7] in springs, being all the more interesting in the twentieth century, by Erwin Panowsky studies – *Meaning in the Visual Arts* - through approach visible geometry.

Fig. 1. Jan Lievens (1607–1674) *Still Life with Books,* circa 1630, Rijksmuseum in Amsterdam.

Fig. 2. 3D computer generated image

Despite this difference, the ability to generate three-dimensional stills does not represent a radical break in the history of visual representation of the multitude comparable to the achievements of Giotto.

A Renaissance painting and a computer image employ the same technique (a set of consistent depth cues) to create an illusion of space, existent or imaginary. The real break is the introduction of a moving synthetic image–interactive three-dimensional computer graphics and computer animation. With these technologies, a viewer has an experience of moving around the simulated three-dimensional space – something one can not do with a painting.

Starting with the late Renaissance, reached with which relate through the following features: two or more arrangements of light sources, in line with the aesthetic principles of the 15th century, play of light, shadow, bright reflexes; the contrast between diffused light and powerful, spectacular lights,

[6] Reverse perspective serve as arguments, the canons of detailed human figure of Byzantine erminia, as well as the taste of Asian art towards two-dimensional image.

[7] Erwin Panowsky, *Meaning în the Visual Arts. Paper in and on Art History,* Doubleday & Company Ink., New York, 1955, p. 11.

originally theorized by Leonardo da Vinci; theatrical appearance resulting from the effects of shading; organic forms evolving in the context of geometric ones.

This is how Frederick Hartt, the author of a widely used textbook *Art. Ahistory of Painting, Sculpture, Architecture* describes the importance of Giotto di Bondone, "the first giant in the long history of Italian painting". In contemporary Italian eyes the step from Cimabue to Giotto was immense in that weight and mass, light and inward extension were suddenly introduced in a direct and convincing manner[8].

Giotto's miracle lay in being able to produce three-dimensional forms for the first time on a flat surface, which the French could achieve only in sculpture. For the first time since antiquity a painter has truly conquered solid form[9].

At the same time, it is constantly pointed out that this realism is qualitatively different from the realism of optically based image technologies (e.g. photography and film), because the simulated reality is not indexically related to the existing world.

Researchers working in the field of visualization are using these notions for which terms were created by contemporary equivalents. The question that arises is why legitimate illusion of 3D works? The answer is not only likely neurological or neuropsychological. It can be extracted, from art history paradigms, which has modeled our brain, has created extremely powerful concepts to whom we are shorn.

For instance, the appearance of rectangular pixels, units of computer artwork which are arranged by electronical displays or are printed in such a way that by blending the result is a bitmap optical image, that are leading trough a visual phenomenon what is claimed from cubism or pointillism.

The fact that researchers have created numeric patterns which can be found in the history of art is a spectacular phenomenon: the molecules were modelled like a balloon, some entities inside the human brain can be rendered in the manner in which they play a transparent items in Tiepolo way.

The human body is not easy to imagine for an electronic environment, even if they are granted a maximum of attention and a high-quality technical support. If the representation of the human body possesses surfaces of gum, or a being appears as if it would be encased in a plastic membrane, their visual expression reminiscent of his wooden mannequins of Pinturicchio or the toes of his wax Ingres[10].

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[8] Frederich Hartt, *Art.Ahistory of Painting, Sculpture, Architecture,* Prentice Hall, New Jersey, p. 503.

[9] Lev Manovich, *Reality Effects in Computer Animation,* in *An Aniamtion Reader,* Jane Pilling (editor), John Libbey Publishing, New Barnet, United Kingdom, 2011.p. 6

[10] James Elkins, *Art History and the Criticism of Computer –Generated Images, Leonardo,* vol.27, no.4, 1994, p. 337.

Comparison between dense texture and dramatic light key of a vertical section through the skull of a mummy, modeled on the computer as an image-support in Medical University of Mathematics and Computer Science from Hamburg and *A Blond Man Portrait* (oil on canvas, 108x93cm, 1667) by Rembrandt van Rijn, reveals how great was the impact of Rembrandt's work, its color quality but most of his theatrical, dramatic light and psychological meanings that you propose, on the aesthetic taste of the period.

Computer - aided graphics, proposed through extremely prolific 3D images that tend toward a hyperrealism, and in the context of which the human figure or the natural elements are realised by 3D software, are sometimes modelled under the influence of dramatic shadows and overhead lights of Renaissance or Baroque.

Fig. 3. Karl Heinz Hohne, Cross Section of a Mummy's Head, 1992. SIGGRAPH '92 stereo slide set. A number of recent medical images move away from the painless sectioned body and begin to represent solid tissues and specific textures.

Fig. 4. Rembrandt, *Portrait of a Fair-Headed Man*, Melbourne, National Gallery of Victoria Rembrandt's visceral, "waxy" textures evoke the possibility of sensation and pain in ways analogous to some Texture mapped surfaces[11]

It is important to acknowledge that a shift has occurred – at least within an important swathe of contemporary visual culture – towards an analysis that foregrounds the dimension of appearance, form, and cultural connections. A rush into this way of interpretation that has been more clearly

[11] Idem, p. 339.

apprehended may follow an all too easy dismissal of such a aesthetic spectacle[12].

In spite of the token disclaimer that high and low culture distinctions have been effaced in the postmodern milieu (apparently opening popular cinema to a veritable smorgasbord of analytic processes), film theory has, in the main, recuperated the distinction. While undertaking analyses of contemporary cinema theory, an examination of popular cinema as far from a conventional aesthetic approach to art as it possible could be relegated.

The trope of *tableau vivant studied* in some films scenes is not conceived primarily as an embodiment of a painting, "the introduction of *the real into the image*"[13].

As such, the *tableau* becomes a powerful agent in generating metanarratives, offering a blueprint for a *big picture*, a comprehensive vision of the world (reinforced by recurring mythological themes like the genesis or the end of the world, the loss of Paradise, etc.). We may connect this feature of these *tableaux vivants*, therefore, to what Lyotard named the *figure of return* [14], and to the reconstructive tendencies of contemporary post-postmodern art.

This is a tendency that is perhaps most palpable in the manifold revitalization of the trope of the *tableau vivant* and a post-cinematic aesthetics trading in the drive of the narrative for the compelling visual attraction of carefully crafted imagery.

This shift of focus from narrative to visuals along with the excessive emphasis on pictorial effects is a poetic strategy that occurs in current world cinema. Painterly compositions in a broad sense (descriptive, *tableau*-like shots achieved with minimum of movement), or re-creations of specific paintings in cinema (i.e. *tableaux vivants* in a narrower, theatrical sense) can be seen as intermedial figures that are present in different ways throughout the entire film history from the frontal, boxed-in *tableaux* of early cinema (where they served as a condensation of the narrative), through their decorative, rhetorical/ideological use in Hollywood genre films and so called heritage films, to a means for self-reflexivity and deliberate subversion of the classical narrative in Jean-Luc Godard's or Peter Greenaway's works[15].

Contemporary films relying heavily on the technique of *tableau vivant* (through different pathways and in their own distinctive manner)

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[12] Andrew Darley, *Visual Digital Culture: Surface Play and Spectacle in New Media Genres ,* Routledge*,* London, 2000, p. 6.

[13] Pueker Brigitte. 2007. *The Material Image. Art and the Real in Film.* Stanford, Stanford University Press, p. 45.

[14] Lyotard Jean-François, *Acinéma. Wide Angle,* vol. 2, 1978, p. 52.

[15] Brewster Ben and Lea Jacobs, *Theatre to Cinema: Stage Pictorialism and the Early Feature Film,* Oxford University Press, Oxford, 1998, p. 38.

connect, not only to global stylistic trends in cinema but also, in part, to what can be grasped in the allure of *becoming an image* within contemporary culture on a more abstract theoretical level, as well.

The quintessential image framing such antithetical extremes of things and senses (as perhaps the most puzzling instances in the rhetoric of pictoriality in new cinema) can be identified in the type of *tableau vivant* that is, paradoxically, closely connected to the idea of death (the imminence of death, the sight of a disfigured, ailing body), in which a live body is displayed as a corpse, or the other way round, a corpse is presented as an embodied picture, or an object of art made of flesh.

The striking still compositions that can be associated with paintings, painterly styles, and pictorial photographs have the rhetorical function of highlighting the grave undertones of a narrative which always leans towards the construction of a more or less overt allegory, either in the mood of tragicomedy and the grotesque, of gritty family drama, or that of a more abstract or lyrical meditation with biblical or philosophical connotations. In each case, in a very different way, the *tableau* form confers the filmic discourse a degree of constructedness and aestheticism that often emerges in a tense interplay with unsettling subject matters, or in certain cases, even a repulsive naturalism of scenes[16].

These film references construct their stylized images building on the opposition between life and art, sensual and abstract, fossilizing their human figures into dead iconographical forms.

Fig. 5. Andrea Mantegna: *The Lamentation over the Dead Christ* (c. 1480) and *The Body of the Dead Christ in the Tomb*

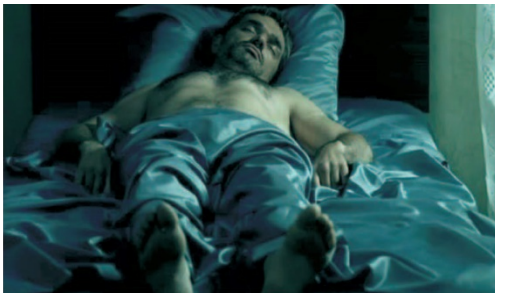

Fig. 6. Andrei Zvyagintsev, *The Return*, 2003

Ágnes Pethő demonstrates this also in paraphrases of Andrea Mantegna's and Hans Holbein's dead Christ that have become a surprisingly recurring motif in contemporary East European and Russian cinema[17].

[16] Ágnes Pethő, *The Tableau Vivant aș a figure to return în Contemporary East European Cinema,* în *Acta Univ. Sapientiae, Film and new Media*, 9, 2014, pp. 54-55.
[17] Idem, pp. 72-73.

Perhaps the most complex use of the reproduction of Mantegna's painting can be found in the Russian Andrei Zvyagintsev's debut film, *The Return* (*Vozvrashcheniye*, 2003), where it becomes not only a clearly marked vantage point that doubles the reference frame of the otherwise realistic narrative, suggesting the possibility of an allegorical reading, but also prepares the viewer for further, less obvious biblical motifs or cinematic quotations, and initiates an intricate play between images and media.

The viewer familiar with Tarkovsky's films may find several scenes paying homage to the master of "sculpting in time" alongside images reminding us of essential works of Antonioni or Kieslowski, as the film unfolds, through a consistently pictorialist cinematography, a series of impressive photographic *tableaux*.

Fig. 7. Hans Holbein, *Dead Christ*, circa 1520-1522, a sculptural painting

Fig. 8. Becoming Jane, directed by Julian Jarrold, 2007.

It is undeniable, that the excess of signification enfolded in Julian Jarold's scene from *Becoming Jane,* where Jane Austen is mortified by her maximal suffering, through it being perceptible the influence of Holbein's painting, as well as through our own complex bewilderment in experiencing it in pictorialism cinematography.

Since the early days of computer animation, constructing human and humanoid characters has been the holy grail of the emerging technology. The first examples of three-dimensional, fully animated characters appeared in

advertisements and music videos in the early 1980s. But it was only ten years later that the technology had developed sufficiently for computer-generated characters to be integrated into films.

The relationship between the real world and its cinematic representation has been, for a long time, one of the fundamental themes explored in theoretical debates. Jean-Pierre Oudart, analyzing the system of representation dating back to the Renaissance, advances a more complex view. He suggests that it was *the position ascribed* to the subject in the figurative tradition of Renaissance painting that gave rise to the representational system prevalent in the cinema[18]. In nineteenth century paintings, a *reality effect* was produced by the use of perspective, effects of light and shade, discontinuity of planes, etc.

The idea is that the realism of cinema is based on a psychological notion of reality. So, some theorists assume that realism, in a psychological sense, has nothing to do with the accuracy of the reproduction, but with the spectator's belief about the origin of the reproduction. It must be stressed here, however, that this psychological sense is a belief that originates in the spectator's mind, a belief in the representation, in the approximated reproduction of reality, but not an assumption of the film's image as being the real image itself. This approximated reproduction, or this relation between the image and reality, is a consequence of the codes and conventions established in the cinema and accepted by the audience.

If we follow Bazin's approach (myth of total cinema) and compare images drawn from the history of three dimensional computer graphics with the visual perception of natural reality, his evolutionary narrative appears to be confirmed. Images progress towards the fuller and fuller illusion of reality: from wire-frame displays to smooth shadows, intricate textures, aerial perspective; from geometric shapes to moving animal and human figures; from Cimabue to Giotto to Leonardo and beyond. Bazin's idea that deep-focus cinematography allowed the spectator amore active position in relation to film image, thus bringing cinematic perception closer to real life perception, also finds a recent equivalent in interactive computer graphics, where the user can freely explore the virtual space of the display from different points of view. With such extensions of computer graphics technology as virtual reality, the promise of Bazin's "total realism" appears to be closer than ever, literally within arms reach of the virtual reality user[19].

Starting by hypothesizing that these deviations do not disrupt the balance of the representation, because they appear equally in the domains of behavior and form, they may better be understood as satellites.

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[18] Apud., Barbara Flueckiger, *Computer Generated* Characters in *Avatar* and *Benjamin Button,* Harro Segeberg Ed., Munich, 2011, p. 7.

[19] André Bazin, *What is Cinema?,* Vol. 1, University of California Press, Berkeley, 1967, p. 20.

The aim of this case study will be to analyze Benjamin Button, including how the character has been constructed, how he masters the fundamental problems and lastly how the character acquits itself in evaluative models.

Appearance and behavior are interrelated in a complex network based on genetic information on the one hand, and on environmental and cultural influences amidst which individuals grow up on the other. This approach is indebted to the dynamic-interactionist paradigm of personality psychology, which assumes the intimate reciprocity between individual and environment[20].

Manifold connections can be established between these bodies, which are also shaped by both textual and intertextual, extradiegetic influences. "The body's image is the character's sensory material basis," while the cinematographic body image is a priori "an aesthetic and social construction possessing a physical-psychic expressive potential"[21].

Benjamin Button, directed by David Fincher, is a film that does not fit neatly into established categories. It is a film in the tradition of the picaresque novel. As such it portrays the life journey of a poor but cunning hero from birth to death, and can thus be likened to Forrest Gump. The narrative succession differs, however, through the fantastical element that the protagonist is born an old man and gradually grows younger[22].

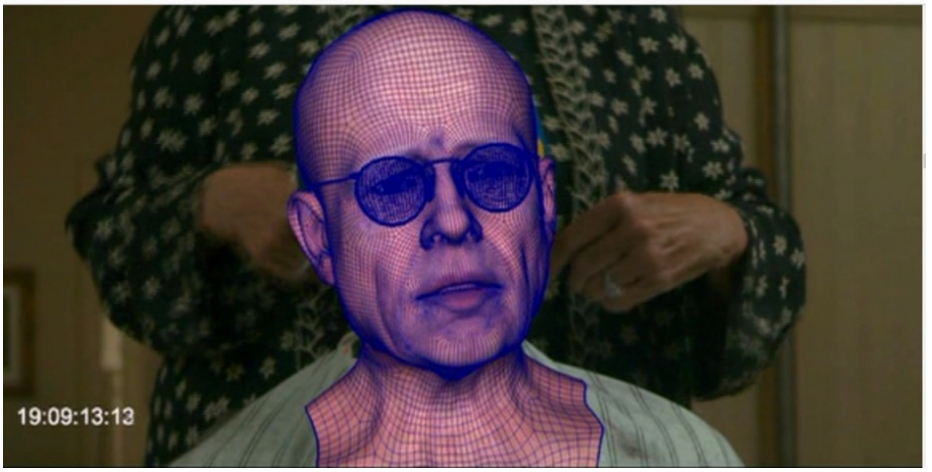

Fig. 9. 3D computer generated head replacement in Benjamin Button

[20] Asendorph, Jens B., Psychologie der Persönlichkeit, Springer, Berlin, 2005, p. 84.
[21] Taylor, Henry M.; Tröhler, Margrit Zu ein paar Facetten der menschlichen Figur im Spielfilm. In: Heinz B. Heller et al. (Eds.): Der Körper im Bild. Schauspielen, Darstellen, Erscheinen. Marburg: Schüren, 1999, p.139.
[22] Barbara Flueckiger, op. cit., p. 8

The problem with old-age make-up is that it is additive, whereas the aging process is reductive. Will be having thinner skin, less musculature, everything is receding. Another traditional approach to solving this problem is to use actors of different ages to portray a single role in multiple life stages [23]. Fincher wanted to avoid this approach, since it constitutes a disjunction in the character's identity. The challenge was intensified because of the dissonance between a growing body and an old appearance. For this reason, Fincher wanted to attempt a solution with a computer-generated character. The aged version of Brad Pitt is nonetheless computer-generated only in part, since the body is that of a human actor while the head is created completely digitally and placed on the actor's body by means of head replacement (fig. 9).

Human skin has always remained one of the most challenging materials to be represented in computer-generated imagery, particularly because of its translucence, that is, its semi-transparent materiality. Light rays penetrate the surface of the skin into its deeper layers, where they are scattered in a complex way and acquire the color values of the bodily tissue and blood vessels[24] (fig. 10).

Fig. 10. Shader elements for the 3D CGI head of Benjamin Button[25]

[23]. Plantinga, Carl, *The Scene of Empathy and the Human Face on Film*. In: Carl Plantinga and Greg M. Smith (Eds.): Passionate Views. Film, Cognition, and Emotion. Baltimore: Johns Hopkins University Press, 1999, p. 239.

[24] Jensen, Henrik Wann, *Realistic Image Synthesis Using Photon Mapping,* A K Peters, Natick, Mass., 2001, p. 127.

[25] Barbara Flueckiger, op. cit., p. 12.

If one omits this so-called subsurface scattering, the skin looks like plaster. In its simplest form, a shader for skin is composed of the following components: texture maps, which determine the distribution of color; displacement maps for small-scale skin variations such as pores and wrinkles; albedo maps, which record the diffusely reflecting parts of the skin that lead to whitening; specularity maps for brightness reflections; reflectance maps for color reflections and texture maps of the color data under the skin's external layer for the purpose of subsurface scattering.

This way of composing a humanoid character reminds us of Hieronymus Bosch's works of arts. The tendency of characters to become heroes of mythical proportion, transforms the films themselves into metafictional allegories of this very urge for reconstruction, reinstatement, and re-embodiment of myths.

Fig. 10. Hieronymus Bosch, *last Judgement, detail which involve the head-composing characters.*

Conclusion

Digital humanities represent a major expansion of the purview of the humanities, precisely because it brings the values, representational and interpretive practices, meaning-making strategies, complexities, and ambiguities of being human into every realm of experience and knowledge of the world. It is a global, trans-historical, and transmedia approach to knowledge and meaning-making.

We do not think the humanities are in perpetual crisis or imperiled by another battle for legitimacy with the sciences. Instead, we see this moment as marking a fundamental shift in the perception of the core creative activities of being human, in which the values and knowledge of the humanities are seen as crucial for shaping every domain of culture and society through the new aesthetic of pictorialist cinematography.

List of Figures:

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