

# Augmented Abstraction

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## Abstract

In this paper we present the creative process of the art installation, titled "Augmented Abstraction",<sup>1</sup> in which the previously established and accumulated knowledge about abstract painting acquires new aspects by means of its translation through the digital media and AR (Augmented Reality) computer technology, and involvement of the audience in the process. The key challenge of the installation is *to detach color (sensations) from form (representation) and make the creative process aboveboard i.e. to deal openly to the audience.*

Subject of this paper as well as of the installation is the interspatiality in art, the new understanding of human presence, inhabiting both the real (uncomputed, corporeal, actual) and virtual (computed) worlds at the same time. The objective is to investigate and point out some of the new aspects to the concept about image as a secondary manifestation of the primary vehicle of creativity – the abstract code, emerging from the interaction between the virtual objects and the real world.

## Keywords

Augmented abstraction, virtual reality, mixed reality, perceptual capabilities, image, code.

## Introduction

We have been witnessing many times in the art history concepts that are striving to get beyond our perceptual capabilities. Nevertheless, with the arrival of the digital media and computer technology, and in particular of the *Augmented Reality (AR)* as part of the *mixed reality (MR)*, we can talk about new state of the mind, new radical change of our optical perception and consciousness. Roy Ascott, talking about "cyberception", explains such technology as a

new understanding of human presence. "To inhabit both the real and virtual worlds at one and the same time, and to be both here and potentially everywhere else at the same time is giving us a new sense of self, new ways of thinking and perceiving which extend what we have believed to be our natural, genetic capabilities" (Ascott, 1994, para. 1). AR technology is giving us new approach to the pictorial space by eliminating the frame and creating a new 3D putative environment.

Subject of the art installation, as well as of this paper is the inter-spatiality in art, the new understanding of human presence, inhabiting both the real (uncomputed, corporeal, actual) and virtual (computed) worlds at the same time.<sup>2</sup> In order to approach the topic in a more comprehensive manner, I have also studied some of the preceding concepts that are striving to get beyond the fixed point perception. The objective is to investigate and point out some of the new aspects to the concept about *image as a secondary manifestation of the primary vehicle of creativity – the abstract code*, emerging from the interaction between the virtual objects and the real world.

The actual whole – nude painting (material nude) viewed in the mode of everyday visibility, is first digitized, converted into a digital form that can be processed by a computer. Later on, the digitized painting is translated into abstract augmented image, allusive or completely nonobjective. The audience is directly involved in the process by activating the augmented reality. By using the AR technology, the art installation is giving chance to observe simultaneously the material world (physical, real-world or its representation in

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<sup>1</sup> The project was shown on the 56<sup>th</sup> edition of Ohrid Summer Festival, July-August 2016, Ohrid, Macedonia.

<sup>2</sup> The art installation and the concept behind it adheres to Joseph Nechvatal's art theory about "Viractualism", contemporary art movement where the artist operate within the inter-spatiality between the computed (the virtual) and the uncomputed corporeal (the actual).

the mode of everyday visibility) as well as the virtual elements which exemplify the abstract code.

The article titled “The Matrix of Sensation” by Prof. Donald Kuspit, published in “Artnet” magazine (Kuspit, 2005) has been inspiring for the project in a really profound way. Prof. Donald Kuspit, talking about Michael Somoroff’s digital video “Query” is giving a serious theoretical base for further experimentation with the digital media, and more specific with digital painting and augmented reality. The result of the installation “Augmented Abstraction” matches Prof. Donald Kuspit’s theory about sensation saturated digital representation – codification of the material nude (viewed in the mode of everyday visibility) in an intellectual epiphany. That is the heavenly nude which is more beautiful and perfect than the earthly nude.

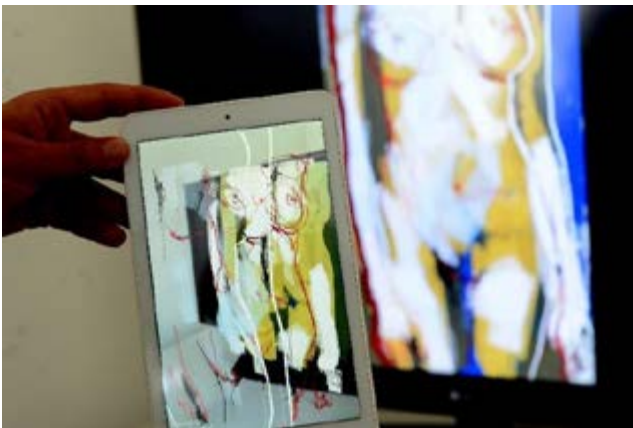


Figure 1: Sample image of the art installation, 2016. The augmented reality system used in the installation is simple, designed to create immersive environment simulated by computer. After detecting the marker (which is digitally painted nude depicted in a mode of everyday visibility and displayed on a large TV screen) the AR system running on a tablet PC augments each of the painting layers, hence detaches and offsets multitude of abstract color shapes into various combinations, creating complex permutations. The actual whole is translated into abstract AR image, allusive or completely non-objective, and the audience is directly involved in the process by activating the augmented reality.

### Going Beyond the Perceptual Capabilities

In this section I will briefly mention and point out some of the *crucial foundations upon which this installation and study are grounded*.

Byzantine art, in particular its spatial organization is something that provokes extremely opposed attitudes among the art historians. There is opinion coming even from real connoisseurs explaining the space and perspective in the orthodox art with naivety and primitive quality of the art.

Nevertheless, there is also theory explaining this “transgressions” against the laws of linear perspective as not fortuitous, but as “a special system for the representation and perception of reality” (Florensky, 2002, p. 202). That is why Byzantine art sometimes could be compared to some of the contemporary artistic languages – there is a highly stylized depiction of space and figures. The church doctrine includes a possibility to depict the divine glory with a medium deeply inherent to art.

Clemena Antonova, in the conclusion of the paper “Visuality among Cubism, Iconography, and Theosophy: Pavel Florensky’s Theory of Iconic Space”, explains that “in many ways, theosophical concepts formed the bridge between Orthodox iconography and modernism. This is especially true of the similarities in the construction of pictorial space in Cubist images, on the one hand, and in medieval painting on the other” (Antonova 2012, p. 10). Talking about the Russian avant-garde, according to Antonova, it is most obvious that the rediscovery of the icon contributed directly for development of modern art. Theosophical thought was used in the explanation of the modernism i.e. what would be the relation with the space in the medieval icon. Kasimir Malevich, one of the most important Russian avant-garde artist of 20<sup>th</sup> century, from early age was exposed to orthodox iconography, even he painted icons. Familiar with the icon aesthetic and spatial orthography, and Influenced by the neo-primitivism movement, later he was painting in a style called Cubofuturism. The name of the movement shows his inspiration clearly: Italian futurist engagement with motion, and French analytical cubism. But it stands to reason that the main catalyst for his artworks is the strong relation with the system of spatial depiction of the orthodox iconography. In his cubo-futuristic artworks, it seems like he took a scalpel to the time itself, showing multiple-vanishing point perspective, and simultaneously depicting different angles of view. In general it is obvious that Theosophy is the creative revelation for all of the modern artist and thinkers at the beginning of 20<sup>th</sup> century. “What is specific to the Russian case, however, is that Theosophy entered an already on-going discourse on the medieval image” (Antonova 2012, p. 3).

The so-called Astral Vision in Theosophy means “higher dimension of existence”, developing a perception that discloses the transcendental and infinite in the material and finite. This will lead to completely new method of perception of the visual world, new approach to the pictorial space, more subordinate to the idea and meaning, counteraction to the prevalent Renaissance and postRenaissance rational, representational art. The artworks of Cezanne are the predominant influence leading towards the geometrical simplification of Picasso and Braque. Cubists were interested in finding depicting method that goes beyond the conventional ways of representing space, transcending the

rules of linear perspective. That is why the forms in their paintings have been extremely fragmented into a planes that seem to move outwards towards the spectator instead of inwards towards the vanishing point (Honour & Fleming 2010). The division of the object into parts becomes a necessary element, representing the object from several points of view. This is the fundamental feature of the cubistic spatial organization: representation of parts and surfaces of the same object which cannot be seen simultaneously from a fixed position.

Furthermore, Picasso experimented with Cubist sculpture as well, constructing objects being flat yet not quite flat, half spatial and half solid, decorative yet austere and harsh (Honour & Fleming 2010). This goes one step further from the Cubist painting, giving chance to experience the effect of the “astral vision” in a real, 3D space. His attempt to expand the Cubist image in 3D space could be perceived as an attempt to reorganize the space itself, to reorganize the fixed point perspective system into a new 3D presumed environment. Sure enough, this is attempt to avoid the conventional optic models and the conventional perception of space, seeking for advanced awareness through a nonlinear extended consciousness.

Next I would like to discuss *the immersively suggestive painting of Jackson Pollock*. Abstract Expressionism goes in a direction in which color in itself is subject matter enough, resulting in paintings overflowing with expression, feelings and emotions, and at the same time emphasizing the spontaneity of the painting process. Abstract Expressionism took many forms, for this occasion I would like to point out one of the leaders of the movement, Jackson Pollack. His method of “dripping” paint on to canvas laid on the ground, resulted with the new important element – the action, or the gesture of painting. He is not touching the canvas with the brush, but stood over it and pour and spatter the paint, often resulting with large sweeping patterns, and giving a sense of inconclusiveness and limitlessness. When standing in front of his “portable murals”, extremely large canvases, the audience has feeling like being immersed in it, while observing from one whirlwind of color to the next. The patterns of color poured from edge to edge across the huge picture field, seems like expanding into infinity beyond the painting itself. The audience gaze is constantly shifting from foreground to the background, as if observing some “atomic explosion”.

I found confirmation about the importance of the abovementioned aspects of Pollock painting in Joseph Nechvatal theory of immersive consciousness, “based on a broad inquiry into the histories of virtual reality, philosophy, and the visual arts”. In his study “Immersive Ideals / Critical Distances – A study of the Affinity Between Artistic Ideologies Based in Virtual Reality and Previous Immersive Idioms”, Nechvatal explains Pollock painting as an example of immersive tendency, artworks that seek to draw the

observer into the canvas, “not by establishing a distant vanishing-point, but by conceptually eliminating the frame so as to permit the eye to follow the curvilinear patterns beyond the canvas and into the implied surrounding space without being stopped by the edges. Here the intention was to create paintings *without beginning or end* as the vastly increased size of the canvas and its elimination of the traditional frame produced an effect suggesting the ideal immersive 360° optic bubble... The painterly consequences, with their incredibly rich eidetic depth, are immersively suggestive of further immersive spaces and states of mind. This proposal of an oppositional counter-tradition to geometrical perspective places Pollack in a key position to bolster immersive-holonetric consciousness” (Nechvatal 2009 pp. 311-13).

### Mixed Reality and Viractualism

All of the abovementioned examples are result of the *desire to transcend the boundaries of our customary human cognition*. Nevertheless, only with the arrival of the digital media and computer technology, and in particular of the *mixed reality (MR)* we are in front of a remarkable change of our optical perception and consciousness. By mixing the real and virtual worlds, a mixed reality system results with superior environment, in which computed (virtual) and uncomputed (corporeal or actual) co-exist and interact. I believe this is bringing us in front of the next important art history watershed.

Mixed reality is in-between the real environment on one side, and *virtual reality (VR)* on the other side, containing in itself the subcategory of *augmented reality (AR)* (Siltanen 2012).

*Virtual reality* is explained as an immersive environment simulated by a computer. The system is changing the reality, hence the perception of reality is manipulated. The main advancement would be the interaction between the system and the user i.e. the user can explore the manipulated, immersive environment from a personal computer. Central subject to the most of Nechvatal’s research is *immersion* – experience deeply inherent to the virtual reality, as well as the newly emerging *immersive cultural consciousness*. Nechvatal explains the immersive art as a temporary realization of the desire to exist in an anti-mechanic state of expansion, meta-symbol of and for expanded human potential. Furthermore he explains interactivity not as an ability to manipulate and modify the virtual world, but essential ability of the immersant to self-modify (self-reprogram) his/her sense of self (Nechvatal, 2001). As I mentioned before, the art installation “Augmented Abstraction” and the concept behind it adheres to Joseph Nechvatal’s art theory about “Viractualism”, contemporary art movement where the artist operate within the

interspatiality between the computed (the virtual) and the uncomputed corporeal (the actual).<sup>3</sup> In the art installation “Augmented Abstraction” this fusion between the computed, virtual and the actual produces complex results, consisting of simultaneous representation of the material world (physical, real-world or its representation in the mode of everyday visibility) as well as the virtual elements which exemplify the abstract code i.e. the idea.

The augmented reality (AR) system was the most natural choice for the project since it includes elements of the real world and digital data (virtual world) at the same time, and is interactive in real time, which is giving chance to make the process of detaching color from form aboveboard.

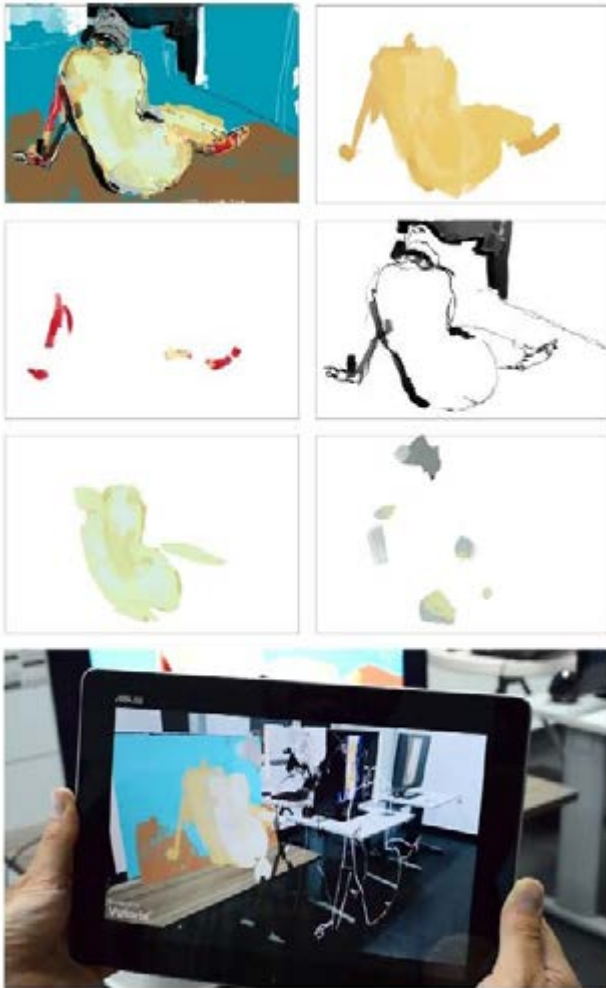


Figure 2: Some of the painting layers (holding individually a number of color patches, brushstrokes etc.) and the abstract AR

<sup>3</sup> Viractualism is an art theory term developed by Joseph Nechvatal in 1999. The basis of the viractual conception is that virtual producing computer technology has become a noteworthy means for making and understanding contemporary art and that this

image, 2016. After detecting the marker and deducing the location and orientation for virtual overlay, the system augments each of these layers, hence detaches and offsets multitude of abstract color shapes into various combinations, creating complex permutations.

The augmented reality system used in the art installation is *simple*, designed to create immersive environment simulated by computer. Consisting of a camera, computational unit and a display, the system is run on a tablet PC using a built-in camera. By using *marker-based* tracking, it captures the *marker*, which is digital painted nude depicted in a mode of everyday visibility, displayed on a large TV screen.

In fact I begin with digital painting, nude painted on many layers (by using Adobe Photoshop software application) where each layer holds individually a number of color patches, brushstrokes and so on. Joseph Nechvatal explains digitization as a key metaphor for viractuality in the sense that it is the elementary translating procedure today. But the viractual recognizes and uses the power of digitization while being culturally aware of the glamorous values of monumentality and permanency qualities that can be found in some previous compelling analog art that grounded itself in the spiritual value of beauty.

The AR applications are created in Unity software application, as well as the virtual components of the installation. The augmentation is in 3D, consisting of multiple parallel offset planes (and parallel to the marker), holding the Photoshop layers i.e. different abstract color patches, color patterns, brushstrokes etc. produced during the nude painting process.

After detecting the marker and deducing the location and orientation for virtual overlay, the system augments each of these layers, hence detaches and offsets multitude of *abstract color shapes* into various combinations, creating complex permutations. The actual whole is translated into abstract AR image, allusive or completely non-objective, and the audience is directly involved in the process by activating the augmented reality.

### Image as a Secondary Manifestation of the Primary Vehicle of Creativity – the Abstract Code

The hallmark of modernism of XX century is the new way of perception of the visual world, art that is conceptually structured, more subservient to the idea and meaning, rather than visual aesthetic (Abandonment of a single point of view and normal proportions i.e. highly stylized figures and space). In a broad sense it is not accidental that the rise of

brings artists to a place where one finds the emerging of the computed (the virtual) with the uncomputed corporeal (the actual).

modern art coincides with the discovery of "old art" everywhere in the world: Arts of Africa, the ancient cultures of Maya and Aztec, medieval art of Byzantium, etc. The avant-garde artist, in their effort to make a big revolution in art in the first decades of XX century, i.e. to break out from the representational art, were looking for a radical change of *space* and *form* in painting. The "old art" possesses all of these things, because it is conceptually structured, more subservient to the idea and meaning, rather than visual aesthetic. Furthermore, it is open to the possibilities for paraphrase and contemporary interpretation.<sup>4</sup> One of the main divisions in abstract art is the *nongeometric abstract art*, or so-called *natural abstraction*.

Claude Monet made revolutionary discovery in his late artworks by reaching a new advancement in painting and revealing the *independent meaning of the color*, which is one step close to the abstract art (Dimitrov, 2001). Unlike the widely accepted painting techniques by the Parisian Art Academy which were going in favor of preciseness and detail, *Impressionism* came to be mostly opposite of that. Instead of painting in closed space and detailing the painting, it revolved around the 'impression', which was mainly inspired by light. As the author of the referenced book on Impressionism, Camille Mauclair, states in his book "The French Impressionists (1860 – 1900)", impressionists believe that there is no such difference between the *form* and *color*. "In nature the distinction does not exist. Light reveals the forms, and, playing upon the different states of matter, the substance of leaves, the grain of stones, the fluidity of air in deep layers, gives them dissimilar coloring. We only see colors; Everything has a color, and it is by the perception of the different color surfaces striking our eyes, which we conceive the forms" (Mauclair 2004, chap. 2, para. 2).

Furthermore, the impressionists believed that there is no such thing as color in nature as well. The only source of color as such is sunlight, and its reflection upon all objects gives them their color, which changes infinitely as the hours pass. There is no color peculiar to any object, but only more or less rapid vibration of light upon its surface. The speed depends, as is demonstrated by optics, on the degree of the inclination of the rays which, according to their vertical or oblique direction, give different light and color. Shadow is not a part of the landscape, only the colors in the shadow are modified by refraction i.e. shadow is not absence of light, but light of a different quality and of different value.

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<sup>4</sup> In Macedonian modern and contemporary art we can say that art tradition is of a great importance. Just through tradition, Macedonian authors find their "modernity" and above all their creative identity. Different cultural and historical conditions mean different understanding of innovation and tradition i.e. in different periods of time in a different way the tradition is incorporated into the modern creations. But as a general feature is the fact that the

For the impressionists the moment was very important. Objects in nature look wonderful under light that is changing very fast, and that was the impression they were trying to capture. Donald Kuspit explains these impressions as sensations, and the idea about the objects as sum of these sensations. He explains that impressionists seemed eager to detach the sensations from the representation. Nevertheless, we can talk about complete separation of sensations from representation with the development of non-objective art and the concept of non-objective sensation. Kandinsky is formulating his concept of non-representational art as one originating "in some inner necessity of the artist to find a spiritual art form free from all references to the external world" (Honour & Fleming 2010, p. 780). Abstract formal qualities when express the artist's innermost feelings create a true spiritual reality.

This historical transition from representational to abstract painting i.e. separation of sensation from representation, acquires new aspects when translated through the digital media and AR (Augmented Reality) computer technology, and involvement of the audience in the process.

The interaction between the virtual objects and the real world brings new aspects to the concept about the image as a secondary manifestation of the primary vehicle of creativity – the abstract code. By using the AR technology, the final result is giving chance to observe simultaneously the material world (physical, real-world or its representation in the mode of everyday visibility) as well as the virtual elements which exemplify the abstract code. The view of the reality is altered or at some points completely replaced by a computer. The work is complete only when the audience see both nudes simultaneously, while tracing their similarities and differences.

The material nude is "marker" that activates the AR, thus revealing the sensations and the heavenly nude. The sensations that once were the material nude has been given abstract permutations in a process that continues without pause. Here I would like to mention Prof. Donald Kuspit once again, in particular his explanation about Michael Somoroff's computer generated digital video Query (2004). He is talking about two nudes as a mirror images – more particularly, translations – of each other. The idea could be equally applied in this project. Nothing is distorted or lost in the translation between the nude depicted in the mode of everyday visibility, and the AR abstract image. The realistic image and the abstract image are exact equivalents. The

artistic tradition is a basis for creation of modern artistic vision. Here I am talking about philosophical understanding of this art paradigm, established level of communication that is overpassing the standard patterns of recognition.

latter codifies the former even as the former exemplifies the latter, that is, embodies the code. He also suggests that the “heavenly nude” is more beautiful and perfect than the “earthly nude”, because the “heavenly nude” is temporally paradigmatic, all-but-invisible abstract nude viewed in an intellectual epiphany – the altered consciousness of a visionary (Kuspit, 2005).

## Conclusion

This paper looked at a concrete creative process of the art installation titled “Augmented Abstraction”. Subject of this paper as well as of the installation is the *inter-spatiality in art*, the new understanding of human presence, inhabiting both the real (uncomputed, corporeal, actual) and virtual (computed) worlds at the same time. The objective of the installation is to investigate and point out some of the new aspects to the concept about image as a secondary manifestation of the primary vehicle of creativity – the abstract code, emerging from the interaction between the virtual objects and the real world.

In the course of the discussion it is suggested that the *Augmented Reality (AR)* as part of the *Mixed Reality (MR)* is bringing us in front of a new radical change of our optical perception and consciousness – concept that is getting beyond our perceptual capabilities. The interaction between the virtual objects and the real world is giving chance to observe simultaneously the material world (physical, realworld or its representation in the mode of everyday visibility) as well as the virtual elements which exemplify the abstract code. The work is complete only when the audience see both nudes simultaneously, while tracing their similarities and differences. The material nude is “marker” that activates the AR, thus revealing the sensations and the “heavenly nude”. The sensations that once were the material nude has been given abstract permutations in a process that continues without pause.

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