VISUAL FRACTAL MODULE - RETROSPECTIVE AND CURRENT IN VISUAL ARTS

Keywords: fractal, chaos, symmetry, fractal module, self-similarity, iteration, decorative repertoire, golden section, modular composition, fractals "Peitgen", fractals "hybrid", rhythm, timing, non-timing, polymodular time, animation, Gestaltpsychologie

Fractal phenomenons challenge the symbiosis between art and science - two complementary ways of exploring the universe, and creating (or updating) a conception of the limit conditions that govern the behavior of several potentially chaotic phenomena in the universe. A sublime idea of the unity of art and science which may intend to argue fractal images made on your computer to be not only subjects of admiration for a select group of insiders, for mathematicians, but beyond scientific popularization of fractal phenomenon - in this case there is a charge of the scientific forums trivialization of a complex mathematical phenomenon - fractal art required a new model of perception and analysis of the world. The fractal is not the first instance in which art moves through a high spirit.

In one of the synthetic definitions that Benoit Mandelbrot gives in *Fractals, Chance and Dimension,* the updated version of his volume appeared in 1975, *Fractal objects: form, chance, size,* he, the father of this line geometric called the fractal "a set of mathematical or concrete object whose shape is highly irregular and / or fragmented in all dimensions"[226].

Mandelbrot *fractal* term derived from the Latin verb *frangere* which means to break or to fragment. Basically, a fractal is any pattern that reveals an increased complexity when, "a world which includes world". More specifically, fractal is a geometric pattern that is repeated (iterated) at a scale no matter how small or large for producing – according to the similarity law - irregular shapes and surfaces that can not be represented by Euclidean geometry.

[226] Benoît Mandelbrot, *Fractals, Chance and Dimension*, WH Freeman and Company, San Francisco, 1977, p. 294.

Fractal analysis module is dedicated to the mobile doctoral research thesis exploring, through a retrospective analysis and the current review of how classical acceptation used in the field of fine arts, with repercussions that scientific innovation is engaged to the new artistic mentality. The investigation of artistic implications of these mutations is enhanced to the perceptual language software in the context of contemporary art. Module's notion (lat. *modulus* - size, repeatable measure) means "an item combined and changed only in size (e.g. square remained all square) ex.: impressionistic hit, a certain hue or a repeated value identical cube or square in modern architecture, design, etc."[227] According to the *Dictionary of art*, the module concept is "a basic unit from which, by repetition and multiplication, it generated a whole" and "a basic principle of the ornament element or combination of decorative elements, floral, geometric, zoomorphic or anthropomorphic, which through repetition creates a decorative surface".[228]

The study of the fractal module in this study is performed in interdisciplinary perspective, addressing to the work of art regardless of the age as a hypertextual entity, a work opened to the premises fractal interpretation, always maintaining respect for the socio-cultural context, to the era in mental habits in which was created the artwork.

Chapter 1 investigates fractal casuistry and chaos theory in a selective perspective, pointing seeking visual arts related phenomena - the emergence repercussions fractal theory on modeling concepts of space and time in art. Fractal modul[229] represents the main actor of the laws of spatial organization of self similarity and iteration, is the germ, which through repetition in different scales, generating an overall visual fractal self-similar expression. Fractal concepts interrelate with images of chaos and order and their competition or their coexistence. Correlated with the aesthetic chaos stands the emergence of new forms of art, including works that use computer graphics as part of the creative process.

---

[227] ***, *Dictionary of terms of workshops*, Meridians Publishing, Bucharest, 1984, p. 189
[228] ***, *Dictionary of art*, Meridians Publishing, Bucharest, Vol. - 1995, Volume II - 1998, p. 289
[229] *Pattern* (English) is the denomination consecrated in specialized terminology.

Chapter 2 is a selective retrospective analysis of how the visual arts, fractal perspective, the focus is on *entrelacs* motifs, seen in the decorative repertoire of medieval Caucasian geographic area, Western Europe and Eastern - including the art of the Romanian Countries. Starting from the assertions repeatability of a method *(pattern),* the relationship of self-similarity between the entire composition of plastics which configure a *pattern* and the versatility of the reason *entrelacs* dimensional (permanent tilt between one-dimensional, two-dimensional and three-dimensional) works art offering above-mentioned ornamental motif can be decrypted with fractal visual potential.

Chapter 3 studies the fractal module as a main modality in the structural organization of the composition. The appeal of the study of the gold section applicability, as an exemplary paradigm for compositional structure organization, appears from the signal reason of the multitude of laws which organizes the space layout, is essentially a phenomenon fractal: iteration of how self-similarity law. From the fine arts, the research focus is directed to the decorative art, on its orbit, the composite field is activated by structures, by flat or linear networks that are governed by the same fractal paradigm.

Chapter 4 captures some connections between computer generated art and the art history. A critical analysis and synthesis in which prevails the cultural-video tribute that the great computer art styles and artistic trends pay, (e.g. Renaissance, Baroque, Romanticism, Pop Art, etc.) proves the intimate association of art history and exploration of computer-assisted imagery.

Chapter 5 is to reconcile the conflict of interests created by some theorists, such as Susan Condé, fractal art made from your computer - fractals “Peitgen” - versus high art – fractals “hybrids” - or what, according to the contemporary aesthetic mentality bear art major denomination. Phenomenological study of cultural factors in relation to visual language and its connotations of fractal art serve for the fractal art interpretation from less explored opportunities such as fractal semiotics and symbols aspects and neo-baroque fractal plastic expressivity, for dragging visual arts universe increasingly by electronic virtual realities etc.

Chapter 6 examines the visual syntax polymodal pace compared with the chaos theory. An action film can be interpreted as a syntax polymodal and provides visual hierarchical value, body action, gesture, facial expression, etc. In a hierarchical model the rhythm and meter distingue, the meter is usually addressed as a unit to synchronize rhythmic hierarchies of musical instrumentation, voice and action. Thus, it may indicate different meanings semantics of multimodal synchronization. Starting from the polymodular time references, which represents a general pattern of temporal organization using various modules and units, the time is measured, and the simultaneously personal artistic research suggests different applications in the field of animation film.

Chapter 7 presents perspective projection rendering tools in computer animation. The reason inclusion of these reflections to the realism of the graphics rendering computer assisted animation is due to the success experienced in this field of application of mathematical methods to propose iterating under the auspices of modular self-similarity law, which minimizes graphics successful “tubular” used in three-dimensional animation.

Chapter 8 provides a brief foray into the world of visual semiotics fractal Gestaltpsychologie investigating the phenomenon, which proposes to open up a new perception of symbolic form and instability phenomena in the visual arts, art fractal generates an investment as herald of metaphorical thinking in the context of the twentieth century.

Chapter 9 reflects the personal contributions in the area of film animation with fractal trends, respectively the researches at the syntax level of the film elements and the investigations at the level of the connotations that the application of concepts polymodulare time prevail them. Fifteen films - *Without End, Fractal Universe, Something to Talk About, Dulcineea of Toboso, about writing, Fractal Tale Without End Without Your Title Fractal, Fractal Tale of Two Very Cherries, Diesen Abend Wiert Improvisiert, Carte Postale, La Lune, Les Feuillles d'Automne, Le Poèt, La Ville absence,*

Les Nuages – are the integral part of the thesis that presents an innovative view on the applicability of the module in conjunction with fractal theory.

It was necessary to incorporate some tags and the introduction of a Glossary, which includes an explanation of the theories of mathematics, which have repercussions on the fractality in the contemporary art assisted by computer.

The overwhelming weight that carries the fractals in the contemporary configuration culture has been a strong argument in preparing this study, the deeper implications of the concept of the fractal art. The research in this matter represents an open chapter further investigations.