

The Butterfly Effect: Movement between Newton's Deterministic Laws and Chaos Theory in Digital Contemporary Fractal Paintings

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Abstract

Through the years, movement has always been part and parcel of the art of painting; whether through illusion of physical movement on canvas or through directing viewers eyes within a painting. This research discusses the concept of movement through paintings utilizing the digital medium. It examines movement through two viewpoints, first: the illusion of physical movement, second: movement as a vital principle contributing to the success of a painting. In the paintings, physical movement is represented through painterly expression of birds and butterflies' while flying, and movement as a design principle by using various painterly elements to express the concept of movement and rhythm.

Moreover, the paintings are categorized in three groups; each group offers a visual representation of one of Isaac Newton's laws of motion. However, they are fractal paintings based on Fractal Geometry; a field relating to the study of nonlinear chaotic systems. In the philosophy of science, chaos stands in opposition to Newton's determinism. Thus, these paintings offer a kind of paradox between the topic it embodies, and the tool used to bring them to life.

This research follows a descriptive analytical method to describe and analyze the concept of movement in both Newton's laws and Chaos Theory. In addition, it also follows an experimental method through paintings representing deterministic movement through a chaotic tool. Results include relative success of use of digital Fractal Art to represent the illusion of actual movement in accordance with Newton's determinism as well as movement as a painterly principle within the artworks.

key words

Fractal art – Digital Painting - Concept of Movement - Deterministic Philosophy - Chaos Theory.