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An Approach to Bio-Visual Mimicry in Contemporary Design through Biomimicry

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Abstract:

Contemporary design is an evolving field that draws inspiration from a variety of sources, with nature being the spiritual teacher and the primary source of thought and creativity in design. Nature inspires designers across different fields, and since it does not reveal all its secrets at once, the advancement of science continually uncovers hidden mysteries behind nature that invite us to think and serve as a fundamental source of inspiration. God Almighty has endowed humans with intellect to reflect and ponder His creation, and He has created the universe in a complete ecological system. This has led scientists to seek to discover the universe and innovate solutions to adapt and coexist in a healthy environment free from pollution, where humans can feel comfort and safety. The increasing interest of designers in studying living organisms (plants, animals, etc.) in nature, their behaviors, life systems, and vital processes has given rise to the concept of bio-inspiration, allowing designers to derive ideas for solving the challenges they face. This leads to biomimicry, which is not only about imitating structures, mechanisms, and systems but also about drawing inspiration from the philosophy, principles, and laws that have allowed life to persist on Earth for millions of years within a framework of evolution and adaptation, despite ongoing human disruption of nature. Nature simulation has contributed to the rise of new technologies inspired by biological solutions at both macro and nano levels. Thus, humans have begun to find answers to life's problems through nature. The current era is a distinctive period characterized by the convergence and dialogue of various sciences and fields aimed at developing technological techniques that enable designers to emulate nature and the complex processes that they were previously unable to achieve. This has led the world to move towards connecting science, engineering, design, and art with environmental sustainability, allowing humans to live in an environment that is spatially harmonious and ecologically adapted.

Statement of the Problem: The research problem lies in the following questions:How can the dimensions of Biomimicry be applied in contemporary design? How can new design ideas be developed that enhance the quality of life and preserve the environment by exploring the solutions provided by nature?

Research Objectives: The research aims to: Clarifying the deep relationship between nature and creativity in design through Bio-visual mimicry. Analyze how biomimicry influences contemporary design. Highlight the importance of drawing inspiration from nature in developing innovative design solutions.

Research Methodology: The research employs an inductive approach, focusing on understanding biomimicry and studying its dimensions and levels, leading to the identification of elements of contemporary design.

Results: Bio-visual mimicry plays a fundamental role in exploring a set of values inspired by natural elements through mimicking the formative patterns of nature and simulating natural color patterns. Modern technologies such as digital imaging and nanotechnology can be utilized to explore details that were previously invisible and to study the unique forms of living organisms more deeply. The expansion in the perception of living formations has enabled designers to describe and formulate these shapes in new ways, drawing inspiration from these formations and their rhythmic systems to produce contemporary, innovative, and balanced design ideas.

Keywords:

Biomimicry, Bio-visual mimicry, Bio-functional mimicry, Bio-structural mimicry, Bio-conceptual.

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