Creation in Re –Invention of Architectural Ornamentation through Digital Production and Fabrication

(Architectural Ornamentation between Beauty and Structure)

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Abstract:

The architectural controversy of decoration has reappeared (since it was previously described as a crime and a waste of labor and consumption of raw materials), but in a new innovative dress, with the current developments and under the use of modern techniques in border formation and with the application of computer-based configuration. And a digital aura has developed a new aura of freedom of creativity in design through digital manufacturing and production and has added a new status of decoration in the formulation of internal architectural spaces, so the decoration has already been embodied and rediscovered again. Be the role of production technology and technology advanced digitalization is a clear indication of decorative aesthetics, on the other hand an important emphasis on the logic of the structure of the formation, which in turn leads to a new structure in the design. So that the fundamentals of the new structural theory in architecture and interior design through the decoration and through the development of a new logic for the design of architectural decoration, through research in the concept of designing digital decoration in the form of terrain and superficial forms sudden go beyond what could be imagined by the individual

Research problem: As technologies become more available, as new tool systems are being developed and tested faster to become in new hands, they require considerable skill and knowledge of programs and controls: Does this mean that we are in a digital age in which labor Handmade craft?? Or is robotic manufacturing an alliance between genetic equipment and normal processes? (Combining conscious understanding with digital craft). The lack of awareness of the interior architecture designer often the origins of the decorations of the previous architectural styles and classifications, whether aesthetic or structural, and then rediscovered and reformulated digitally using advanced computer technologies, in the digital age, follows the form of computer, the computer does not design what is new and innovative, but it The mindset of the architect and his cognitive backgrounds in the field are the ones that make digital flow especially in the field of abundance of digital architectural decoration.

Objective of the research: - shed light on the designs of the world with digital decoration go beyond what could be imagined by the individual. By combining computer design and 3D sand printing, a unique architectural decoration can be embodied without any manual intervention, and without any loss of detail or information. Calculations are algebraic since they do not include randomness, but the results are not necessarily fully predictable. Instead, these processes have the potential to surprise the vacuum. Reframing architectural decoration using digital tools and computers that perform the mechanism of repetitive tasks of patterns and re-concept of the motives generated. Studying the role of the robotic plastic thrower controlling the construction of a present rich in formulation and architectural precedents. By producing a faster result with more efficiency than the above decoration.

Research Methodology: The research follows the descriptive and analytical approach by researching the concept of designing digital decoration in the form of sudden topographical and superficial forms that go beyond what the individual could have imagined. When combined with computer design and 3D sand printing, a unique architectural decoration can be embodied without any manual intervention, and without any loss of detail or information.

 Keywords:

decoration, architecture, digital craft, digital production, digital manufacturing, robotic arms, 3D printing technology, digital workflow.

An Introduction:

 The decoration is the expression of the development of human thought and the aesthetics of the human soul's vision of the universe. And man, since he was living in caves in the prehistoric era, used to decorate the walls of his cave with various decorations, where he depicted the environment in which he lived, including animals and plants. Then the architectural decoration went through successive stages of development through the ancient architectural styles, where each era showed its bias through its relationship with the decoration, and if the most prominent of them were: the Gothic - and Islamic - and also in modern art, in terms of the strength of formation and the interdependence of engineering relations not only as decoration And as a structural structure for buildings. However, these terms do not have to be additive and aesthetic only (as a result of adding decorative geometric, vegetal, epigraphic components and others) to the architectural composition, as they can be structural (through the decorative effects generated by the original form, as a result of its constituent elements and the relationships between them). And speaking of the use of decorations and their re-representation in the facades of buildings as a trend that appeared in the architecture of the twentieth century, we found many international buildings to this day, bearing not only the plastic and decorative character on their facades, but rather the functional, technological and distinctive character of each of them separately. Ornamental body and composition. Looking quickly and accurately through space and time, the art of decoration has always maintained its place in attracting the attention of various branches of knowledge, especially in art and architecture, in addition to the fact that the art of decoration has been present since ancient times. Recently, attention and interest in the art of decoration has increased, but in a new innovative dress.

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C- 3D printing technology

Example: Digital Grotesque Project

Conclusion:

The role of production technology and advanced digital technology has become a clear guide in typical and decorative aesthetics and the increase in the effectiveness of transferring models from nature and biology to engineering and architecture. On the other hand, the important emphasis on the logic of the structure of the formation leads to the existence of a new structure in the design. It is a highly dynamic composition consisting of clear spatial and structural principles and arrangement of materials through the application of anthropomorphism and transformation technology, providing the fundamentals of a new structural theory in architecture - 3D printed elements are within reach not only as facade units, but also as structural components and complete structural systems. . When computational design and 3D printing are combined, a unique architecture can be embodied without any manual intervention, and without any loss of details or information.

Research Results :

1- The spread of computer technology has shifted the interest of architects from forming the final product all the way to the surface.

2- The use of electronic tools and inscription-border models, have added a new mode of decoration in surface formulation. Where the decoration became a structure and the structure became an ornament.

3- Architects and designers nowadays wrap their buildings using a dress of decoration, as if the skin that covers the bones of the human being, so that this enhances the performance characteristics of the building.

4- Repetition, Rhythm and Complexity are only two sides of the same coin, each of which must serve the other.

Recommendations:

1- Paying attention to the decorative aspect of the engineering project in the field of teaching interior architecture courses in terms of being a structural structure, not just a complementary aesthetic element or an accessory.

2- Paying attention to the analysis of the elements of architectural styles, especially the decorative ones, during their studies in the faculties of design, with an attempt to link their abstract study with the proposed digital applications to reformulate and discover them by the student. This is to develop the perceptions of the student of fine arts and work on overburdening his innovative imagination.

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