ARCHITECTURAL NATURAL SOLUTIONS GENERATIVE SYSTEM: "BIO-MIM-TRIZ" (I^3)

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ABSTRACT

Humans face a serious threat which is thinking about architectural modeling soft wares as drawing tools only not ideas generative ones. Therefore, implementing architectural soft wares in early stages of design is impossible. Also, the architects with his limited knowledge about biology and nature were unable to extract natural inspired solution and translate these biological terms into architectural engineering terms ready to be applied on designs. What makes it a must to add biological thinking to design is the need to save architecture and save the world and environment with its natural resources from the decay and strengthen the relationship between buildings and its inhabitants.

A new design process "BIO-MIM-TRIZ" is presented to help designers develop candidate bio-inspired engineering products or solutions for a given design problem. This process will overcome the problems faced when using natural inspired designs which are a designer's limited knowledge of biology and the differences in engineering and biological terminologies. Architects must understand that all solutions derived by animals, plants or nature are through the years to reach their optimum form.

Finally, this new process "BIO-MIM-TRIZ" will be converted to a plug-in and added to 3ds Max software to help generate hundreds of biological solutions and apply the on designs without any need of a biologist to represent these solutions. This plug-in will generate hundreds of solutions that a human mind alone cannot represent them all. This will introduce biological thinking to architecture easily after knowing the location, weather and features needed to apply on design, all these inputs are by determined by the architect in the beginning of plug-in usage, then he leaves the role to this plug-in to generate all convenient ideas. The output will be biological solutions derived from animals, plants and nature surrounding us and convenient to the project specific location and conditions.

Keywords:

Bio mimicry, Architectural modeling software, 3ds Max plug-in, Bio-TRIZ, BIO-MIM-TRIZ