COMPUTER APPLICATIONS IN ARCHITECTURE: FORM GENERATION TOOLS

By:
Dr. Hatem El Shafie
Associate Professor, Department of Architecture, Faculty of Engineering, Cairo University

ABSTRACT

In the age of globalization (and fierce competition), architects in developing countries have to keep pace with the latest advancements of technology and computing. The majority of architects may not be fully aware of the applications of computers in architecture except for the applications of computer aided drafting, modeling and visualization. This has resulted in that computing has not penetrated all the architectural tasks evenly. The problem in developing countries is even greater.

However, whether in developed or under developed countries, one of the least explored areas is the area of computer aided form generation. This is evident in the rareness of software that aid architects in this area. This study is out to investigate the latest applications of computers in architectural design form-generation.

The study proceeds to review background and historical information. The two branches of form generation tools were identified, namely, generative tools (the fist branch) and concept development and sketching tools (the second branch). Exemplary applications of computing in design synthesis in architecture were investigated. The current status was analyzed and the latest developments were emphasized for both branches.

The study closes with the conclusions and directions for further research. Among the findings of this study were that the second branch is developing in a much faster rate than the first branch. The second branch is developing rapidly in the directions of the ease of use and internet collaboration. The main problem with the first branch seems to be inherited from the larger realm of the science of artificial intelligence.

KEYWORDS: architectural design, computers, form generation, synthesis, information technology, design process, future, state of the art, practice, Egypt