

# USING PARAMETRIC OPTIMIZATION TOOLS IN ARCHITECTURAL DESIGN PROCESS

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## **Abstract**

Generative design tools have been used to explore design variations and to generate form. In order to adjust different variables to get the best possible solution; parametric optimization process links to these generative tools; this automatic optimization process is a very precise method that finds the most efficient solution instead of evaluating the results manually. This paper is going to explore parametric optimization process and its possibility of being integrated with generative tools in the design process, in order to reach the optimum building's performance. The research will explain different techniques and tools that used in this process; Rhinoceros, grasshopper and parametric optimization in order to investigate this design methodology. In addition, the research is going to track some architectural examples that experience optimization process in order to reach the optimum performance needed and to explain the workflow of each process, also the research will present a pilot study of integrating genetic optimization tools during a typical design process for building facade. Research goal is to make parametric optimization tools a well-known tool for architects to be used during the design process, and to offer a simple method of evaluating and optimizing faced design and its performance by using these tools.

Keywords: Architectural Design Process, Parametric, Optimization, Grasshopper.

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