

## عنوان مقاله:

Survey of parametric optimization plugins in Rhinoceros used in contemporary architectural design

## محل انتشار:

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## خلاصه مقاله:

Optimization problems often involve situations in which the user's goal is to minimize and/or maximize not a single objective function, but several, usually conflicting, functions simultaneously. Such situations are formulated as multi - objective optimization (MOOs) problems. For instance, various building design issues such as building orientation, indoor thermal comfort, daylighting, life cycle analysis, structural design analysis, energy cost, etc. can be treated as optimization problems. Recent advances in computational tools for design applications, coupled with techniques like genetic algorithm (GA) have led to new possibilities in the way computers can inform and actively interact with the design process. GAs have attracted much attention in architecture in recent years and are commonly used for solving MOO problems. Here we review the benefits derived by combining parametric modelling and energy analysis tools with GAs to achieve a performance oriented process in design, with specific focus on architectural design. This survey focuses on Grasshopper (GH), a graphical parametric form generating tool, integrated into Rhinoceros 3D. GH is developed in such a way to be connected to multiple plugins such as Karamba, LadyBug, Octopus, etc. in order to facilitate the relation between different disciplines with the same simulation approach. These plugins are connected to GH and used as an engine to EnergyPlus, Radiance and Daysim for building energy, comfort, daylighting and lighting simulation as well as carrying out interactive real simulation, generating form, analyzing structural components and optimization tasks.

## کلمات کلیدی:

.Architecture, Parametric design, Optimization, Genetic algorithm, Rhino

## لینک ثابت مقاله در پایگاه سیویلیکا:

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