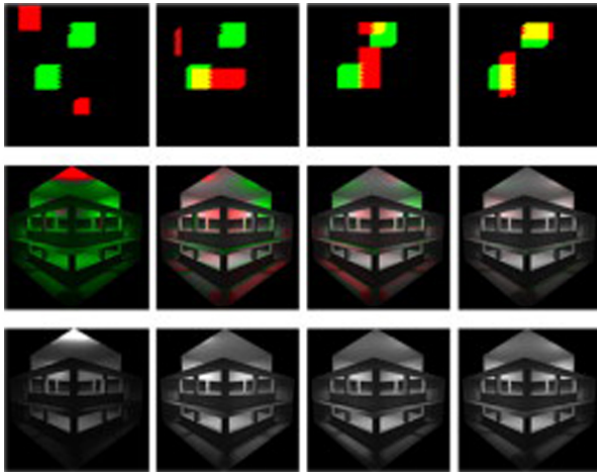


# Inverse lighting design for interior buildings integrating natural and artificial sources

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In this paper we propose a new method for solving inverse lighting design problems that can include diverse sources as roof skylights

or artificial light sources. Given a user specification of illumination requirements, our approach provides optimal light sources

positions as well as optimal shapes for skylight installations in interior architectural models. The well known huge computational effort that involves searching for an optimal solution is tackled combining two concepts: exploiting the scene coherence to

compute

global illumination and using a metaheuristic technique for optimization.

Results and analysis show that our methodology presents fast and accurate results and that it can be applied for lighting design

in indoors environments with interactive global illumination visualization support.