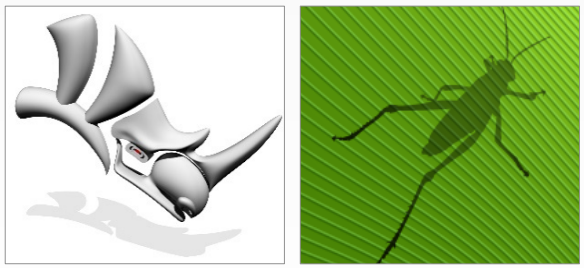
Building zero energy districts in tropical climates.

Development of design tools for morphology/comfort/energy coupled optimization.

Coupling multiple weather-based simulation models and tools via a Rhino-Grasshopper platform.



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Background

Global environmental study of buildings in urban areas

- Plenty of existing tools & simulation models used separately with often data that could be shared
- All using 3D models that evolve, get more detailed and complex along the different design phases (different formats)
- Coupled simulation and cross-analysis of results is difficult
- Need for more flexibility, more coupling, more optimization

Objectives

- Facilitate the exploration of multiple urban design scenarios with a unique, evolving 3D model
- Take into account the microclimate and its interplay with the urban form
- Optimize the urban morphology for building passive design strategies
- Develop a unique, reactive and flexible simulation/analysis/optimization platform with Rhino-Grasshopper
- Develop a set of tools, rules of thumb for urban design in tropical climate

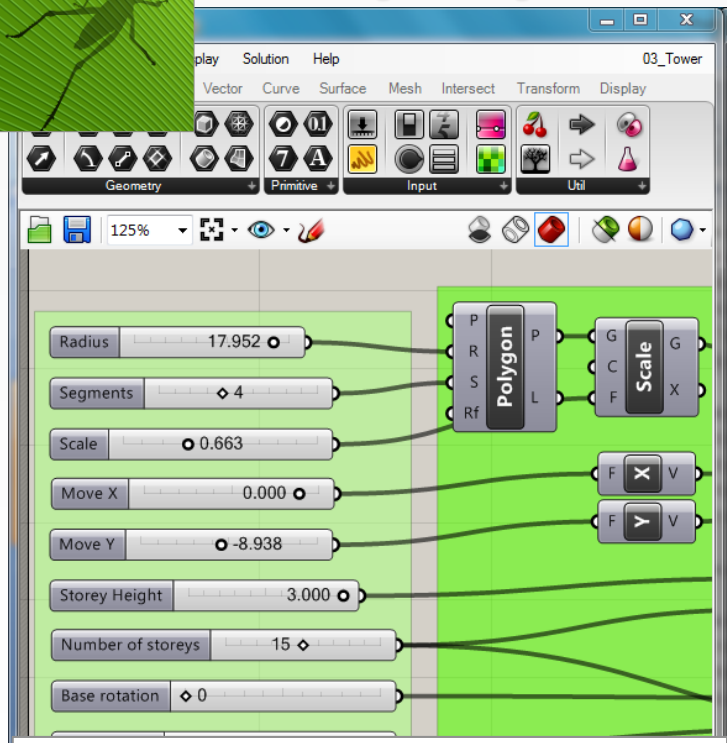
Approach

Parametric modelling allows to

Generate | Control | Optimize

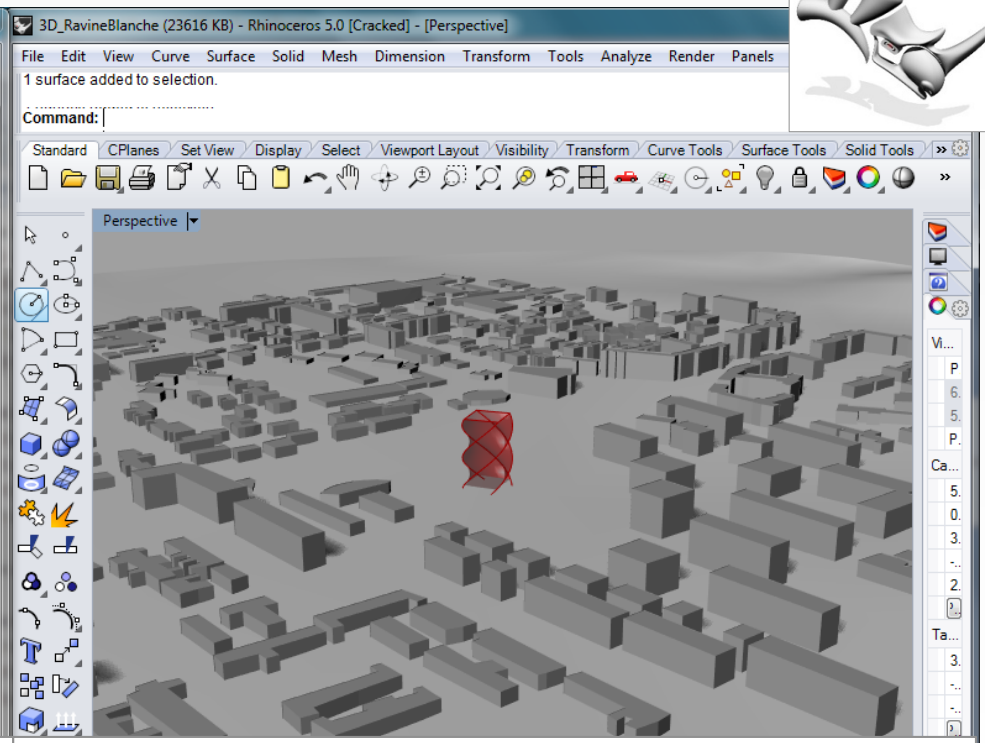
Complex 3D geometries such as
3D model of a district with multiple buildings and its topography

Visual Programming



GH modules
for control, generation & optimization

3D Modeller & Interface



Auto-generated 3D model
From BDtopo & OpenStreetMap files

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Poster

See you near-by

the smallest poster