

# Free-form Modeling Software with Grasshopper as tightly integrated graphical algorithm editor

www.rhino3d.com www.food4rhino.com www.grasshopper3d.com



Rhinoceros for Architects & Engineers

"A requirement for the design, development and realization of the complex morphology of the pavilion is a closed, digital information loop between the project's model, finite element simulations and computer numeric machine control. Form finding and structural design are closely interlinked."



ICD/ITKE Research Pavilion University of Stuttgart 2011

Rhino and Grasshopper are heavily used for **freeform roofs, parametric facades, repetitive components, versatile building shapes or complex structures** in architecture and engineering.



Rhinoceros<sup>®</sup>

Grasshopper



food 4 Rhino

## **BIM & Documentation**



VisualARQ, FlexibleBIM® Plug-in for Rhino and Grasshopper



FlexibleBIM® (Building Information Modeling) features link geometry and object data. They support import and export from and to the IFC file format to exchange Rhino models with other AEC applications.

## **Design & Drafting**



Rhino/ Grasshopper UI

Rhinoceros in combination with Grasshopper is an ideal addition for all 2D and 3D applications in architecture and engineering in order to generate **complex associated geometries such as NURBS surfaces, meshes and solid models**.

## Visualization & Animation



Many popular rendering and animation plug-ins work in Rhino. They help generating **high-quality images** of unparalleled realism and **animating objects.** 



Render, V-Ray Plug-in

## **Analysis & Simulations**





ICD/ITKE Research Pavilion Stuttgart 2014



Kangaroo Physics





Rhino and Grasshopper have a rich ecosystem of **plug-ins** for structural analysis, simulation, visualization and fabrication of your design.

## **Fabrication & Construction**



Robotic and Digital Fabrication, 3-D Printing, and Rapid Prototyping Rhino and Grasshopper can be tightly integrated in any step of the manufacturing process.



HAL, GH Add-On