

Rhinozine

3D • SEPTEMBER
2023

Elevating Surfing to New Heights

Lift Foils blends 3D modeling with passion for adventure, ushering in a fresh era of aquatic thrills

Grupo MSH's Innovative Façade

blends Environment and Aesthetics in perfect harmony

Book Discoveries:

Advanced 3D Printing with Grasshopper - Clay and FDM

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Image by Kyle Houchens

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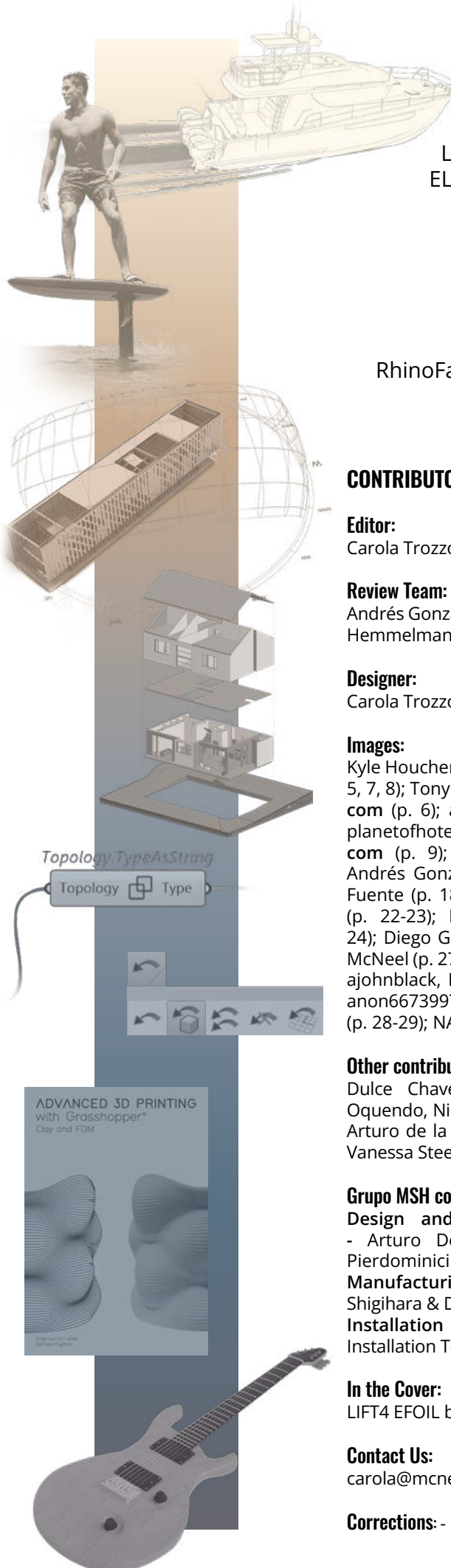
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LIFT4 EFOIL by Lift Foils

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Corrections: -



food4Rhino

Apps for Rhino and Grasshopper

The food4Rhino web site has many apps for Rhino and Grasshopper.

It's a mix of plugins for many, many applications.

Popular apps you can find here:



LunchBox



Ladybug Tools



Kangaroo



Pufferfish



PanelingTools



GhPython

Check it out!

www.food4rhino.com



[download](#)

ORCA3D

(by Orca3D)

Category: Naval



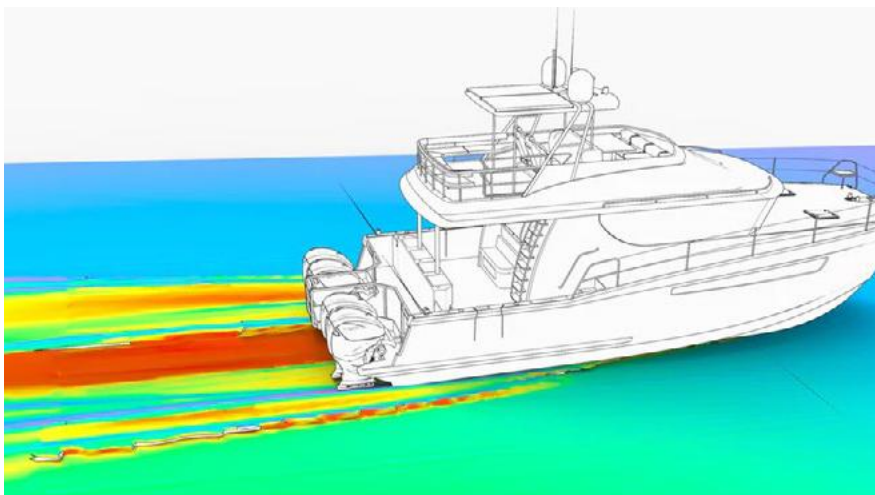
Image by Tony Castro Limited

Software written and supported by naval architects, for naval architects.

Orca3D is a software plugin for Rhino, providing specialized features for yacht/ship design and analysis. Starting with the power of 3D modeling in Rhino, Orca3D adds hull design and fairing, hydrostatics and intact stability, speed/power prediction, weight/cost tracking, and computational fluid dynamics (CFD). Grasshopper components

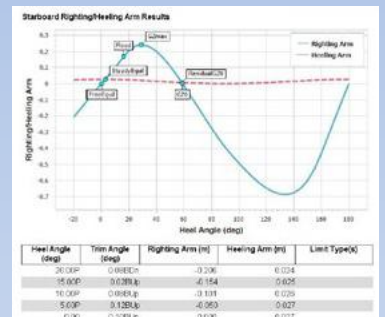
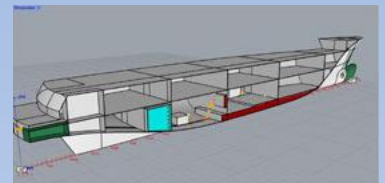
for hydrostatics & stability calculations, hull assistants, and resistance prediction are included.

Orca3D is intuitive, easy to learn, and completely integrated into the Rhino environment. It is developed by naval architects and backed up with first-class technical support.



Orca3D Version 3 Work-in-Progress is now available!

Version 3 introduces a completely new module focused on advanced stability analysis.



Version 3 WIP is compatible with Rhino 7 and will be compatible with Rhino 8.

[download](#)



download



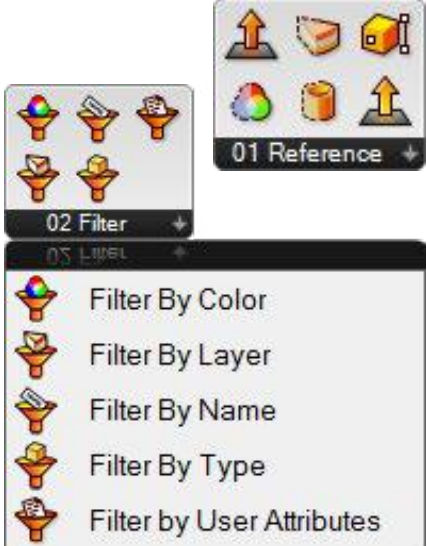
ELEFRONT

(by elevelle)

Category: Analysis and simulation, Architecture, BIM, Drawing and illustration

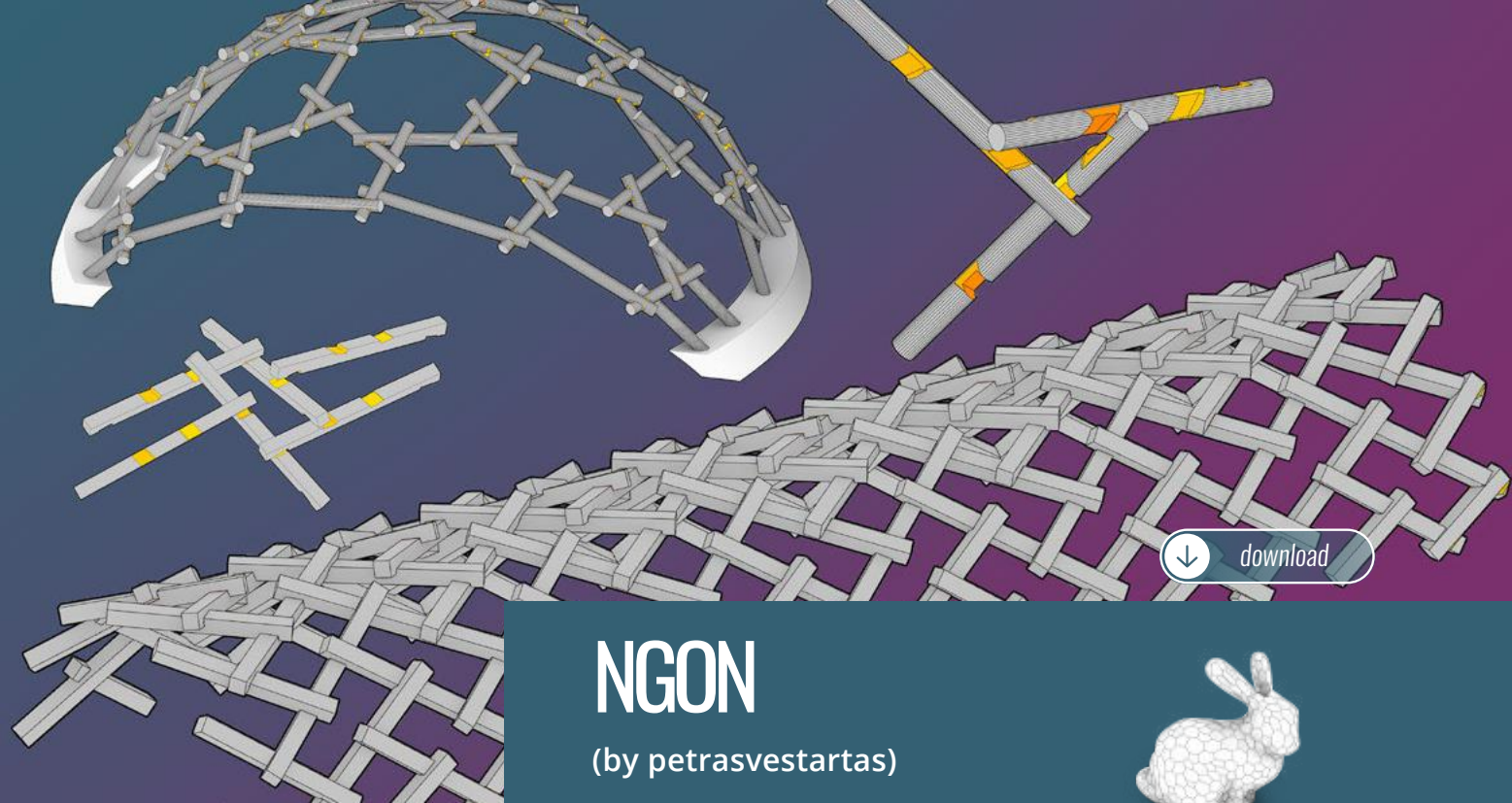
Brings the power of data to your 3D models.

eleFront is a plugin for the Rhino3d and Grasshopper environment. It allows you to attach data to your geometry using parametric workflows, making it easier to filter, query, and manipulate large models.



Developed in real time, on real projects.

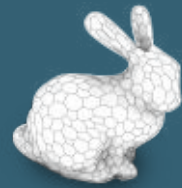
eleFront has been designed for and tested on some of the most complex and cutting-edge buildings in the world. It is developed by **Front, Inc.** - an international and multidisciplinary design consulting group specializing in the design and execution of innovative building facades. They developed eleFront primarily in order to deliver the complex and challenging construction projects with which they're engaged. They have made the plugin publicly available and free to promote a data-centric way of producing 3d models.



NGON

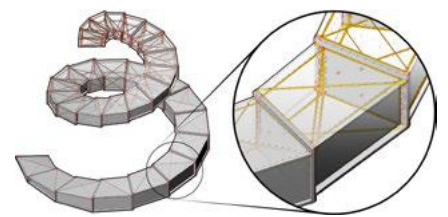
(by petrasvestartas)

Category: Architecture



The Ngon plugin, initiated during Petras Vestartas' EPFL Ibois PhD studies, is designed to handle mesh processing methods. It was primarily utilized as a toolbox for research, workshops, and teaching, notably in projects like the Corrugated Cardboard Shell. Its inception involved ngon-based triangle grouping, intended for tasks such as converting polylines into hexagons or other n-sided polygon subdivisions.

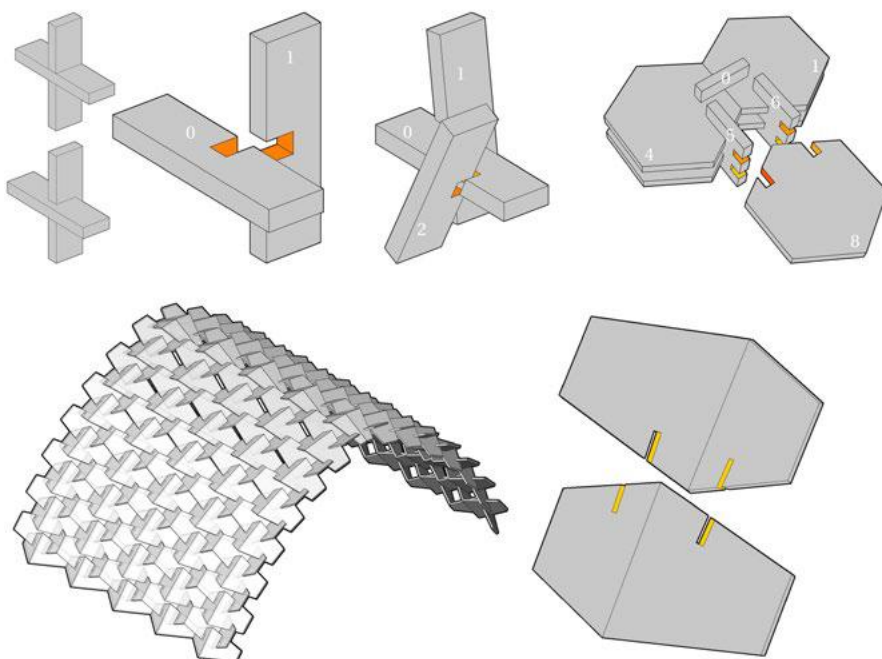
As projects required more detailed fabrication models, the plugin's mesh data structure played a key role in retaining

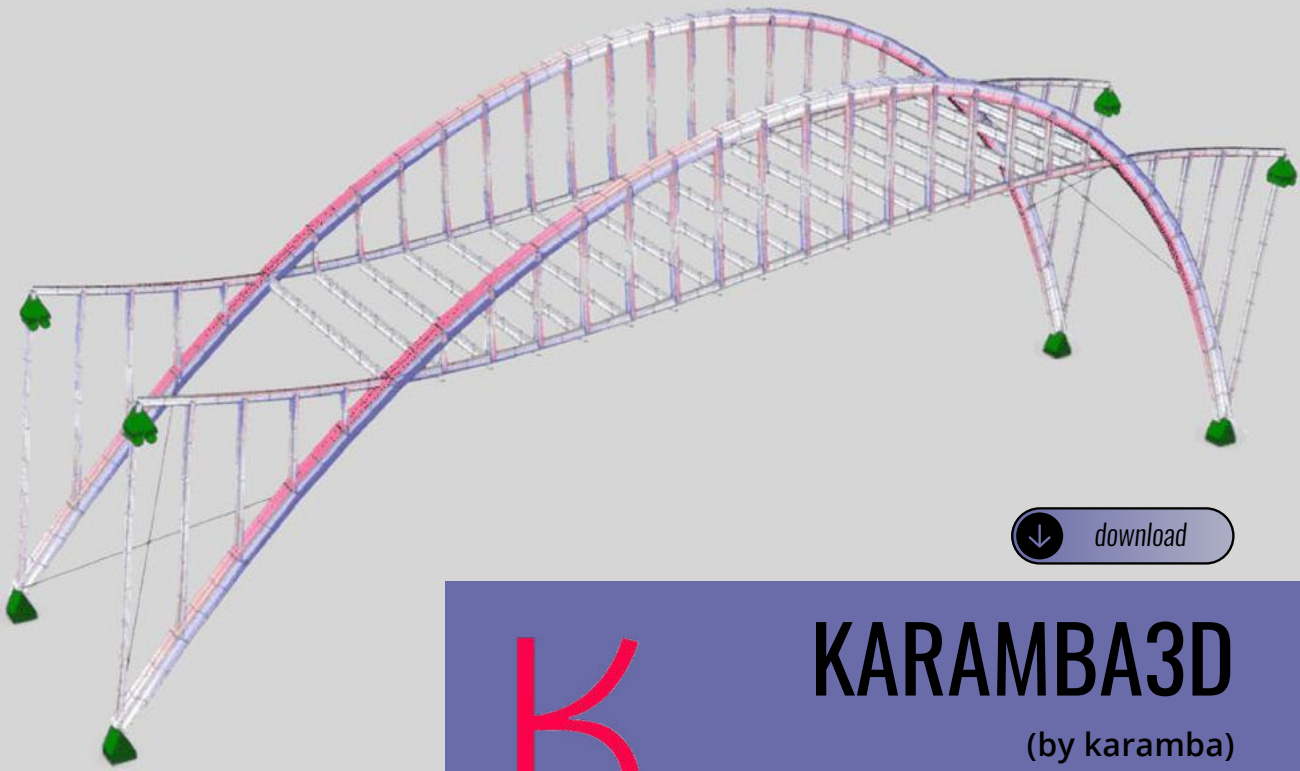


indexing information for assembly and incorporating additional features, such as timber joineries. Over time, the plugin's capabilities expanded to include new features like mesh creation from BREPs, triangle meshes, subdivisions, adjacency, curvature analysis, and transformations. The Rhino Grasshopper interface supports various functions, while NGonsCore.dll enables scripting in Python, C#, or VB.

The library is open source on Petras Vestartas' GitHub, offering insight into the actual implementation of various methods.

Free tutorials for this plugin are available.





K

KARAMBA3D

(by karamba)

Category: Physics

Karamba3D is an interactive, parametric engineering tool that allows you to perform quick and accurate Finite Element Analysis (FEA). It has been specially tailored to the needs of design professionals in the early design phases.


Karamba3D is embedded in the parametric environment of Grasshopper in the 3D modeling program Rhino3D. This makes combining parameterized geometric models, Finite Element calculations, and optimization algorithms like Galapagos, Octopus, Wallacei, and many more, easy

Karamba3D can also be used as a standalone .NET library for integrating Finite Element functionality into your scripts.

Example definitions showing various features of Karamba3D are available. Each example includes subsequent Grasshopper definitions and Rhino files.

Elevating Surfing to New Heights





The Lift Foils Journey: Where Rhino Engineering and Water Thrills Converge

Lift Foils pioneered a world of unmatched freedom soaring above water surfaces. Designer Nick Leason co-founded Lift Foils, a company reimagining hydrofoil surfboards. This family-owned company combines Rhino 3D modeling, advanced technology, and a passion for adventure to create a new era of aquatic excitement.



Manufacturing Excellence

Nick Leason, the creative genius driving Lift Foils, harnesses the power of Rhino 3D modeling as his design tool of choice. Rhino enables Leason to turn his complex ideas into reality, serving as the backbone of Lift Foils' innovative journey from conception to the final product. Lift Foils prioritizes precision manufacturing alongside design, utilizing the RhinoCAM plugin to translate digital designs into hydrofoil surfboards seamlessly. Lift

Foils maintains its commitment to excellence with Rhino's dynamic modeling and RhinoCAM's precision.

Elevating Water Thrills

At the heart of Lift Foils' philosophy lies the responsibility to deliver an unparalleled experience on the water. Nick Leason encapsulates this sentiment: "Lift is a company dedicated to building powered and non-powered hydrofoil surfboards. Lift Foils uses high-tech lithium battery packs and carbon fiber hydrofoils to create



a flying sensation over water.”

Lift Foils revolutionizes water sports with innovative lithium battery packs and carbon fiber hydrofoils, taking riders to new heights. Their hydrofoil design allows individuals to effortlessly glide atop the water, evoking a sensation akin to flight. It embodies technology, engineering, and the joy of the ocean’s embrace. The eFoil epitomizes the pinnacle of Lift Foils’ innovation. The LIFT4 eFoil is the market leader in aquatic exhilaration, with impressive speeds of up to 30mph,

prolonged ride time, and heightened aerodynamics developed over a decade.



Nick's Visionary eFoil Concept

Over a decade ago, Lift Foils was founded in Puerto Rico with a focus on innovation and excellence. Nick's vision for the eFoil was a breakthrough moment, combining technology from smartphones, electric vehicles, and drones to create a board that defied gravity, allowing riders to effortlessly glide above the water's surface. The eFoil's viral reception fueled years of rigorous research, development, and engineering, and today, Lift Foils proudly ships thousands of eFoil worldwide,

a testament to their dedication to pushing boundaries.

Limitless Futures

Yet, Lift Foils remains grounded in its roots. Lift Foils collaborates with top board shapers and carbon fiber suppliers to perfect their classic foil lineups. They've earned the trust of industry legends like Laird Hamilton and Kai Lenny and are committed to

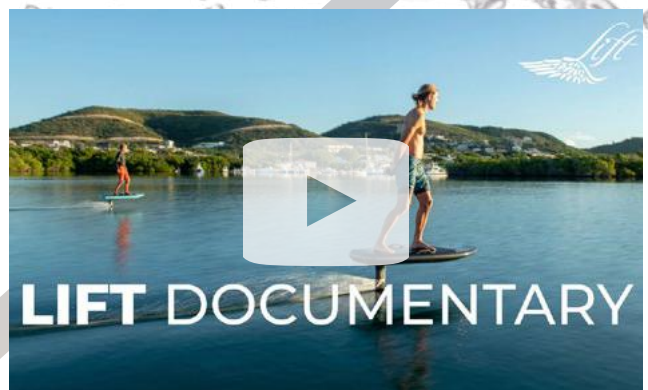




continuous innovation, top-tier customer care, and limitless potential for buyers investing in their products. It's no surprise that even the world's top professionals choose Lift for their exploits. The journey of Lift Foils is far from over. Fueled by an unrelenting desire to shape the future, the company remains dedicated to pioneering new ideas and products. With each innovation, Lift Foils invites water enthusiasts to embrace a ride like no other —a seamless blend of technology, adventure, and the open water's beauty.



Witness Lift Foils' remarkable journey in their captivating documentary. For a deeper dive into their hydrofoil innovation, **visit their web site** or follow their journey on **Instagram**.





What is a RhinoFabStudio® ?

A RhinoFabStudio® (fabrication studio) is a McNeel-certified digital workshop, which includes a suite of Rhino and Rhino-compatible programs, computer-controlled tools, and training. The tools cover the various cutting-edge industrial methods and materials for designing, analyzing, and manufacturing just about anything.

Advantages

As an Authorized RhinoFabStudio® you will:

- Be recognized as a leading-edge industrial-grade digital design, analysis, and fabrication expertise provider.
- Have all of your events and activities published to a worldwide audience.
- Have access to specialty digital design, analysis, and fabrication experts.
- Have direct access to many digital design, analysis, and fabrication product development teams.

Once approved:

- You can log in and post your RhinoFabStudio events on the RhinoFabStudio event schedule.
- Your details and event schedule will be posted on the Rhino News Blog.
- Your event schedule will be announced in the RhinoFabStudio News e-mails monthly.

**Want to become an authorized
RhinoFabStudio®?**



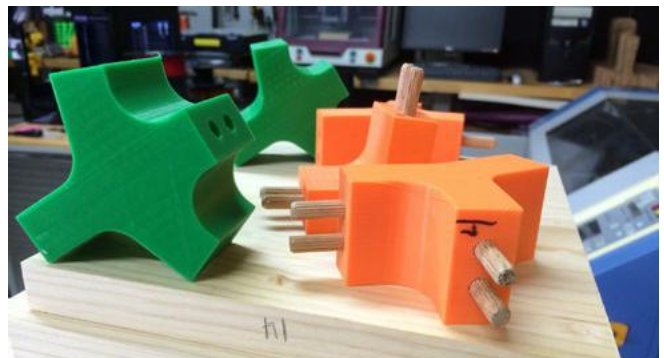
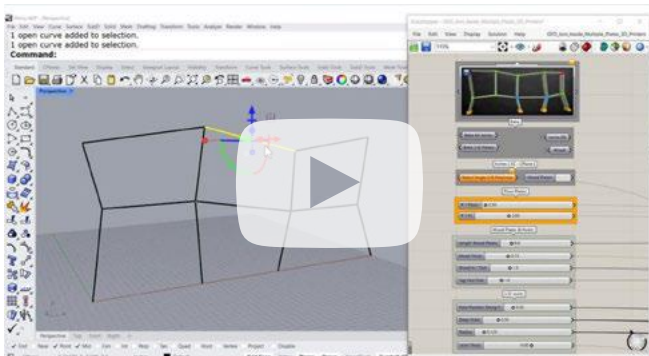
[more info](#)

RhinoFabStudio® Project: The Melting Bookshelf

Using the parametric capabilities of Grasshopper, a parametric Definition was created, resulting in the efficient selection of individual lines within the XZ construction plane. Consequently, the establishment of 3D joints featuring dowel holes and straight connectors came to fruition. This endeavor facilitated the generation of elaborate 2D technical drawings complete with dimensions of each part. Through the manipulation of control points along the connecting straight lines, the parametric definition seamlessly brought forth indispensable 3D geometry. This

particular geometry played a pivotal role in the 3D printing of joints and the construction of the bookshelf. Concurrently, the 2D technical drawings worked in tandem to ensure the precise assembly of the ultimate melted shelf product.

More info about the Miami's
RhinoFabStudio®?



Grupo MSH's Innovative Façade:

Creating a Harmony of Environment and Aesthetics

Grupo MSH is an architectural innovator that blends functionality and aesthetics. Led by **Arturo de la Fuente**, the in-house team uses computational design to harmonize extreme functionality with delicate façade aesthetics, optimally addressing solar radiation and daylight intricacies.

Grupo MSH seamlessly integrates solar design principles to optimize energy usage, guided by computational analysis for window placement to balance daylight and solar heat gain.

This success story highlights Grupo MSH's dedication to offering architectural solutions that balance functionality and visual appeal.

Grupo MSH

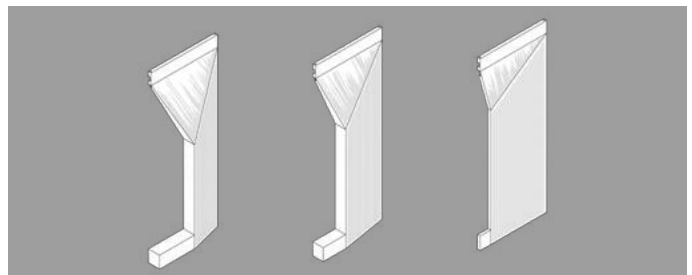
Grupo MSH, based in Buenos Aires, is an architectural powerhouse dedicated to creating cutting-edge façades and cladding solutions. They offer comprehensive services, including cooperation, design, engineering, fabrication, installation, and warranty support. Driven by a commitment to excellence, Grupo MSH merges aesthetics with functionality.



Navigating the Challenges of Parametric Design

Arturo de la Fuente shares the intricate journey behind Grupo MSH's innovative endeavors that culminated in the remarkable façade of their new factory. The challenge was

multifaceted, including integrating variables such as natural lighting, radiation, transparency, and desired illumination into a harmonious design that is responsive to each building section. **Grasshopper** is at the core of this achievement, empowering Grupo MSH's design team to transcend traditional constraints and materialize their concepts.

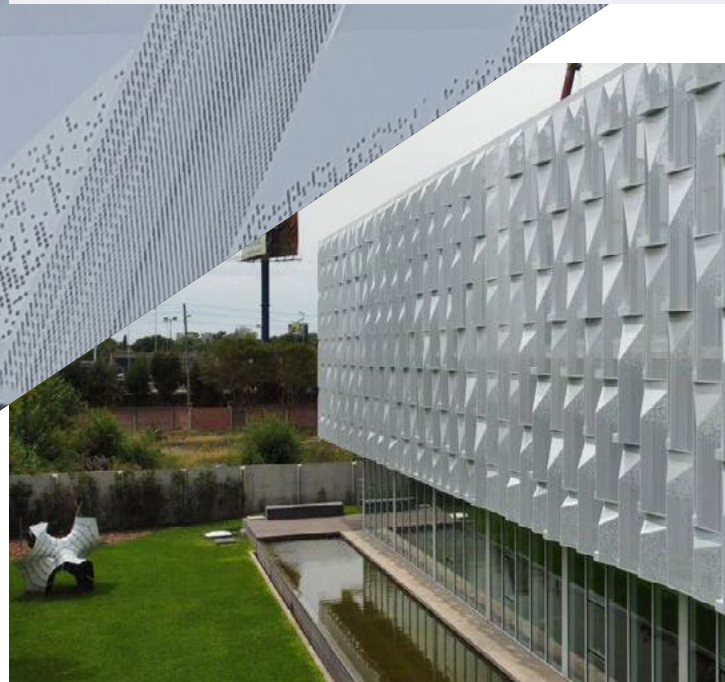
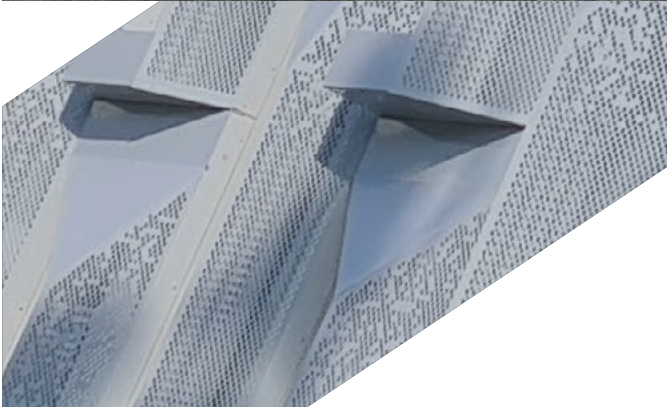


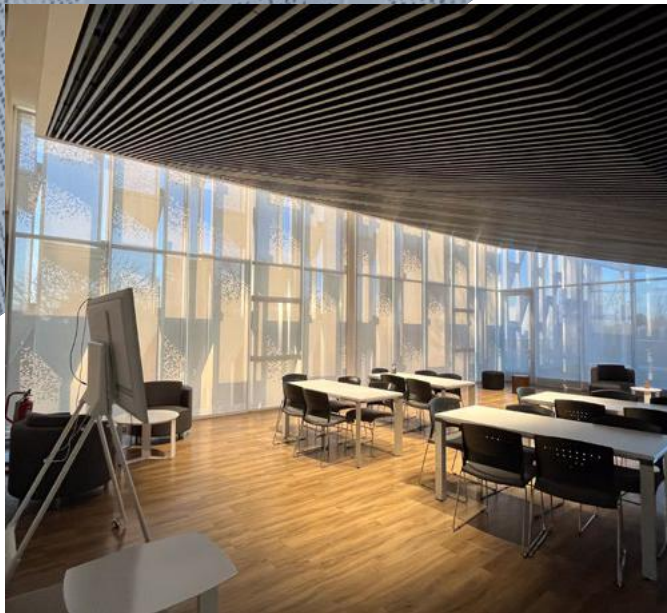
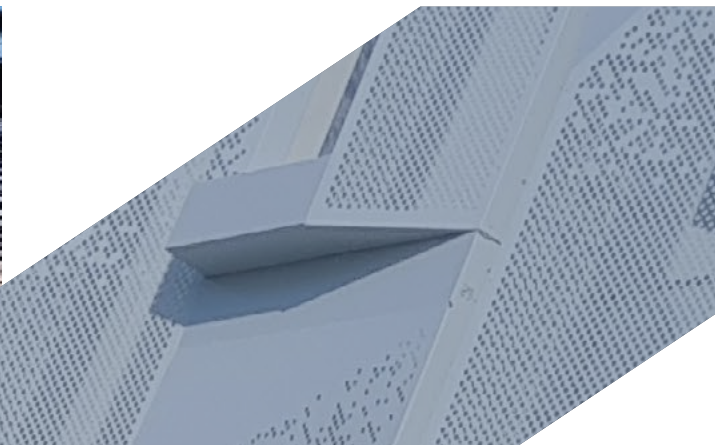
Using Data to Achieve Environmental Balance

The team used **Ladybug** and data visualization to refine and validate design choices based on the relationship between light and geometry. Ladybug facilitated precise analysis of solar radiation and daylight conditions, enabling data-driven insights to ensure optimal performance and visual impact. The team's iterative journey achieved a design that balances computational precision and artistic expression while seamlessly harmonizing visual allure with environmental responsiveness.

Achieving Vision Through Implementation

The project, initiated in 2022 and completed in the summer of 2023, reflects a journey of resilience and innovation. Despite the complexity of design and fabrication, streamlined coding and assembly processes





facilitated remarkable speed during installation. This was a testament to the scale and practicality of the project.

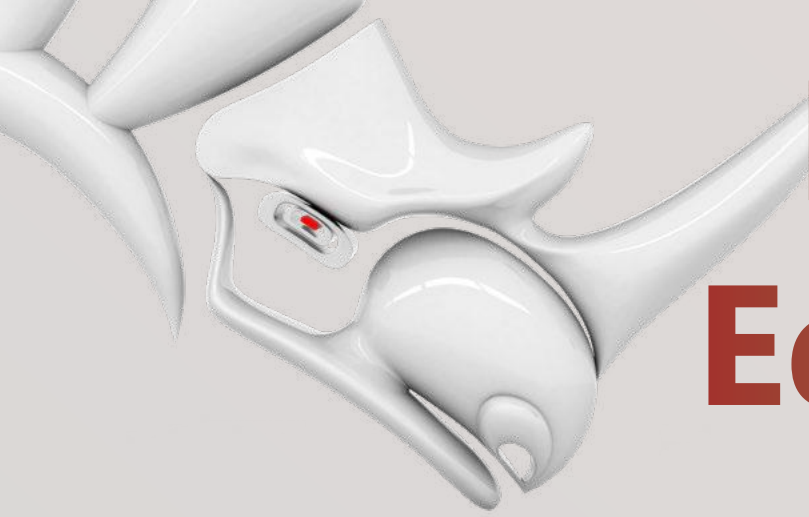
Collaborative synergy for impactful architecture

Arturo is extremely proud of the success of the façade and the unexpected nuances it has added to the architectural landscape. The façade's dynamic interaction with its surroundings, transforming under varying lighting conditions, is a testament to the team's dedication and inventiveness.

Grupo MSH's commitment to innovation and sustainability is reflected in the façade, which achieves harmony between design, technology, and the environment through parametric design and a skilled team.

Grupo MSH's journey exemplifies creativity, technology, and form-function interplay in this narrative.





Rhino3D Education

Select courses below, from beginners to specialized ones or **browse all our courses.**

New to Rhino?

Rendering & 3DM
Blocks

Rhino Introduction
and Intermediate

Jewelry

SubD in Rhino 7

Footwear

Rhino and Revit World

Digital Fabrication

Architecture and
2D Drafting

Marine Design

Grasshopper &
GH-Python

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and Short Tutorials

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www.Rhino3D.Education



Fee: \$104.95

You will learn the essentials to work with the Autodesk Revit software, the Rhino.Inside.Revit plugin, and VisualARQ. Due to the significant development of Rhino.Inside tools in different software such as Revit, it is necessary for you as a Rhino user to know some essentials of that software so that you can communicate in your team with the 3D modelers working on different tools.

At the end of this course, you should be able to create your own Revit model, export the schedules, and bring your basic project elements to Revit and vice versa. This course is designed for absolute beginners, meaning no previous experience with Revit Architecture is required. In this course, we work with Revit 2022 and Rhino 7.

[▶ take this class now](#)

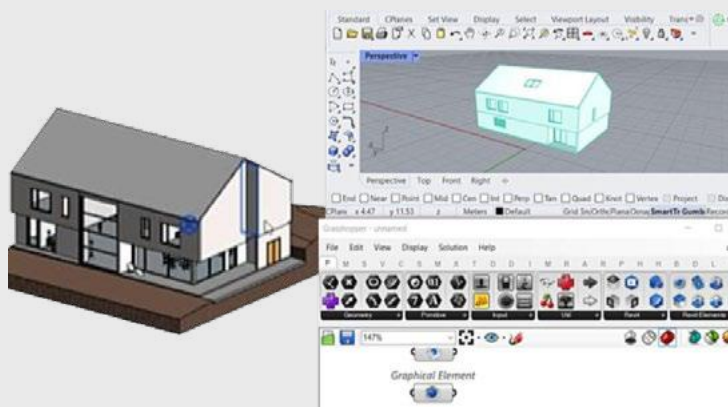


Fee: \$59.95

Rhino.Inside.Revit is an add-on for Revit that loads Rhino and its plugins (e.g. Grasshopper) into Revit's memory, just like any other Revit add-ons. Grasshopper brings a collection of new components for interacting with Revit, as well as providing access to the two software APIs (Application Programming Interfaces) using its script components. We will cover the most important ones to create your model, from a few 2D lines in Rhino to a full 3D model in Revit.

Join us in this course and work more effectively with your Rhino models!

[▶ take this class now](#)



After purchase, these courses will be available for two years!

Learning

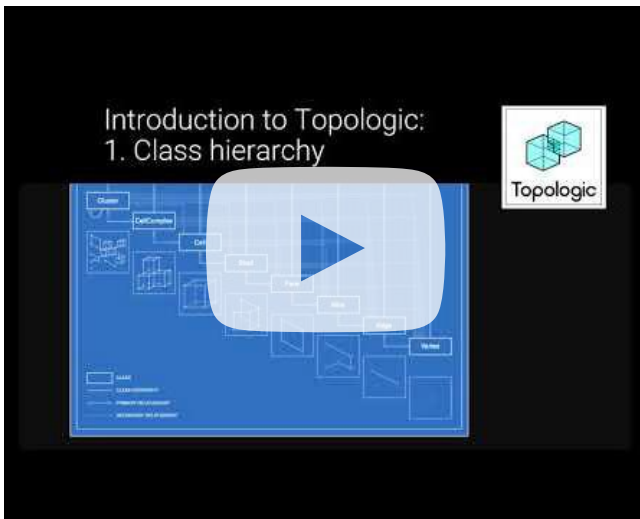
Michalina Dengusiak, a 15-year-old prodigy in architecture and programming, is a self-driven learner. She has been redesigning icons since the age of four and has created deep-learning models. Her dedication has led to collaborations with industry experts and educational initiatives, making her an inspiration in the tech world.



*"Welcome to my new **YouTube channel**, where we embark on an exciting journey through the AEC (Architecture, Engineering, Construction) industry! Join me as I explore fascinating tools and techniques designed to improve the workflow of professionals and enthusiasts alike. Don't worry if these tools seem overwhelming at first – I'm here to guide you. After all, if a 15-year-old can do it, then so can you! So, come aboard, and together, let's unlock the endless possibilities of these innovative tools!"*

- Michalina

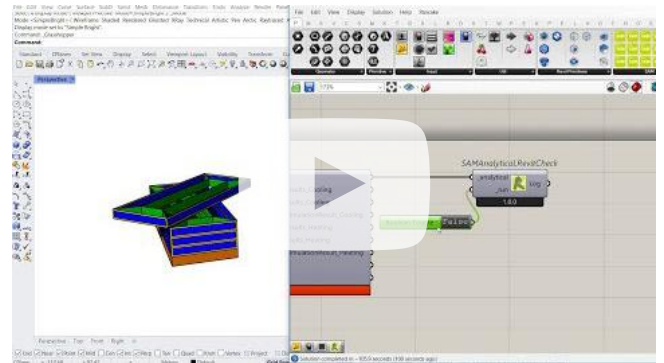
Introduction to Topologic (4 videos)



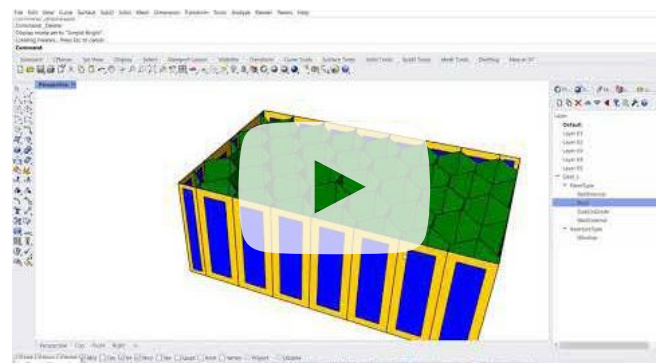
This mini-series provides an introduction to how the Topologic plugin works in Grasshopper on Rhino. It includes a brief overview of its class hierarchy and the different Boolean operations that are available. Finally, a practical example demonstrates how Topologic can be utilized.

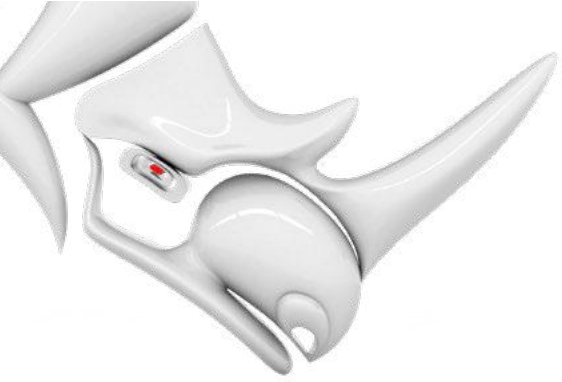
See also...

SAM example. Setting up Revit model and run calculations by Michalina 2021-02-21



SAM example by Michalina 20210207 Sustainable Analytical Model

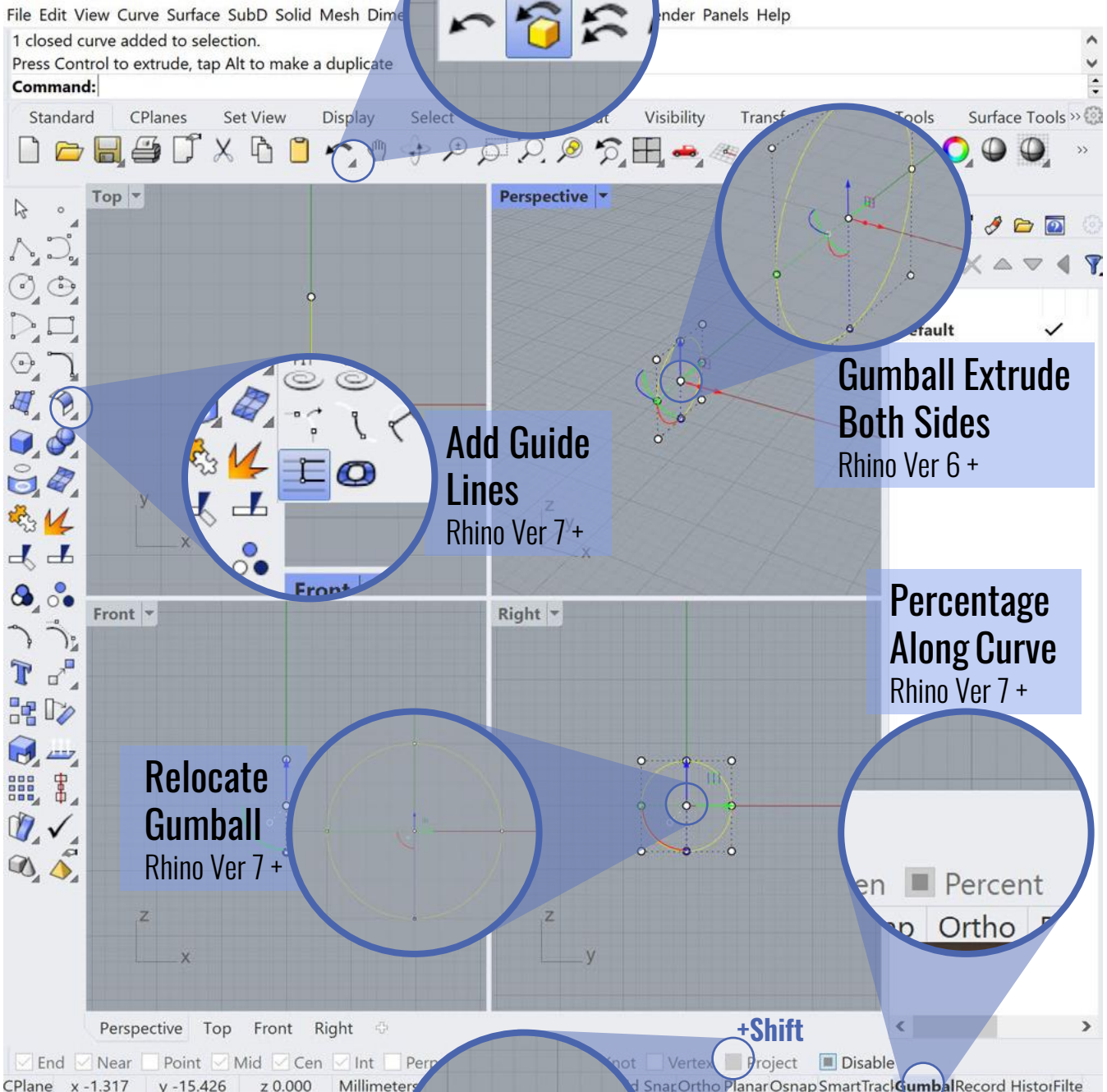




Tips & Tricks

Elevate Your Rhino Game:
Think you know it all? Click now and unravel a collection of gamechanging tips & tricks!

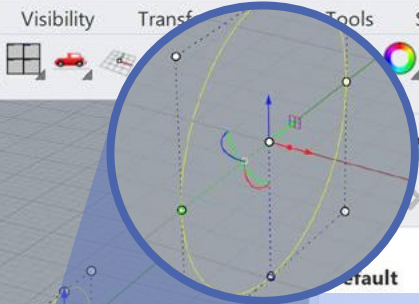
Undo Selected
Rhino Ver 1 +



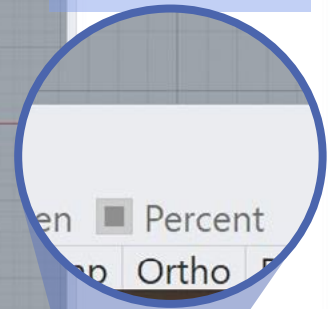
Add Guide Lines
Rhino Ver 7+



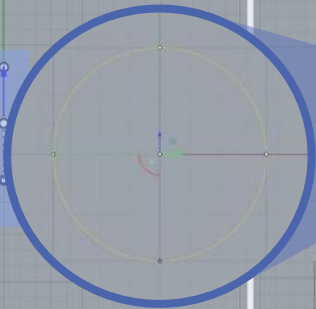
Gumball Extrude Both Sides
Rhino Ver 6 +



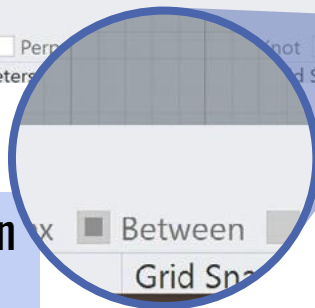
Percentage Along Curve
Rhino Ver 7 +

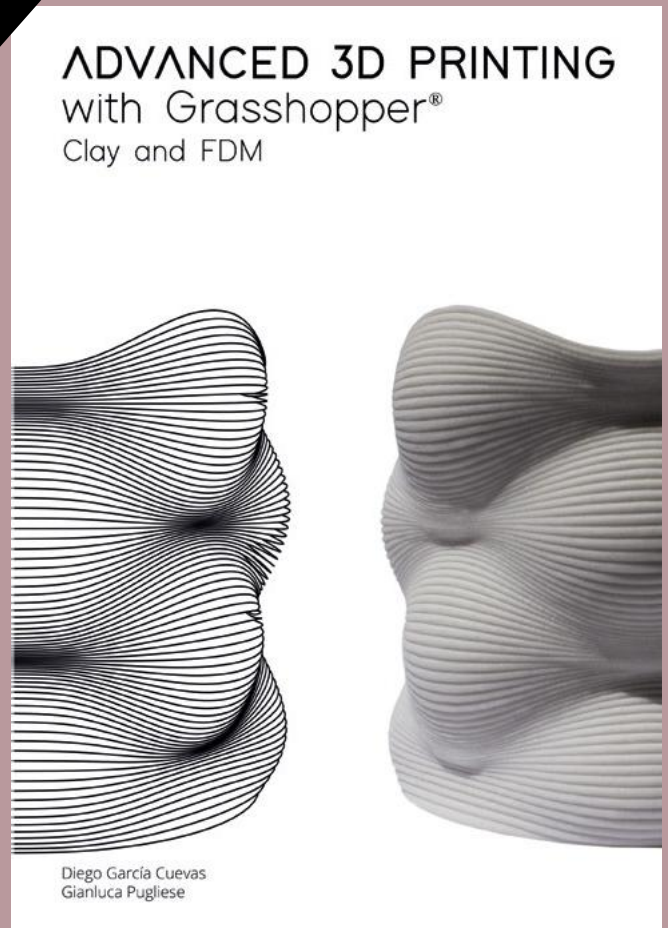
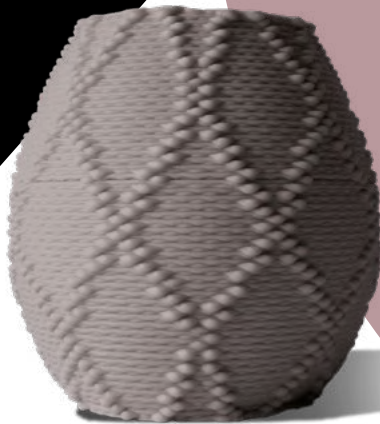


Relocate Gumball
Rhino Ver 7 +



Osnap Between
Rhino Ver 7 +





Advanced 3D Printing with Grasshopper® : Clay and FDM

Diego García Cuevas and Gianluca Pugliese's book guides readers through the fusion of algorithmic design and 3D printing, using **Grasshopper®** as the focal point. Novices and proficient users benefit from their approach, eliminating the need for external scripts or plugins.

The book showcases the versatility of its techniques by ingeniously extending them from clay 3D printing to thermo-filament 3D printing (FDM), expanding the horizons of 3D printing and igniting creativity by encouraging non-planar printing and unconventional paths.

Diego, an expert in digital fabrication, brings his extensive architectural and

parametric design background to the forefront. His collaboration with Gianluca, a seasoned digital fabrication and additive manufacturing professional, enriches the book with a comprehensive perspective on the subject matter.

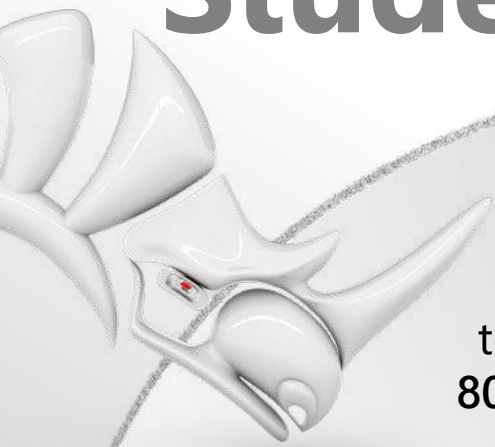
Available on Amazon

Connect with the authors and stay updated on their latest endeavors:

Diego  

Gianluca  

Rhino **News** for Students and Faculty



Graduating this term?

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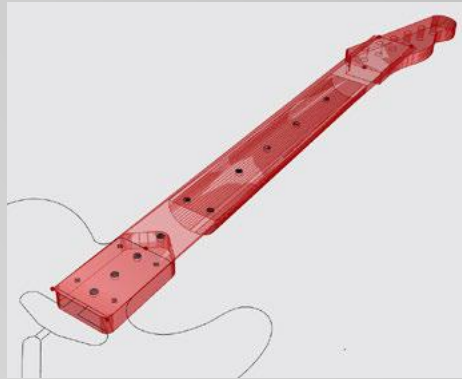
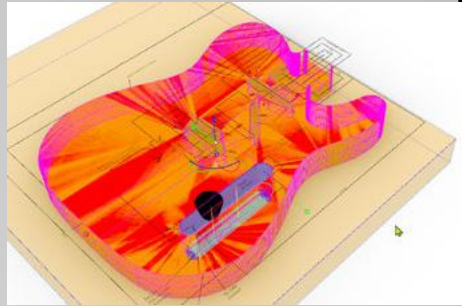


Bob McNeel
CEO of McNeel



**1979 Pioneer KE-5000
AM/FM Stereo Cassette**

Posted by Jorge Rocafort



Radio with Light

Posted by Aki441

The GH guitar
Posted by Xavier Bury



**PRS like guitar
(work-in-progress)**
Posted by ajohnblack

**Classic Sony
headphones using
Substance materials**
Posted by Brian James

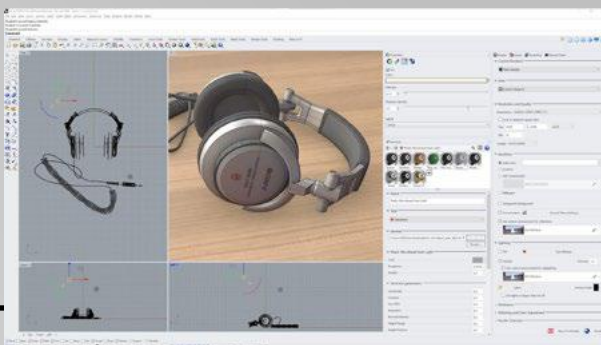
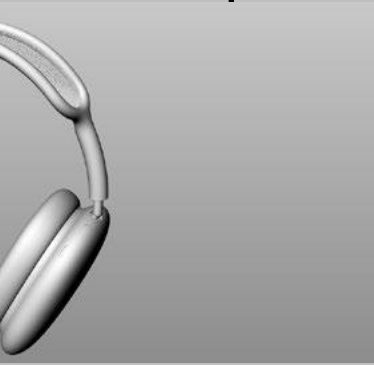
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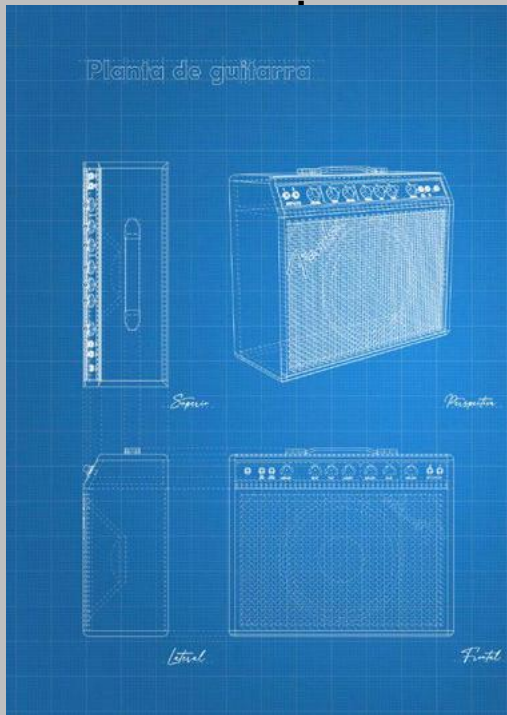
Apple AirPods Max

Posted by anon66739973



Miniparlante para imprimir en 3d, disponible ficheros en cults3d

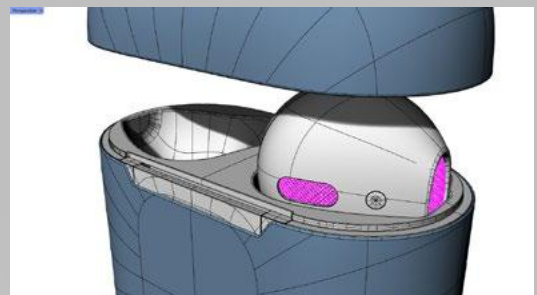
Posted by Gabriel Spath



Rhythmic Dimensions Compilation

Rhino bought airpods for me

Posted by 11150



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