

McNeel HQ

Headquarters, North America & Pacific

146 N Canal St, Suite 320 Seattle, WA 98103 USA

McNeel South East US & Latinoamérica

Southeastern United States & Latin America

1538 NW 89th Court Miami, FL 33172 USA

McNeel Europe

Europe, Middle East & Africa

Roger de Flor, 32-34, bajos Barcelona, 08018 España

McNeel Asia

146 N Canal St, Suite 320 Seattle, WA 98103 USA

support@mcneel.com





Get Rhino 8

Rhino license keys work for both **Mac and Windows!** All licenses are permanent and do not expire.

Select your region



*All products are shipped electronically. Prices include support and service releases for the current version. There are no maintenance fees.

Image by Gijs de Zwart

6. Plugins

Learn about BEAM and TRmesh.

8.

Learning: Simply Rhino

A 20+ years, top Rhino 3D supplier with expert support, training, and diverse courses.

10.

Hive Project •

A nature-inspired project that ventures in kinetic architecture.

13.

Events

Get ready for these upcoming design events.

15.

Tips, Tricks, & Resources about Grasshopper

Dive into this section for short video tutorials on Grasshopper.

18.

Medio Design •••• Collaborates to Illuminate 'El Corte

Inglés'

A dynamic architectural studio collaborates closely with Contemporain Studio to craft a unique suspended luminaire.

Discover exclusive course discounts with our coupons across institutions. Grab your savings HERE!

1四題03

· ()

Rhino Tips & Tricks

Unlock Rhino's full potential by learning about these tips and tricks.

12. Book Discoveries

Discover 'An Industrial Design Guide Vol. 1: Understanding the Science of Product Design ' by Jr Neville Songwe and Carmen •••••• Andrisani

14. Rhino3DEducation

Discover our Rhino3D-Student-Suite 5-course package for students and professionals.

Lena Galíndez's 'Cada Parte' Exhibition

A captivating exploration of the interplay between art and nature, combining digital fabrication techniques with diverse practices.

> 20. Gallery

Explore the Rhinoceros Forum's Gallery, where captivating images bring ativity and innovation to life.

> 21. Career Corner

Explore Job Opportunities with Rhino or Grasshopper.

Rhinozine
www.Rhino3Dzine.com



Rhinozine

Share your knowledge. **Expand your network. Connect with fellow enthusiasts.**

Ready to be featured in Rhinozine? Don't hesitate click HERE and send us your application today!

If you're eager to showcase your latest project, share a groundbreaking plugin, promote courses and events, recommend must-read books, or offer exciting job opportunities, we want to hear from you. Your expertise and insights could inspire our diverse readership!

CONTRIBUTORS & ACKNOWLEDGMENTS

Editor

Carola Trozzo

Review Team

Andrés González, Jackie Nasser, Ryan Brown, Dulce Chavez, Wendy Hemmelman, Jody Mills, and Sandy McNeel.

Designer

Carola Trozzo

Production Manager

Paula González

Marketing Coordinator

Lucia Miguel

Other Contributors

María Teresa León, Mohammad Farzadnia, Lena Galíndez, Jr Neville Songwe, Stephanie Bose, Mathias Fuchs, Bob McNeel, Scott Davidson, Brian Gillespie, and Julian Oquendo.

Acknowledgments

- Illumination for "El Corte Inglés" (p. 18-19) Lázaro Rosa Violán Studio, Contemporain Studio - Design / Juan Pablo Quintero, Medio Design -Design consulting, technical development and manufacturing / Solid Gravity - Special collaboration
- The Hive Project (p. 10-12)

Mohammad Farzadnia - Architect, Interior & Computational Designer

- "Cada Parte" Exhibition (p. 16) Lena Galíndez, Taller Lazum
- An Industrial Design Guide Vol. 01: **Understanding the Science of Product Design**

Jr Neville Songwe & Carmen Andrisani - Authors

Images

Gijs de Zwart (p. 2-3); NASA (p. 5); mksdtech.com (p. 6); food4rhino.com, cydric.com/trmesh (p. 7); simplyrhino.co.uk(p.8); Mohammad Farzadnia(p.10-11); Jr Neville Songwe (p. 12); www.icreatia.es/rhinouser-meeting-madrid, visualisierungs-akademie. ch/de/kurs/rhino-einstiegskurs/93c8254b-3f21-4c2c-b2e6-4adf09519df2,www.fabricate.org, robarch2024.org (p. 13); rhino3d.education (p. 14); Lena Galíndez (16); Juan Enrique Castillo (p. 18-19); Sabino, David, Massimo Rufo, Paul, Bobi (p. 20); Lazar Djuric, Nora Bukovits, Riccardo Gatti, Lucia Miguel (p. 22); NASA (p. 23).

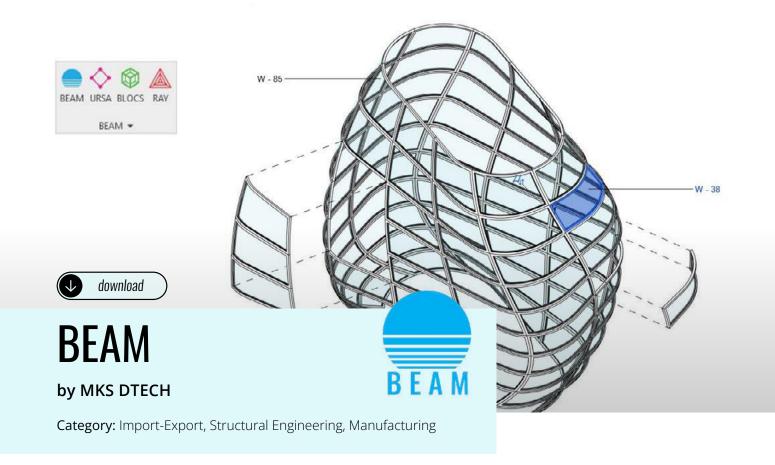
On the Cover

Medio Design Collaborative Illumination for "El Corte Inglés" (p.18-19)

Contact Us

carola@mcneel.com jackie@mcneel.com

Corrections -

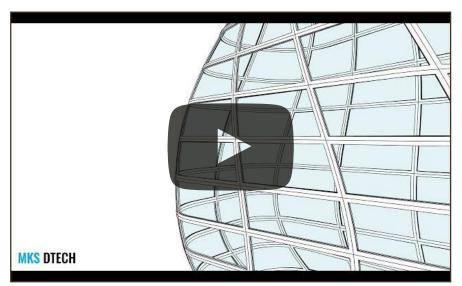


BEAM revolutionizes Building Information Modeling (BIM) in Rhino®, offering a seamless integration that enhances your design process.

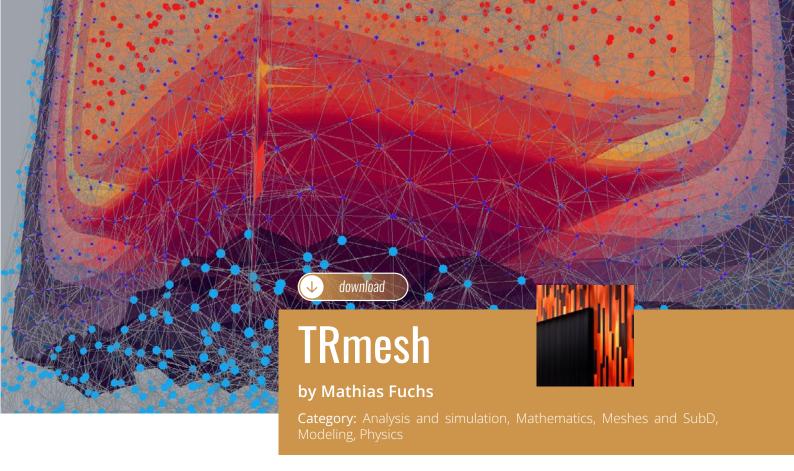
By extending Rhino geometry with BIM data, BEAM empowers you to export to Autodesk® Revit™ or IFC 4 effortlessly. This innovative tool transforms your designs into a digital BIM era, streamlining workflows and boosting project efficiency.

BEAM's advanced Rhino BIM capabilities bring designs to life, allowing informed geometry creation directly within Rhino. Manage objects, materials, and custom parameters effortlessly with the intuitive Panel, ensuring all information is stored



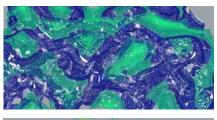


within the document for maintenance easy updates. Simplifying complex procedures without the need for intricate scripts, BEAM lets designers focus on creativity handling the rest. With powerful apps, IFC 4 export, and integration with Dynamo and Grasshopper, BEAM expands your toolset, making it a flexible ally during tight deadlines. As an active development, BEAM promises ongoing enhancements, crafted by and for AEC experts.

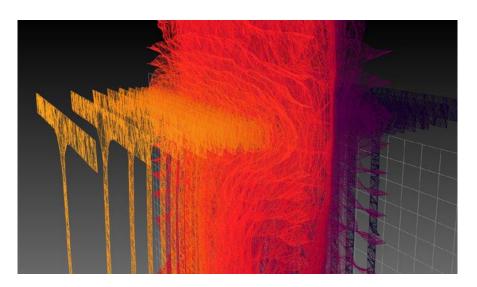


TRmesh for Rhino3D emerges as a high-performance tetrahedral mesher, distinguished by its integration with the opennurbs C++ API.

Unlike other meshers, TRmesh boasts a swift advancingfront algorithm, delivering predictability and robustness by operating in linear time concerning the expected number of tetrahedra. Facilitating diverse applications like heat transfer in 3D printed adobe bricks and structural analysis for footwear. prosthetics, and more, TRmesh is a versatile tool.







Its seamless Rhino integration simplifies meshing operations through an intuitive panel, offering commands and a menu in Rhino's interface. TRmesh's fuzzy philosophy emphasizes speed - providing a range of options post-meshing, including remeshing, peeling, and export functionalities. This opennurbsbased tetrahedral mesher is a

game-changer. It aligns meshing with geometry in Rhino 3D for enhanced design-to-simulation workflows, reduced errors, and optimal performance across various applications.

Watch the food4Rhino webinars:





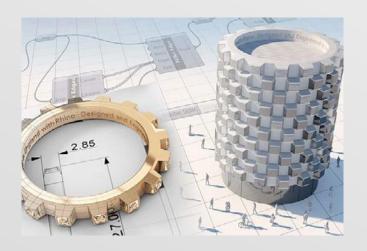




(CO) Contact for all inquiries or support

Learning





For over 20 years, Simply Rhino has been the leading supplier of Rhino software and essential plugins, delivering expert support and training across the UK and beyond. As an official Rhino supplier, the dedicated team ensures quality service, providing nationwide sales, certified training, and support.

Click on the diverse range of courses aimed at enhancing your proficiency in Rhino, Grasshopper, and Rhino.Inside for more information.



Rhino Online Training
Rhino Level 2



Rhino.Inside.Revit Course
The Essentials

Online Rhino 3D Training Rhino Level 1 for Jewellery Design



Online Rhino 3D Training
Rhino Level 2 for
Jewellery Design







For more information, click on the following links:



Timetable for upcoming live Rhino, Grasshopper, and rendering training courses and events.

Free video tutorials to help the Rhino community (Rhino 8, ShrinkWrap, SubD Crease, and Rhino 8 for Mac speed increases included).

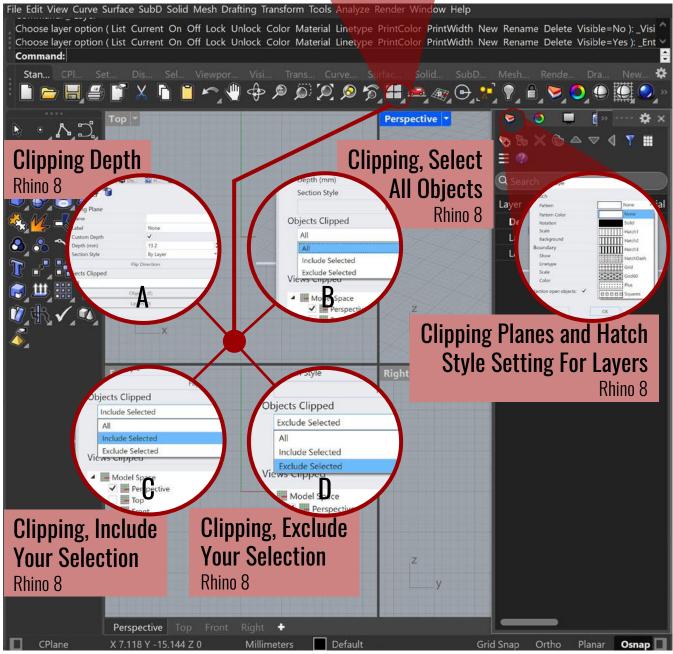




Tips & Tricks

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

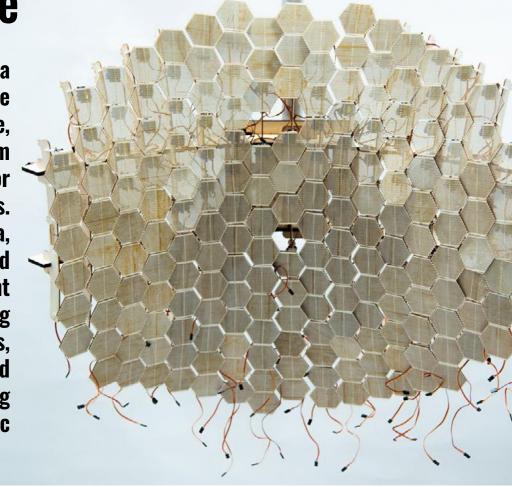




Hive Project: Nature-Inspired Kinetic

Architecture

The Hive project, revolutionary venture in kinetic architecture, draws inspiration from the intricate behavior of Mexican honeybees. Mohammad Farzadnia, the mastermind behind the project, sheds light on the manufacturing processes, design tools, challenges faced, and the core system driving modular kinetic this marvel.



The primary manufacturing processes behind the **Hive** project involved cuttingedge technologies and innovative solutions. The early hexagons were crafted using a laser cutter to test the feasibility of the petal effect. Various wood connection types, 3D printing methods (including FDM and SLS), and electronic solutions were explored to find the most suitable





Project film

yet simple way to connect actuators to the support structure. Farzadnia's meticulous approach included solving technical issues for different hexagon sizes, support structure interference, categorization, and tagging individual parts for fabrication and assembly.

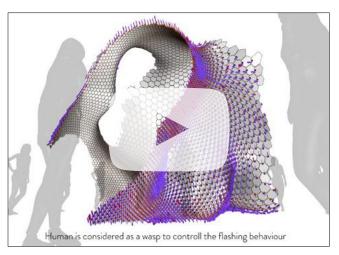
Rhino and Grasshopper played pivotal roles in the design and development stages, particularly in tessellating geometry into hexagons. A comprehensive Grasshopper definition evolved alongside the design process, complemented by software like Cinema 4D, Adobe, V-Ray, and Autodesk. Specialized applications and plugins, such as eleFront, Lunchbox, Kangaroo, and OpenNest, were crucial in enhancing the overall functionality of the Hive system.



The development journey wasn't without its challenges. Creating the Grasshopper definition was a time-consuming task, intricately woven with the pedagogy of the hive, design process, and fabrication tests. Mechanical connections and surface tessellation presented specific challenges, but Rhino and Grasshopper played a pivotal role in overcoming these obstacles, introducing computational design and logical thinking methodologies.



The Hive project's core boasts a single-button, fully automatic system. This script, developed by Farzadnia, enables Hive to be generated for any surface type without prior knowledge of Rhino/Grasshopper, catering to individuals without expertise in 3D modeling and scripting.



Design film

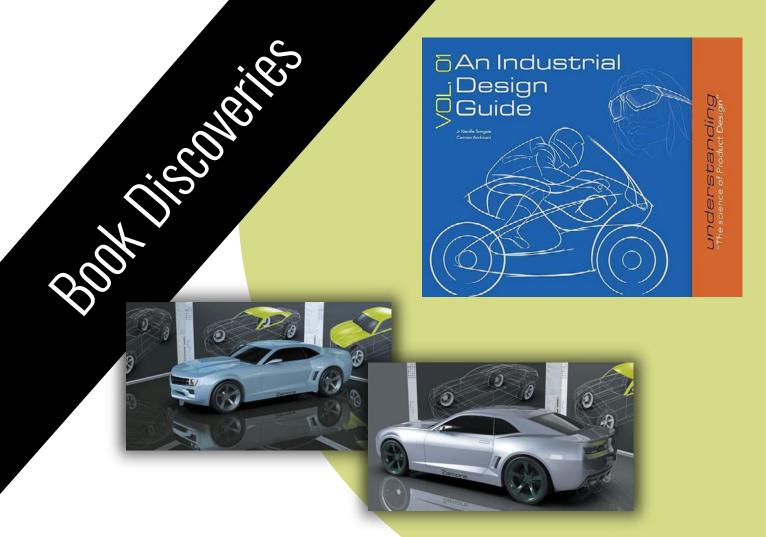
The project's inspiration from the behavior cooperative honevbees of is evident in its modular design. Bees collectively create a wavelike cascade by 'shimmering'whenthreatened, disorienting attackers. Similarly, the Hive project's core system tessellates any geometry into hexagons, exporting fabrication, assembly data, and cost estimates with a single button press. This bottom-up, emergent order mimics nature's wisdom, enabling users to turn their concepts into reality effortlessly.

While the full Hive pavilion is yet to be built, Farzadnia is actively developing PCBs to ensure smooth operation for over 10,000 motors. The Hive project stands as a testament to the fusion of nature-inspired design and cutting-edge computational tools, offering a glimpse into the future of kinetic architecture.



Get in touch with Farzadnia.





An Industrial Design Guide Vol. 01: Understanding the Science of Product Design by Jr Neville Songwe & Carmen Andrisani

Unlock the secrets of exceptional product design with 'An Industrial Design Guide Vol. 01' by Jr Neville Songwe, an Industrial Designer Professor at SCAD, and Carmen Andrisani. This comprehensive guide is a roadmap for mastering the intricate art and scientific principles behind innovative, usercentric products, whether you're a seasoned professional or an aspiring designer. Structured as a comprehensive reference, the book explores methodologies, strategies, and insights shaping future products, utilizing Rhino (NURBS and SubD) to illustrate 3D CAD concepts. It fosters an appreciation for cultural diversity within industrial design, historical contexts, examining theories, and principles. With simplified

diagrams, concise historical recounts, and invaluable resources like design templates and timelines, this guide is an indispensable toolkit for researching, conceiving, and efficiently developing innovative product concepts. Whether you are a student, professor, practitioner, or design enthusiast, it ensures clarity and practicality in the multifaceted realm of industrial design.

Get it now:



Or contact the authors.

Upcoming Events Hone Your Skills With Rhino



RHINO USER MEETING HOSTED BY ICREATIA.ES - MARCH 19, 2024

A wide range of developers and companies will converge for the first in-person Rhino event in Spain since 2018. Attendees will experience a day full of inspiration, education, and exciting networking opportunities.

WHERE: Madrid TIME: 3 PM CET COST: €12 LANGUAGE: Spanish



RHINO ENTRY-LEVEL WORKSHOP
HOSTED BY VISUALISIERUNGS - MARCH 21/22 2024

Industrial designer Tom Pawlofsky leads new students through the basics of the Rhino design software. Ideal for architects, industrial designers, goldsmiths, carpenters, and anyone else who would like to use Rhino in everyday life.

WHERE: Zürich TIME: 8:30 A CET COST: F949 LANGUAGE: German



FABRICATE 2024 Hosted by Cita - April 4-6, 2024

A global forum for the exploration of the radical new opportunities for design in manufacturing, computation, material science and assembly. This three day, peer-reviewed conference brings together pioneers from all around the world and across various industries.

WHERE: Copenhagen TIME: 9 AM CET COST: €600 LANGUAGE: English

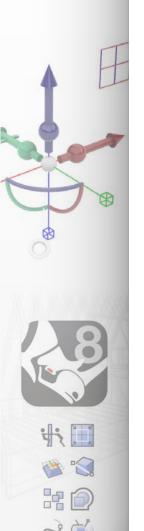


ROB|ARCH 2024 CONFERENCE HOSTED BY AFRIA - MAY 21-25, 2024

Some of the world's top researchers gather to highlight key currents in robotic art and architecture, including cable robotics, 3D printing, human-machine collaboration, and augmented making. A series of workshops precede.

WHERE: Toronto TIME: TBA

COST: \$750 CAD **LANGUAGE**: English



4

The Rhino-Student-Suite 7 & 8



Fee: \$US 254.80

The Rhino-Student-Suite, included with the purchase of your educational license, has the following courses.

- **1. Intro to Rhino3D -** Perfect for beginners, this free 5-chapter program guides you through Rhino's interface and essential commands. Develop 3D modeling skills with practical steps, unraveling the basics to kickstart your project.
- **2. Rhino3D Intermediate -** Explore advanced topics like 2D representation, complex shape handling, smart objects, surfaces, text, animation, and SubD modeling.



with subtitles in Italian, French, Portuguese, German, and many others.

- **3. Modeling with SubD** Explore SubD in our course for designers craving efficient organic shape exploration. Master creating editable, accurate forms with a unique blend of free-form precision and swift editing. Elevate your skills to navigate complex shapes effortlessly in real time.
- **4. 2D Technical Drafting -** Learn to express yourself effectively, merging design and technical drawing for cost-effective productivity. Explore themes like object selection, precision, Gumball mastery, layer utilization, and more.
- **5. Rendering with Rhino -** Refine your presentation skills with our Rhino 7 course. Learn innovative rendering tools to elevate your designs and captivate audiences. Step-by-step guidance through diverse projects ensures practical application. Perfect for designers, engineers, architects, and hobbyists.



Get FREE access to these courses with your Rhino 8 educational license or upgrade purchase*.

* This offer is only valid in the Americas.



Tips, Tricks & resources about Grasshopper **Surface Param**

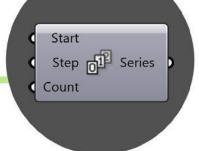
Area Component



Sort Component

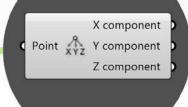


Series Component





Deconstruct Point



Orient Component



Elevate Your Grasshopper Game:

Click now and unravel a collection of game-changing tips & tricks!

"Cada Parte", Lena Galíndez's exhibition

- Digital Fabricators Project

Lena Galíndez's recent solo exhibition, "Cada Parte," is a captivating exploration of the delicate interplay between art and nature, leaving an indelible mark on the contemporary Puerto Rican art scene. As a key figure in *Taller Lazum*, Galíndez seamlessly combines digital fabrication techniques with diverse practices including slip casting ceramics and screen printing.

Inspired by Vieques' coastal landscapes, Galíndez delves into the intricate patterns of coral reefs and the rhythmic dance of waves, showcasing her deep interest in the mimetic possibilities of algorithmic modeling.

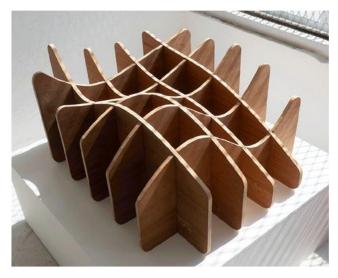
In "Cada Parte," Galíndez emphasizes the interdependence of each element, mirroring the meticulous process of numbering and placing, resulting in a harmonious whole.



Set against the dynamic backdrop of **Hidrante**, a project space dedicated to exhibitions and cultural productions, Galíndez's work gains additional resonance. The symbiosis between her exploration and creative spaces like Hidrante amplifies the cultural impact of her artistic journey.



"Cada Parte" stands not just as an exhibition but as a reflective experience, inviting viewers to ponder the dynamic intersection of art, technology, and nature. In essence, Galíndez's exhibition at Hidrante is a poignant testament to the harmonious coexistence of artistic expression and ecological consciousness within Puerto Rico's contemporary art landscape.





Advantages

As an Authorized RhinoFabStudio® you will:

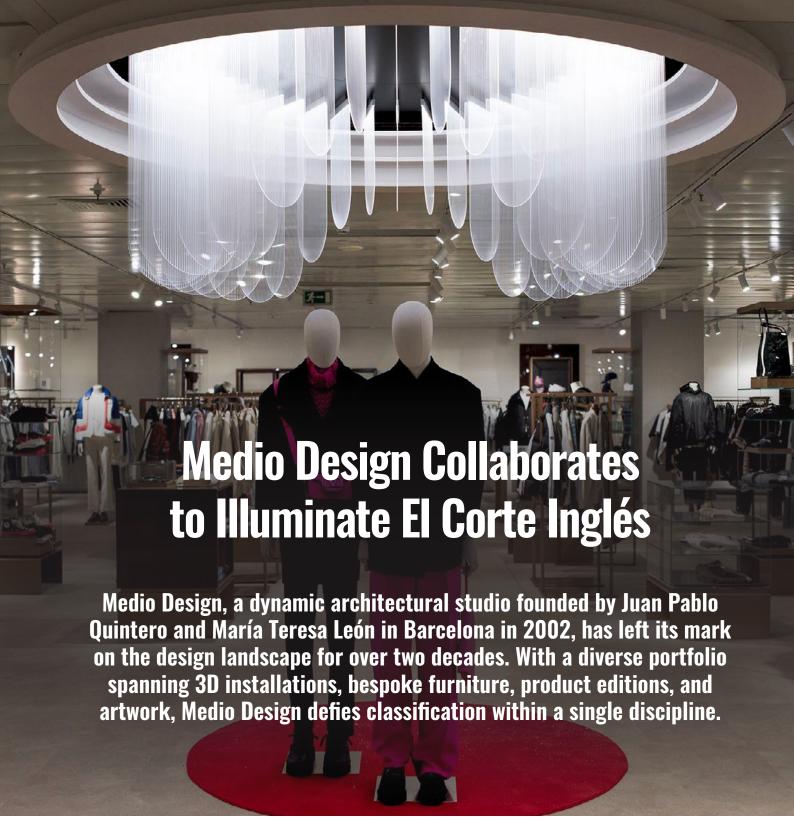
- Be recognized as a leading-edge industrial-grade digital design, analysis, and fabrication expertise provider.
- Have all of your events and activities published to a worldwide audience.
- Have access to specialty digital design, analysis, and fabrication experts.
- Have direct access to many digital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





One of their standout projects, the 3D curved cladding for the restaurant at Hotel Torres Fira in L'Hospitalet, commissioned by Pritzker Prize-winning architect Toyo Ito, marked a pivotal moment in their journey. This demanding project, completed in 2010, showcased their ability to tackle technical challenges while achieving a poetic outcome.

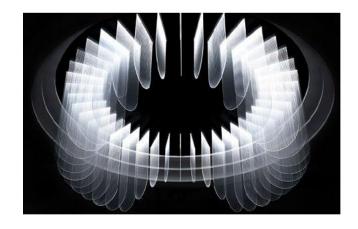
Since 2007, **Medio Design** has embraced CAD-CAM technology, becoming a pioneer in Spain's digital manufacturing realms of architecture and design. Their latest venture takes us to the heart of Madrid's exclusive Serrano Street, where they collaborated closely with Contemporain Studio, led by the renowned Lázaro Rosa Violán, to craft a unique suspended luminaire for El Corte Inglés.

The starting point for this creative endeavor was Contemporain Studio's conceptual vision. Known for entrusting Medio Design with the development of complex and distinctive concepts, the project team reached out to them for the technical execution of the proposed lighting solution for the second floor of El Corte Inglés Serrano.

Rhino, RhinoCAM, and RhinoNEST played integral roles in bringing this vision to life. Medio Design's familiarity with these tools, honed over 15 years, facilitated high productivity in their creative processes. RhinoCAM enabled precise CNC milling programming, while RhinoNEST optimized material usage—a perfect synergy for their intricate designs.

The luminaire's design involved an extensive material selection process. Initially envisioned as lightweight and translucent, inspired by Japanese aesthetics, the team had to balance this with durability for a high-traffic location like a department store. The final material, a bespoke solution, met all design criteria.





The experimentation, prototyping, and engineering phases were crucial in refining the luminaire. Using textiles and papers reinforced with materials like acrylic, they created screens with varying textures and transparencies. The play of light through these screens, combined with meticulous analysis, led to the captivating final formulation.

Installed strategically at the landing of the second-floor escalators, the Serrano luminaire makes a striking impact. Its impressive scale (2.50m in diameter) and dynamic visual effects, produced by the overlapping transparent screens, create an optical-kinetic play as viewers move around it.

María Teresa León, Medio Design's Creative Director, emphasized the collaborative nature of their work and the importance of Rhino and Grasshopper in their design processes. These tools, coupled with their multidisciplinary approach, enable Medio Design to weave together traditional craftsmanship and advanced digital fabrication seamlessly.

In conclusion, Medio Design's luminaire for El Corte Inglés Serrano not only illuminates the space but also stands as a testament to their innovative design approach and technical prowess. This collaboration exemplifies their commitment to pushing creative boundaries and finding bespoke solutions that merge artistry with functionality.

Rhino Speed Rides

- Compilation

[WIP] Alfa Romeo Flatnose GT EV
Posted by David

Model car of mine

Posted by Massimo Rufo

Single Seater ConceptPosted by **Sabino**















Audi Avus Zwei
Posted by Bobi

Lamborghini
Posted by Pau



Explore a showcase of inspiring projects from the Rhinoceros Forum's Gallery as captivating images bring to life the creativity, innovation, and artistry behind each posted masterpiece.

Click, like, and support the creators behind these fantastic posts!

Career Corner:

Job Opportunities with Rhino or Grasshopper

ASSISTANT MANAGER DIGITAL TECH ADIDAS

WHO: One of the most popular apparel and footwear companies in the world. This role is based out of their Portland, OR offices.

WHAT: Seeking a manager with Rhino experience to assist and support the process for the creation of virtual prototypes based on development data. Fluency in German is a plus.



EXHIBIT DESIGNER

DENVER MUSEUM OF NATURE & SCIENCE

WHO: A municipal natural history and science museum in Denver, Colorado. It is an important resource for informal science education in the Rocky Mountain region.

WHAT: Seeking a designer with advanced Rhino proficiency to produce, lead, and coordinate 3-D exhibit design for museum exhibitions.



R&D PRODUCT DESIGNER

META

WHO: Meta, the company behind Facebook, is dedicated to the research and development required to bring virtual and augmented reality to billions of people around the world.

WHAT: Looking for a self-motivated Prototyping Technician with Rhino experience to accelerate the progression to authentic social presence in the VR space.



JEWELRY CAD DESIGNER

TIFFANY & CO

WHO: An American luxury jewelry and specialty design house with almost two hundred years of history, headquartered in Manhattan.

WHAT: Seeking an experienced CAD designer who can ensure design and product integrity throughout the development life-cycle for all Tiffany jewelry projects.





Have a job offer or event? Let us know, and we'll share it in an upcoming issue.

Coupon Corner

Feb. 5th - April 5th

Rhinozine Exclusive Coupons

















*Coupons valid from February 5th 2024 to April 5th 2024. / * Information and coupons provided are based on third-party collaboration and are deemed accurate. Rhino3Dzine (McNeel Miami) is not liable for any issues arising from their use. If you have any problems, please contact the provider. / * Unfortunately, coupon codes can't be added retrospectively. In order to receive the discount, coupon codes need to be added when prompted during the checkout process.

Stay in touch

Visit our Official Web site for purchases and support.

www.rhino3d.com

Expand your toolkit with new plugins.

www.food4rhino.com

Find valuable tutorials to enhance your skills.

Rhino3D.Education

- **v** Rhino Tutorials
- @Rhinoceros3d
- @Rhino3D.Education
 - @McNeelEurope

Stay updated and engaged by following us on our social media platforms.

- **f** @McNeelRhinoceros
 - @mcneel.europe
- **Q** @rhino3d.education
 - **Q** @rhinofabstudio

Share your work, voice your opinions, ask questions, and contribute to a supportive community.

Rhinoceros Forums

GJD3D





www.Rhino3Dzine.com

support@mcneel.com