

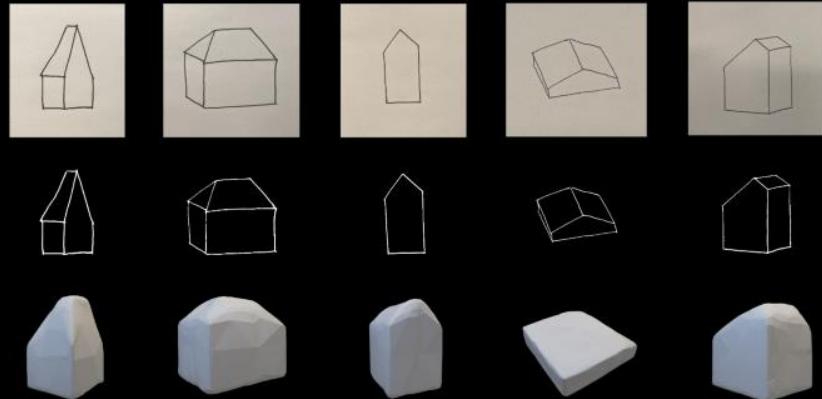
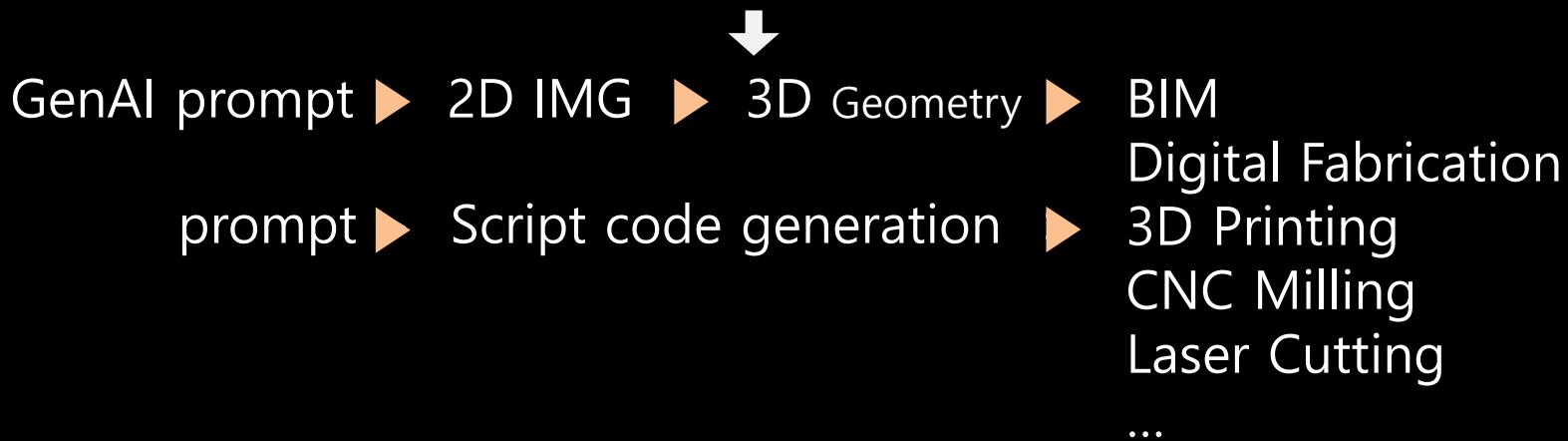
생성 AI 프롬프트 엔지니어링 소개

산업공학 분야

2025.4

AI Overview & Trend

Overview context in Architecture



[Generative Design Workflows \(AI + Architecture\)](#)

Overview context in Architecture

2D IMG ► Reverse prompt ► 2D/3D Geo



BIM
Digital Fabrication
3D Printing
CNC Milling ...

I'll give you house design image. generate prompt from the image to use it in Midjourney text to image.

Sure! Please upload the house design image, and I'll generate a detailed prompt for you to use in Midjourney.



Here's a prompt based on the design in the image for use in Midjourney:

"A modern, futuristic house with a unique organic and fluid architectural design, featuring smooth, flowing curves and perforated white surfaces that resemble waves or fabric in motion."

A modern, futuristic house with a unique organic and fluid architectural design, featuring smooth, flowing curves and perforated white surfaces that resemble waves or fabric in motion. The building has large glass walls and minimalist elements, with

A modern, futuristic house with a unique organic and fluid architectural design, featuring smooth, flowing curves and perforated white surfaces that resemble waves or fabric in motion. The building has large glass walls and minimalist elements, with



Gen AI impacts

생성 AI 서비스 조사 보고서 - Deloitte

- 마케팅 컨텐츠 작성
- 코딩 개발 지원
- 고객 응대 지원
- 제품 설계 지원
- 연구 보고서 조사 작성
- 합성 및 학습 데이터 생성
- 기업 내 데이터 검색, 정리, 분석 및 요약
- 게임 컨텐츠 설계 및 개발
- 언어 번역
- 시뮬레이션 및 추론
- 고도화된 개인 맞춤 교육 및 훈련
- 현장 업무 지원



Nitin Mittal
Global Generative
AI Leader
Deloitte Consulting LLP



Costi Perricos
Global Office of
Generative AI Leader
Deloitte UK



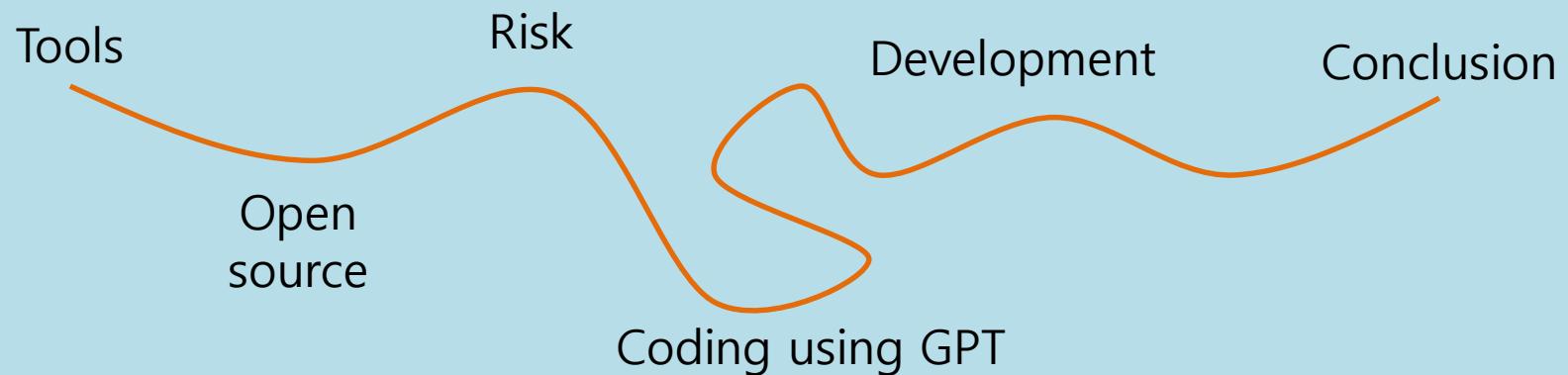
Lynne Sterrett
US Generative AI Market
Activation Leader
Deloitte Consulting LLP



Deborshi Dutt
US AI Strategic Growth
Offering Leader
Deloitte Consulting LLP



생성 AI 프롬프트 엔지니어링 기술 동향



ChatGPT prompt with Ghibli

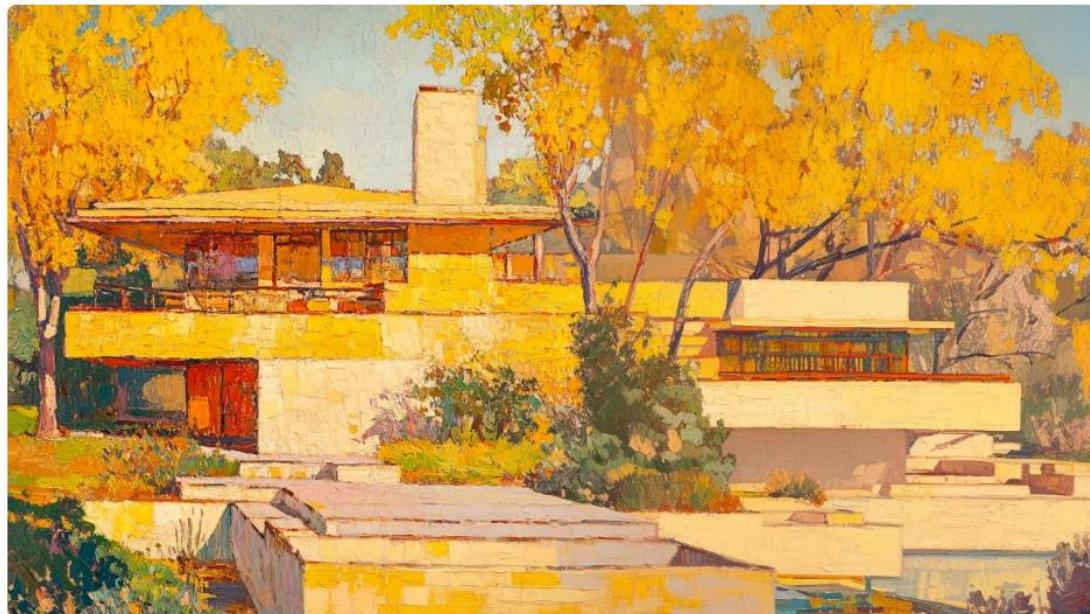


“Make this look like a cozy summer evening in a Ghibli film — soft golden light, fireflies glowing, and a gentle breeze moving the grass.”

“Turn the background into a Ghibli-style village with tiny tea shops, lanterns, and warm, inviting streets.”

AI for Concept Design

Midjourney



Promptalot

Parent



Prompt

A painting for a house designed by Frank Lloyd Wright and the painting is made by Van Gogh using oil painting rough strokes warm colors dominant color is yellow --ar 16:9 --v 6.1

Description

This painting showcases a modernist house with bold yellow autumn trees in the background, emphasizing the blend of architecture and nature.

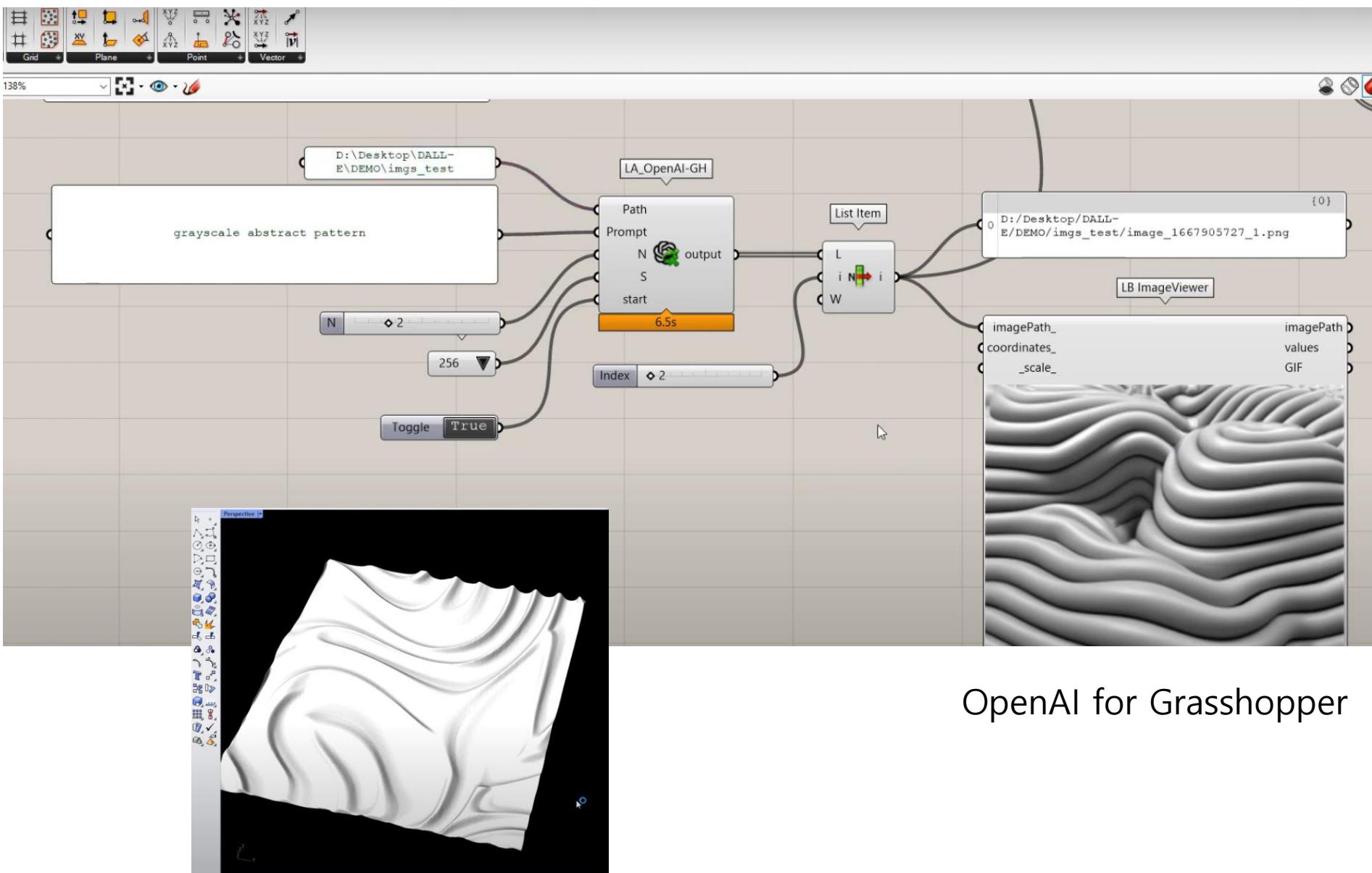
Details

Architectural Design VERAS

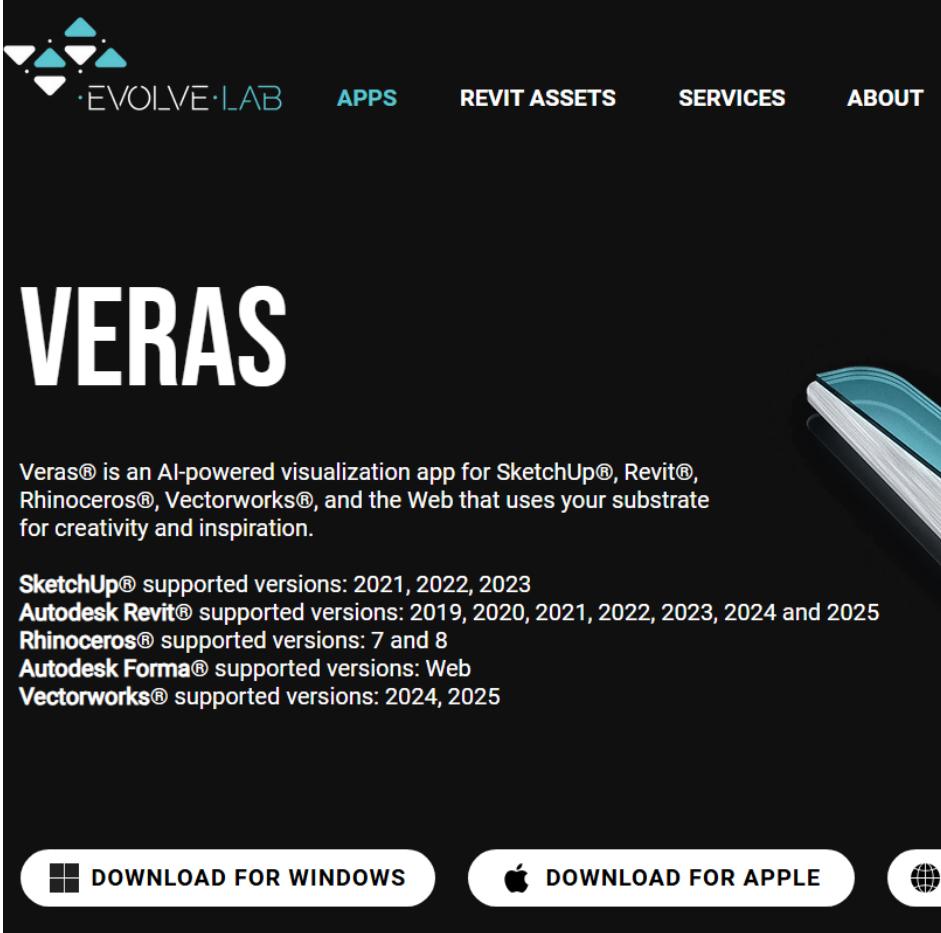


AI 기반 텍스트 렌더링 Revit 애드인 (VERAS, EnvolveLAB)

Architectural Design OpenAI for Grasshopper



AI for Rendering

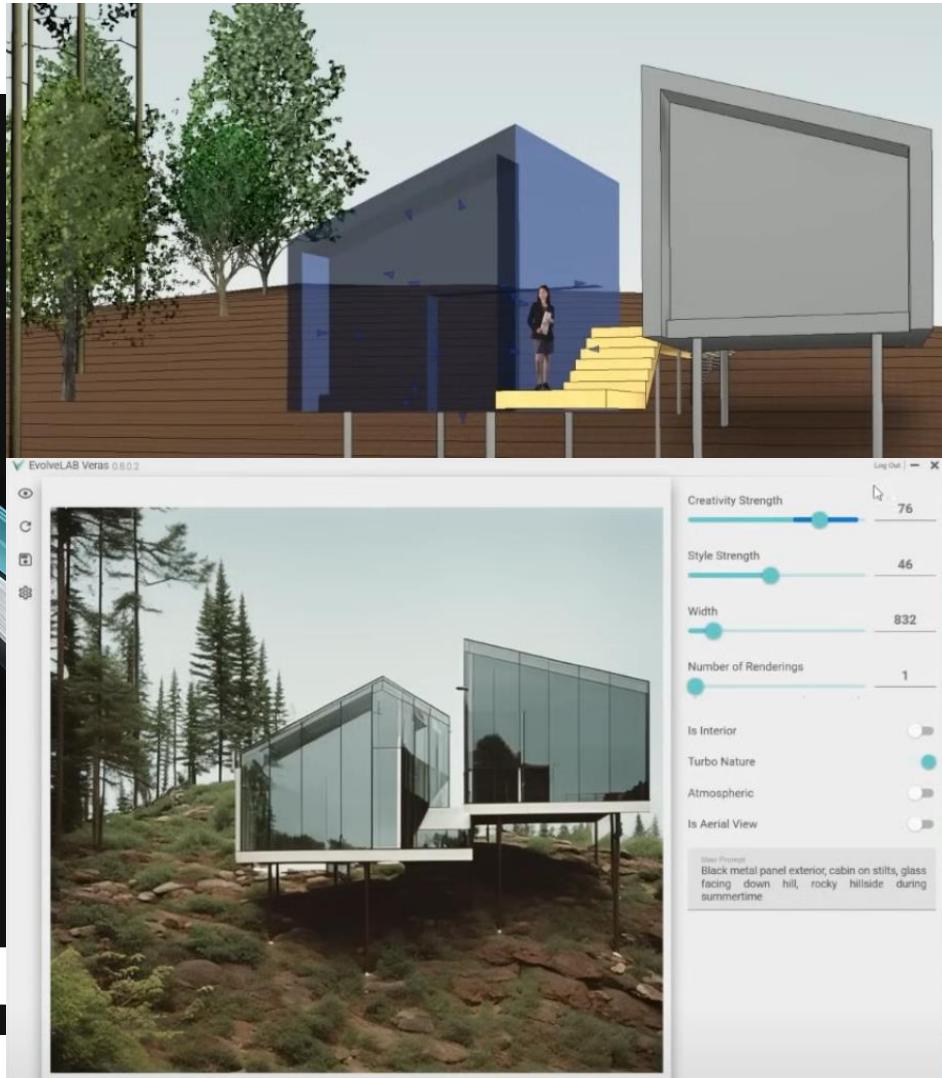


The screenshot shows the EvolveLAB Veras website. At the top, there's a navigation bar with icons for a triangle, a square, and a circle, followed by the text "EVOLVE·LAB". Below the navigation bar are links for "APPS", "REVIT ASSETS", "SERVICES", and "ABOUT". The main title "VERAS" is displayed in large, bold, white letters. Below the title, a paragraph describes Veras as an AI-powered visualization app for various platforms. It lists supported versions for SketchUp, Revit, Rhinoceros, Vectorworks, and the Web. At the bottom, there are two download buttons: "DOWNLOAD FOR WINDOWS" with a Microsoft logo and "DOWNLOAD FOR APPLE" with an Apple logo.

Veras® is an AI-powered visualization app for SketchUp®, Revit®, Rhinoceros®, Vectorworks®, and the Web that uses your substrate for creativity and inspiration.

SketchUp® supported versions: 2021, 2022, 2023
Autodesk Revit® supported versions: 2019, 2020, 2021, 2022, 2023, 2024 and 2025
Rhinoceros® supported versions: 7 and 8
Autodesk Forma® supported versions: Web
Vectorworks® supported versions: 2024, 2025

[DOWNLOAD FOR WINDOWS](#) [DOWNLOAD FOR APPLE](#)



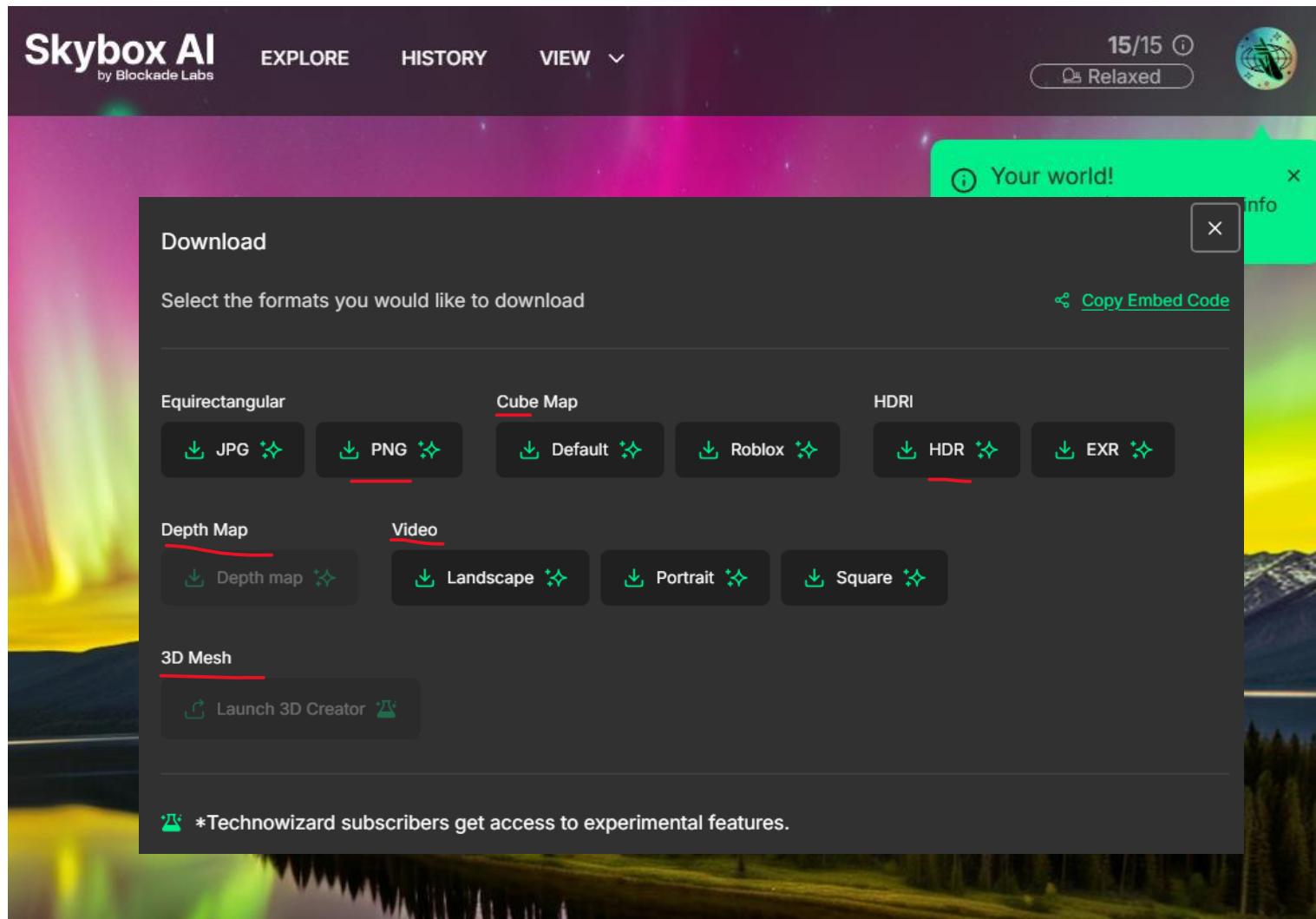
VERAS | EvolveLAB

Architectural Design using Gen AI



Adobe Firefly

Environmental rendering using AI



Skybox AI

Environmental rendering using AI

[Create](#) [Remix](#) [Edit](#) [3D](#) [Create a new world by describing it. Sketch in guides if you like.](#) [Heart](#) [Download](#) [Share](#)

An open, futuristic interior with organic, flowing architecture. Smooth, curved white walls and ceilings echo the exterior, creating a fluid, airy space. Floor-to-ceiling glass walls allow natural light to flood in, illuminating sleek, minimalist furnishings in white and light gray. Polished marble floors add elegance, while built-in LED lighting highlights architectural curves. Floating sofas, suspended lights, and hidden storage create a clutter-free look, with subtle greenery adding warmth to the modern aesthetic.

522/600

Negative Text Enhance Prompt

M3 UHD Render

GENERATE



Skybox AI

AI-Powered Architecture Rendering

AI-Powered Architecture Design | How to use AI within 3d rendering software

AI-powered architecture design is revolutionizing the industry, offering designers a new toolkit to enhance creativity and efficiency. With the release of D5 Render version 2.8, these innovations are more accessible and powerful than ever.



AI utilizes a neural network algorithm

AI-Powered Architecture Design

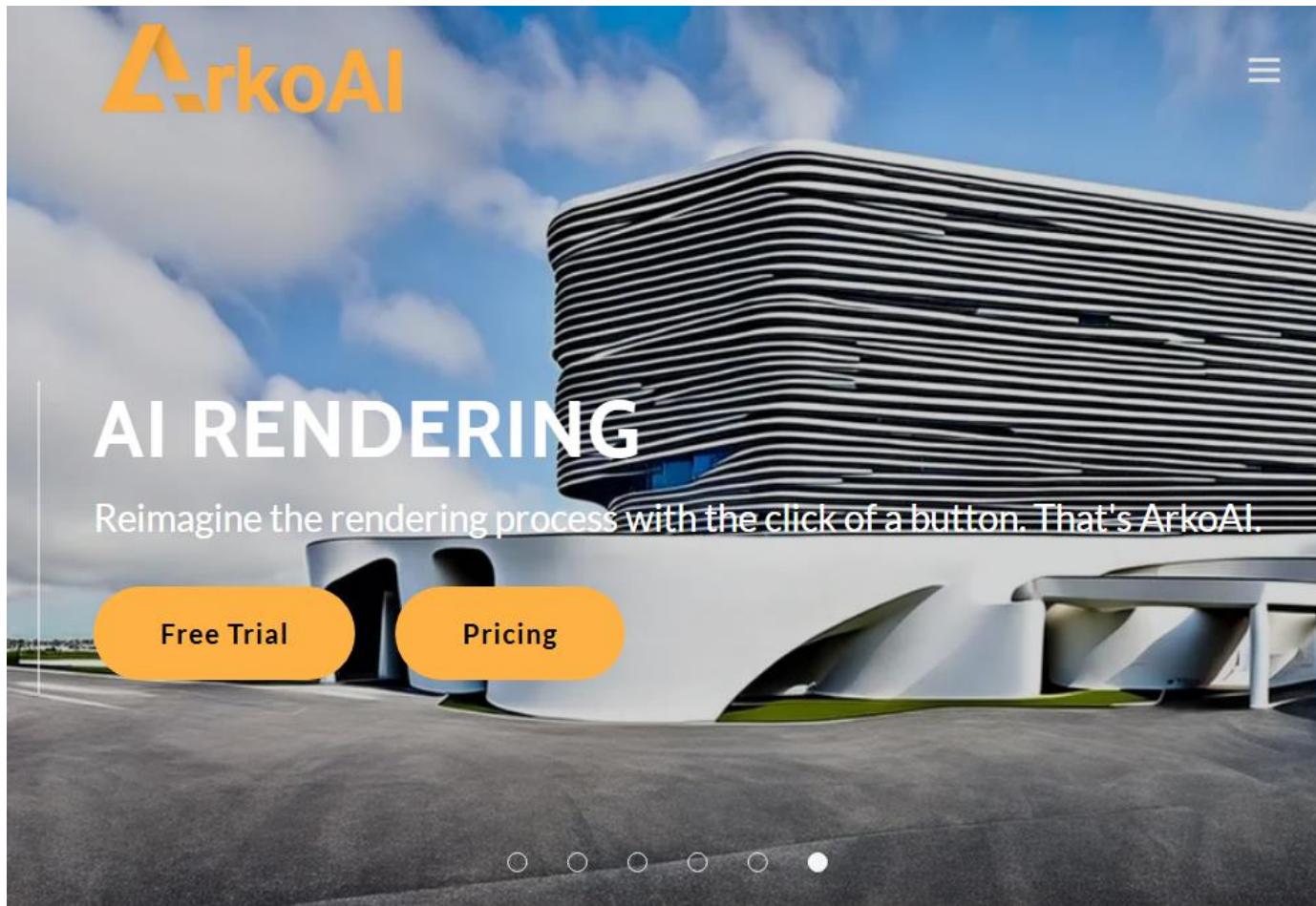
Video generation

Dream **MACHINE**



Luma Dream Machine | AI Video Generator

AI rendering process



[ArkoAI - Home](#)

Hand-drawn sketches to 3D model

PromeAI AI Tools Inspiration Solutions Community Pricing Affiliate Log in / Sign up

Our ai image generator can visualize with different design concepts and get high-quality realistic renderings from hand-drawn sketches or 3D model designs. Experience the transformative capabilities of AI as your concepts take shape and come alive in stunning and lifelike renderings.

The website features a dark header with navigation links for AI Tools, Inspiration, Solutions, Community, Pricing, Affiliate, Log in / Sign up, and icons for user profile, cart, and globe. Below the header is a main text area describing the AI's capabilities. The main content area displays a grid of 8 examples, each showing a 'Before' sketch on the left and a 'After' 3D rendering on the right. The examples are categorized as follows:

- Sneaker:** A white and blue sneaker.
- Japanese Traditional:** A traditional Japanese residence with a tiled roof and wooden elements.
- Modern:** A modern living room with a sofa, coffee table, and bookshelf.
- General:** A bedroom interior.
- Living room:** A living room with a sofa and fireplace.
- Clouds:** A landscape featuring a large, wispy cloud formation.
- House:** A modern house with large windows and a wooden facade.
- Skyscraper:** A futuristic skyscraper with curved, reflective surfaces.

[PromeAI - Free AI art generator : Bring creativity to life](#)

Hand-drawn sketches to design

Discover & Remix **Generation & History** Assets

Image ②

Prompt

A modern living room space, inspired by Ukrainian design style, with a floor height of 5 meters, considering the relationship between space and people and the environment, and the lighting effect during the day

Reference Image ②

Tool Companions ②

Options

V1 V2

Style Scene

The screenshot displays the PromeAI interface. On the left, there's a sidebar with various icons (House, AI, 3D Model, etc.) and sections for 'Image' (with a preview), 'Prompt' (containing a detailed description of a modern living room), 'Reference Image' (with a preview), and 'Options' (with tabs for 'Style' and 'Scene'). The main area features a navigation bar with 'Discover & Remix', 'Generation & History' (which is highlighted in blue), and 'Assets'. Below the navigation is a large image of a modern living room interior. Underneath this image are several icons for editing and sharing. Further down are three smaller images of the same living room scene from different angles, labeled 'Tool Companions'. The overall theme is a modern, minimalist design.

[PromeAI - Free AI art generator : Bring creativity to life](#)

AI for Sustainable Design

The screenshot shows a 3D architectural model of a city street with buildings, roads, and green spaces. Overlaid on the scene are various wind analysis tools. On the left, a sidebar titled 'Proposals' lists recent projects like 'Verlaine Today, 9:04 PM' and 'Verlaine - 3D Sketch 2 Oct 20'. The 'Layers' section is open, showing categories such as Site limits, Buildings, Vegetation, Generic, Zones, Terrain, IGN Context, Roads, Property boundaries, and Railroads. On the right, there are several panels: 'Detailed wind' with a 'Wind area radius' of 150 m and a button to 'Run detailed analysis (- 30-90 mins)'; 'Rapid wind' showing a 3D wind rose with 'Comfort: Direction' and a chart of wind speed distribution; and an 'Alerts' panel with a note about unsupported elements and vegetation. A large text overlay at the bottom left reads: 'Real-time analysis informs your design impact' and 'Leveraging machine learning models to give real-time results'.

Patriarche, a multidisciplinary architecture firm, has transformed its early-stage urban planning by adopting Autodesk Forma. Traditional software was too slow for initial project phases, so Forma's AI-powered capabilities helped reduce the time for volume studies from two days to just one-and-a-half hours, allowing the team to focus on more complex design elements.

Autodesk Forma

Layout generation using AI

Discover our comprehensive suite of design tools from client briefs to moodboard + layout generation, design inspiration to catalog match, AI enhanced visualization on your projects.



Instant Finish

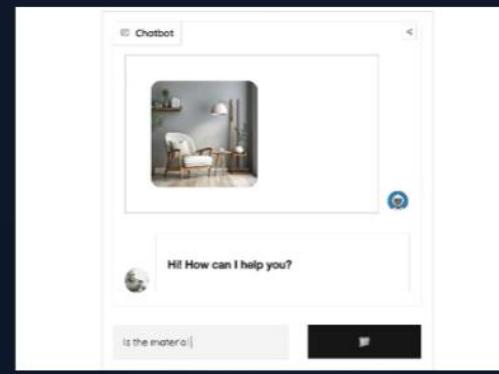
Experiment real materials in your room or your client's room.

Fast and precise. Apply textures with photorealistic quality and accurate perspective in any surface.



Chat with Your Product

Dynamically interact with your products, optimizing customer service and providing instant, detailed information. Leverage our Multimodal Chat API to facilitate this direct and efficient connection.

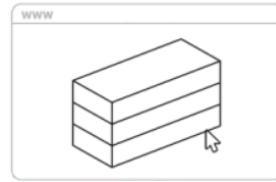


3D Guru

AI optimized design development with BIM

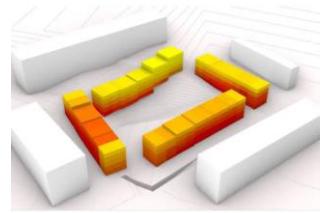
AI Architecture Generator in Real-Time

INPUT



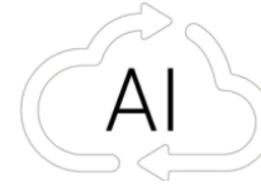
I.-Introduction of Design Criteria and Modelling

The user inputs the design criteria that the project must meet and defines and models the solution online in an easy and intuitive way in 2D and 3D.



Environmental Responsiveness

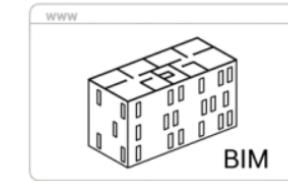
The system provides an extensive simulation of the building performance in real-time, allowing detailed knowledge of the passive behavior throughout the year. This data is used to provide the building and units layout with the best environmental performance that meet the user's design criteria.



2.-AI Optimized Design Development

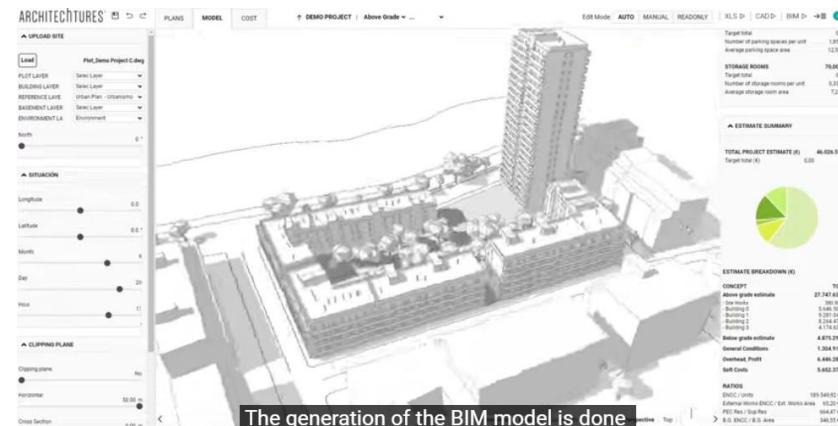
Our cloud-based IA system generates in real-time the geometry that best fits the parameters entered for each user iteration.

OUTPUT



3.-Generation of the BIM solution and Project Data

The platform shows in real-time the resulting BIM solution and all its metrics to be later downloaded in XLSX, DXF, and IFC formats.



Architectures - AI
Architecture Generator,
Building Design

Generating Design Alternatives



The Plan Generator allows users to specify room dimension & adjacency constraints, generate design options and export designs in DXF format. Maket's virtual assistant provides guidance on materials, costs and design possibilities.

The screenshot shows the Maket web application interface for generating floor plans. At the top, there is a navigation bar with the Maket logo, a progress bar indicating "1 of 3", and an "UPGRADE TO PREMIUM" button. Below the navigation bar, the project name "Test" is displayed. The main interface consists of a table where users can input room dimensions and adjacency constraints. The table has columns for "TYPE", "X (FEET)", "Y (FEET)", "FLOOR", and "NEXT TO (OPTIONAL)".

Rooms Input:

Type	X (Feet)	Y (Feet)	Floor	Next To (Optional)
Bedroom	12	12	1	Bedroom 2, Bathroom 1
Bedroom	10	10	1	Bedroom 1
Bathroom	8	8	1	Bedroom 1
Bathroom	10			

Bottom Navigation Bar:

- My Designs
- Floorplan Generator (selected)
- Visualizer
- Interior

Help and Support:

- A "Help" button with a speech bubble icon.
- A "Select" dropdown menu.

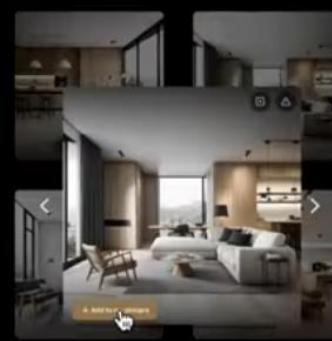
Automated Design Generation



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Generative Design for Architectural Planning



Generative Design | Architecture Design Software | Maket

AI for Schematic Designs Feasibility Studies



Home Solution Resources About Contact Us

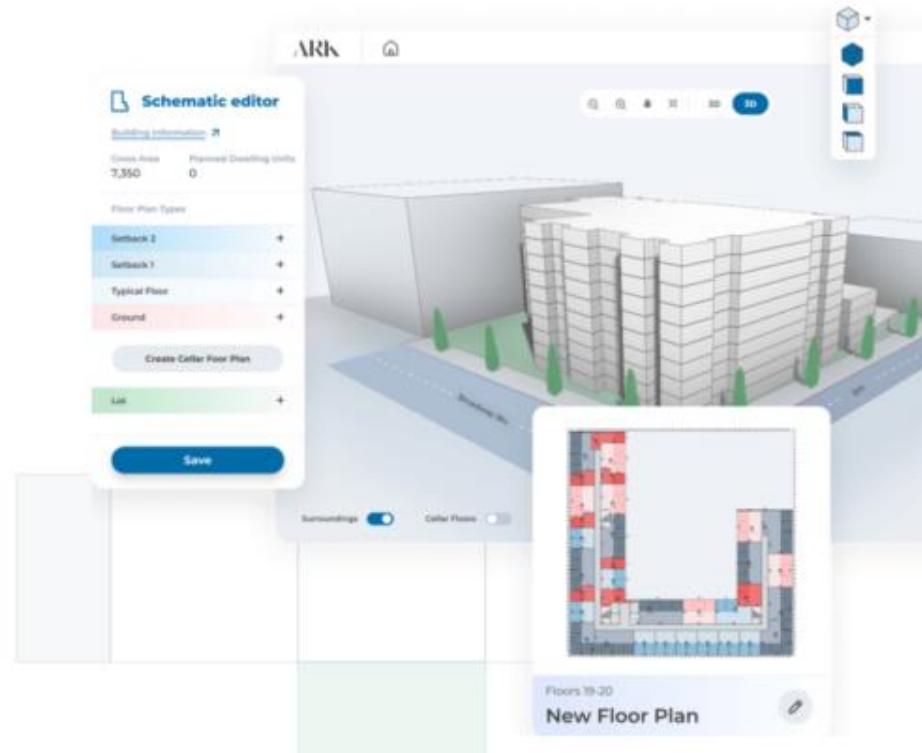
Create Optimized Floor Plans Fast & Efficiently

The first AI platform for creating architectural schematic design.

Optimize profitability, density and living standards while meeting all code regulations.

[Schedule a Demo](#)

[Watch Now](#)



[Homepage - Ark](#)

AI for Sustainable Design

Products ▾ Support ▾ Learn ▾ Community ▾

Spacemaker

Spacemaker: Early-stage planning, reimaged

Design better cities with outcome-based design

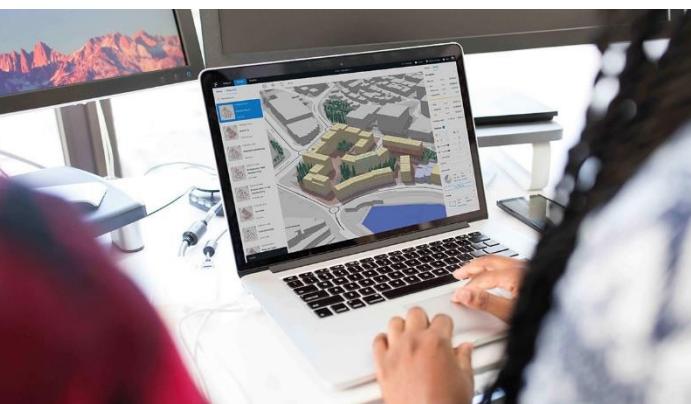
Already have an account? [Sign in](#)

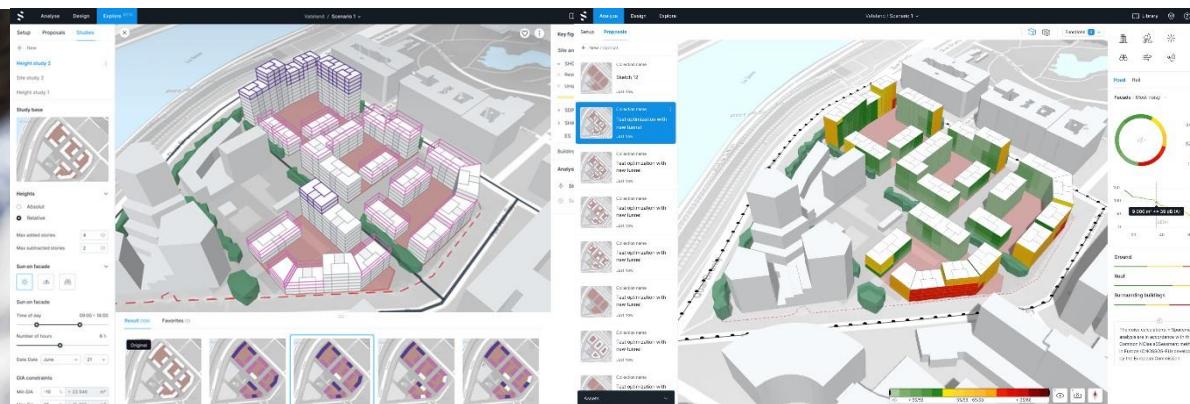
[Start free trial](#) [Contact sales](#)

[Talk to our sales team. Financing options available. 1-855-664-8618](#)



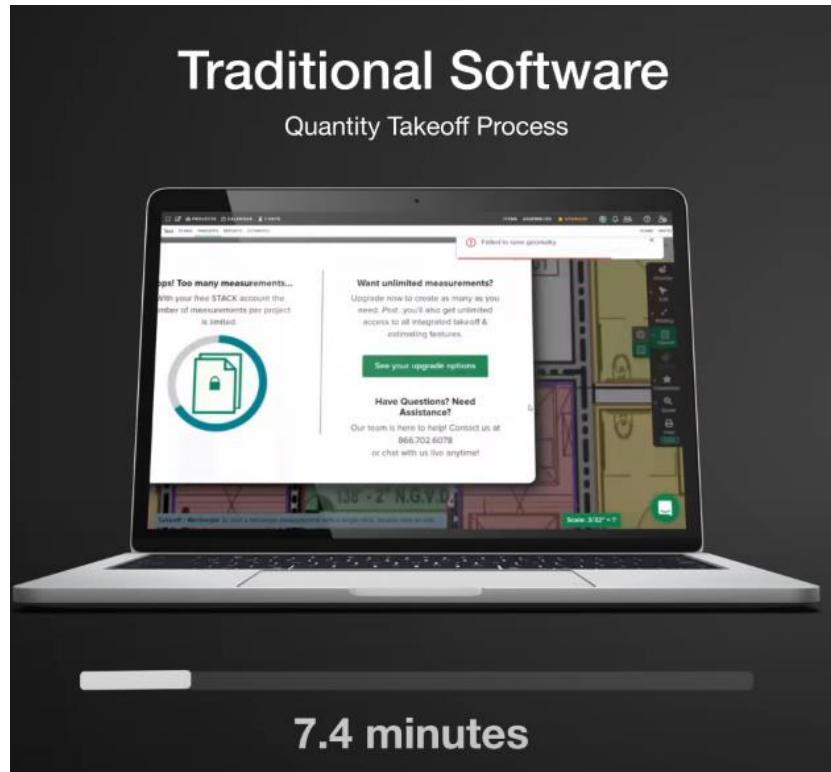
Overview Benefits Capabilities Customer Stories Webinars Resources FAQs





Spacemaker | Autodesk

AI-powered pre-construction software helping estimators



The Ultimate AI Companion for Estimators
| Togal.AI

Open source

Github

The screenshot shows the GitHub homepage. At the top, there's a header bar with the GitHub logo, a search bar, and navigation links for Pull requests, Issues, Marketplace, and Explore. A notification bell icon is on the right. Below the header, a large green banner reads "Learn Git and GitHub without any code!". It includes a subtext: "Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request." Two buttons are present: a green "Read the guide" button and a white "Start a project" button. In the bottom left, a sidebar displays a message about new Terms of Service and Privacy Statement, followed by a list of repositories under "mac999". On the right, there's a section titled "Discover interesting projects and people to populate your personal news feed." with a "Explore GitHub" button.

GitHub, Inc. [US] | <https://github.com>

Search or jump to... / Pull requests Issues Marketplace Explore

Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

Read the guide Start a project

Our new Terms of Service and Privacy Statement are in effect. X

Repositories New repository

Find a repository...

-  [mac999/Books](#)
-  [mac999/Automation](#)
-  [mac999/Robot](#)
-  [mac999/CauFEM](#)
-  [mac999/Projects](#)
-  [mac999/DeepLearning](#)

Browse activity Discover repositories

Discover interesting projects and people to populate your personal news feed.

Your news feed helps you keep up with recent activity on repositories you [watch](#) and people you [follow](#).

[Explore GitHub](#)

Github

A screenshot of a user profile page on Github. At the top, there's a search bar and navigation links for Pull requests, Issues, Marketplace, and Explore. Below the header, the user's profile picture and name "Tae wook" are displayed, followed by "mac999". A bio section states: "Ph.D. Senior researcher in KICT. Writer about 11 books including two e-books such as BIM principle, Civil BIM, platform, vision, reverse engineering." There's a "Edit bio" button. To the right, there are sections for pinned repositories: "Automation" (Rhino addin tool for generating tool path such as CNC, 3D printer etc., forked from tensorflow/models), "Books" (CSS), "DeepLearning" (Models built with TensorFlow), "Projects" (Python, VHDL), and "Robot" (C++). A note says "You can now pin up to 6 repositories." Below these is a chart showing "25 contributions in the last year" with a timeline from July to July.

A screenshot of a repository page for "mac999 / Automation". The top navigation bar includes a search bar, a pull requests link, and tabs for Code, Issues (0), Pull requests (0), and Projects (1). The main area shows the repository "Automation / OpenSlicer /". It lists files like "Delete OpenSlicer.v12.suo", "Properties", "bin", "obj", "AddSurfacePoints.cs", "DelPoints.cs", "GetSurfacePoints.cs", "OpenSlicer.csproj", "OpenSlicer.csproj.user", "OpenSlicer.sln", "OpenSlicer.suo", "OpenSlicerBrep.cs", and "OpenSlicerPlugIn.cs".

License

GNU General Public License(GPL) 2.0

- 의무 엄격. SW 수정 및 링크 경우 소스코드 제공 의무

GNU Lesser GPL(LGPL) 2.1

- 저작권 표시. LPGL 명시. 수정한 라이브러리 소스코드 공개

Berkeley Software Distribution(BSD) License

- 소스코드 공개의무 없음. 상용 SW 무제한 사용 가능

Apache License

- BSD와 유사. 소스코드 공개의무 없음.

Mozilla Public License(MPL)

- 소스코드 공개의무 없음. 수정 코드는 MPL에 의해 배포. 이외 결합 프로그램 코드는 공개 필요 없음

MIT License

- 라이선스 / 저작권만 명시 조건

Example



Control net.ipynb - Colab



```
(venv_tf2) ktw@ktw-Vector-GP66-12UH:/projects/gen_ai_gpt$ python3 gen_ai_gpt.py --query="달의 위를 두발로 걷고 있는 우주복 입은 치즈태비 고양이를 묘사해줘." --style="realistic lighting, ultra-detailed, 8K, photorealism" --output="./image.png"
```

치즈태비 고양이는 우주복을 입고 있으며, 달의 위를 가벼운 두발로 걷고 있습니다. 그 눈은 밝게 빛나며 호기심어린 표정을 지니고 있습니다. 털은 투명한 우주복과 어우러져 맑고 깨끗한 느낌을 줍니다. 치즈태비 고양이의 뒤로는 큰 암순을 포개어 보내는 지구가 보입니다. 이상한 광경에도 불구하고, 그 고양이는 마치 일상적인 산책을 하듯이 편안한 모습으로 걷고 있습니다.

A cheese tabby cat wearing a space suit walked on the moon, looking around with curious eyes.

LLM & Spreadsheet processing

```
1 import os
2 import pandas as pd
3 from pandasai import Agent
4
5 sales_by_country = pd.DataFrame({
6     "country": ["United States", "United Kingdom", "France", "Germany",
7                 "Italy", "Spain", "Canada", "Australia", "Japan", "China"],
8     "revenue": [5000, 3200, 2900, 4100, 2300, 2100, 2500, 2600, 4500, 7000]
9 })
10
11 os.environ["PANDASAI_API_KEY"] = " "
12
13 agent = Agent(sales_by_country)
14 answer = agent.chat('Which are the top 5 countries by sales?')
15 print(answer)
```



```
(venv_llm) PS F:\projects\pandas_ai> & C:/Users/MAC/.conda/envs/venv_llm/p
ython.exe f:/projects/pandas_ai/test.py
The top 5 countries by sales are: China, United States, Japan, Germany, Un
ited Kingdom
```

Huggingface

Hugging Face

Search models, datasets, users...

Models

Datasets

Spaces

Posts

Docs

Solutions

Pricing



Spaces

Discover amazing AI apps made by the community!

Create new Space

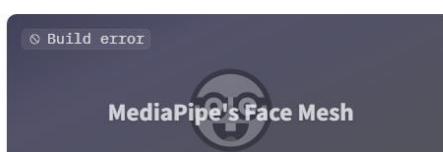
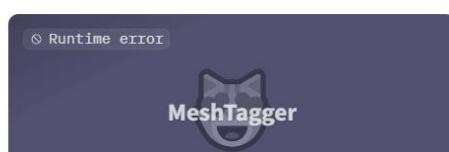
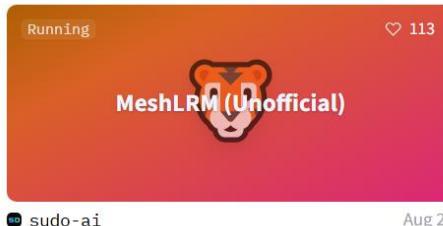
or [Learn more about Spaces](#)

mesh

Browse [ZeroGPU Spaces](#)

Full-text search

↑ Sort: Trending



https://huggingface.co/new_space

Create a new Space

Spaces are Git repositories that host application code for Machine Learning demos. You can build Spaces with Python libraries like Streamlit or Gradio, or using Docker images.

Owner	Space name
mac999	New Space name
Short description	Short Description
License	License

Select the Space SDK
You can choose between Streamlit, Gradio and Static for your Space. Or pick Docker to host any other app.

Streamlit

Gradio 3 templates

Docker 15 templates

Static 3 templates

Image to 3D mesh

Spaces

shariqfarooq/ZoeDepth

like 685

Running on A10G

⋮

Depth Prediction

Image to 3D

360 Panorama to 3D

Image to 3D mesh

Convert a single 2D image to a 3D mesh



Keep occlusion edges

Submit



Image to 3D mesh

Spaces

shariqfarooq/ZoeDepth

like 685

Running on A10G

≡

Depth Prediction

Image to 3D

360 Panorama to 3D

Panorama to 3D mesh

Convert a 360 spherical panorama to a 3D mesh

ZoeDepth was not trained on panoramic images. It doesn't know anything about panoramas or spherical projection. Here, we just treat the estimated depth as radius and some projection errors are expected. Nonetheless, ZoeDepth still works surprisingly well on 360 reconstruction.

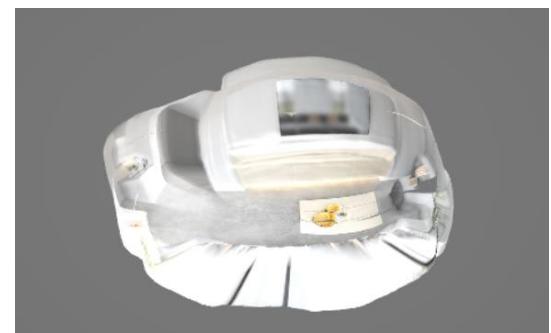
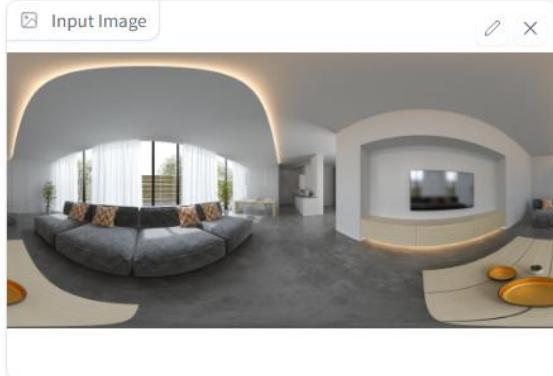


Image to 3D mesh

Spaces · TencentARC / InstantMesh 1.15k like Running on ZERO

InstantMesh: Efficient 3D Mesh Generation from a Single Image with Sparse-view Large Reconstruction Models

InstantMesh is a feed-forward framework for efficient 3D mesh generation from a single image based on the LRM/Instant3D architecture.

Code: [GitHub](#). Technical report: [ArXiv](#).

Important Notes:

- Our demo can export a .obj mesh with vertex colors or a .glb mesh now. If you prefer to export a .obj mesh with a texture map, please refer to our [Github Repo](#).
- The 3D mesh generation results highly depend on the quality of generated multi-view images. Please try a different seed value if the result is unsatisfying (Default: 42).

The screenshot shows the InstantMesh web application interface. On the left, there is an "Input Image" panel displaying a photograph of a modern, white, organic-shaped building. Below it are several control sliders: "Remove Background" (checked), "Seed Value" (set to 42), and "Sample Steps" (set to 75). In the center, there is a "Processed Image" panel showing a semi-transparent 3D mesh reconstruction of the building. To the right, there is a "Generated Multi-views" panel displaying six smaller views of the same 3D mesh from different angles. At the bottom right, there is an "Output Model" section with tabs for "OBJ" and "GLB", and a preview image of the reconstructed mesh. A large orange "Generate" button is located at the bottom left.

Private LLM ollama & VLM



ollama run llama3.2-vision
what is this figure? ./zaha_ddp.jpg

```
>>> what is this figure? ./zaha_ddp.jpg
```

Added image './zaha_ddp.jpg'

The image appears to be an interior view of a large, modern building with white architecture seems futuristic and minimalist, with clean lines and curves.

Upon closer inspection, it's possible that the image depicts a public space or building, such as a lobby, atrium, or hallway. The overall aesthetic suggests design, possibly intended to evoke feelings of calmness and serenity in those

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