

數位設計的現在・未來

AI image fusion 教材

Stable Diffusion by stability.ai
Dall.E mini, MidJourney, Dream by WOMBO
Google Dream Booth, OpenArt

永續發展目標



施勝誠

講在前面 Before we jump in

考察人類文明史，重點不在如何擊敗工具，而是將工具為我所用，產生更強勁的生產力、更輝煌的成就。

當新一波科技浪潮來襲，我們必須培養「知化力」，把AI當工具，學會駕馭它，才能成為AI時代的贏家。

陶冬 今周刊 2022/08

如何駕馭科技？

與其被動接受科技變革，不停地追趕。

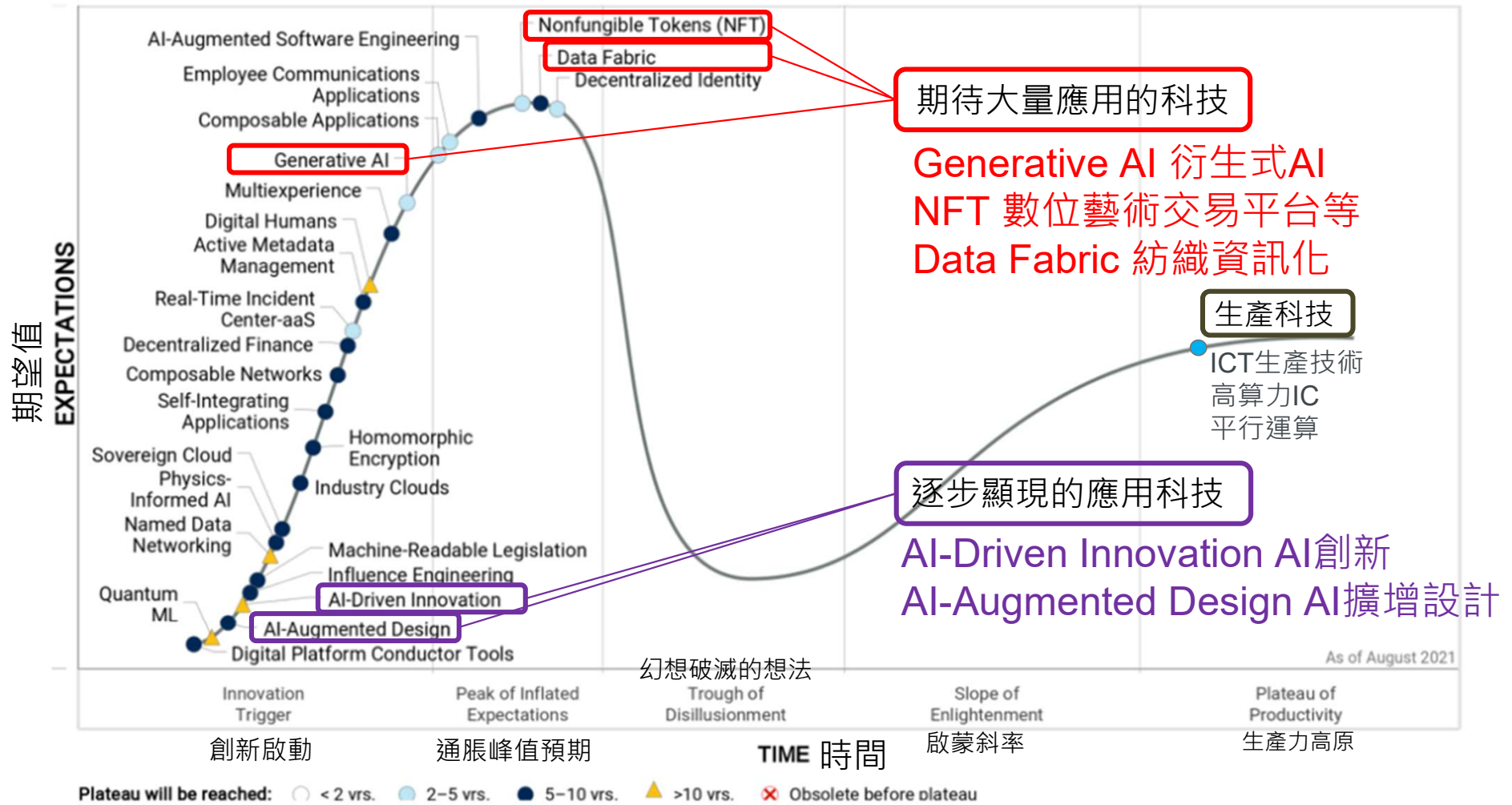
不如正面迎擊，掌握先機。

也歡迎關注 施勝誠 設計思考 webNote:



<https://grandz.net/dthinking>

Figure 1. Hype Cycle for Emerging Technologies, 2021



期待大量應用的科技

Generative AI 衍生式AI
NFT 數位藝術交易平台等
Data Fabric 紡織資訊化

生產科技

逐步顯現的應用科技

AI-Driven Innovation AI創新
AI-Augmented Design AI擴增設計

Source: Gartner (August 2021) 資料來源

期待大量應用的科技

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逐步顯現的應用科技

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Generative AI 衍生式AI的衝擊

- 設計師第一次接觸不動手「畫」就能獲取造型或影像的怪科技
- 設計師習慣的設計工具仍須動手操作
- 最接近衍生式AI的傳統技術，可能是「渲染」-- 渲染引擎會自動產生擬真的「光影」、「材質」等等設計師沒有動手畫的成果
- 工程師已經很習慣製造「變頻冷氣」、「適應性洗衣機」等等
- 更可預見的未來是「自動駕駛」使得司機正在歷經失業的過程
- 要注意的是「飛機」、「輪船」早已實現合理的自動駕駛

今天會談到

01 AI工具 – Image fusion

由文字衍生成影像(不是找影像)

02 背後原理 How it works

AI工具背後原理一點點之描述
(希望你能稍微理解，產生信心)

03 小試一下 Dry run

沙發家具設計，使用AI文字
衍生影像

04 商空設計測試 Do it.

樂高玩具賣場設計

05 另一個AI工具 – MidJourney

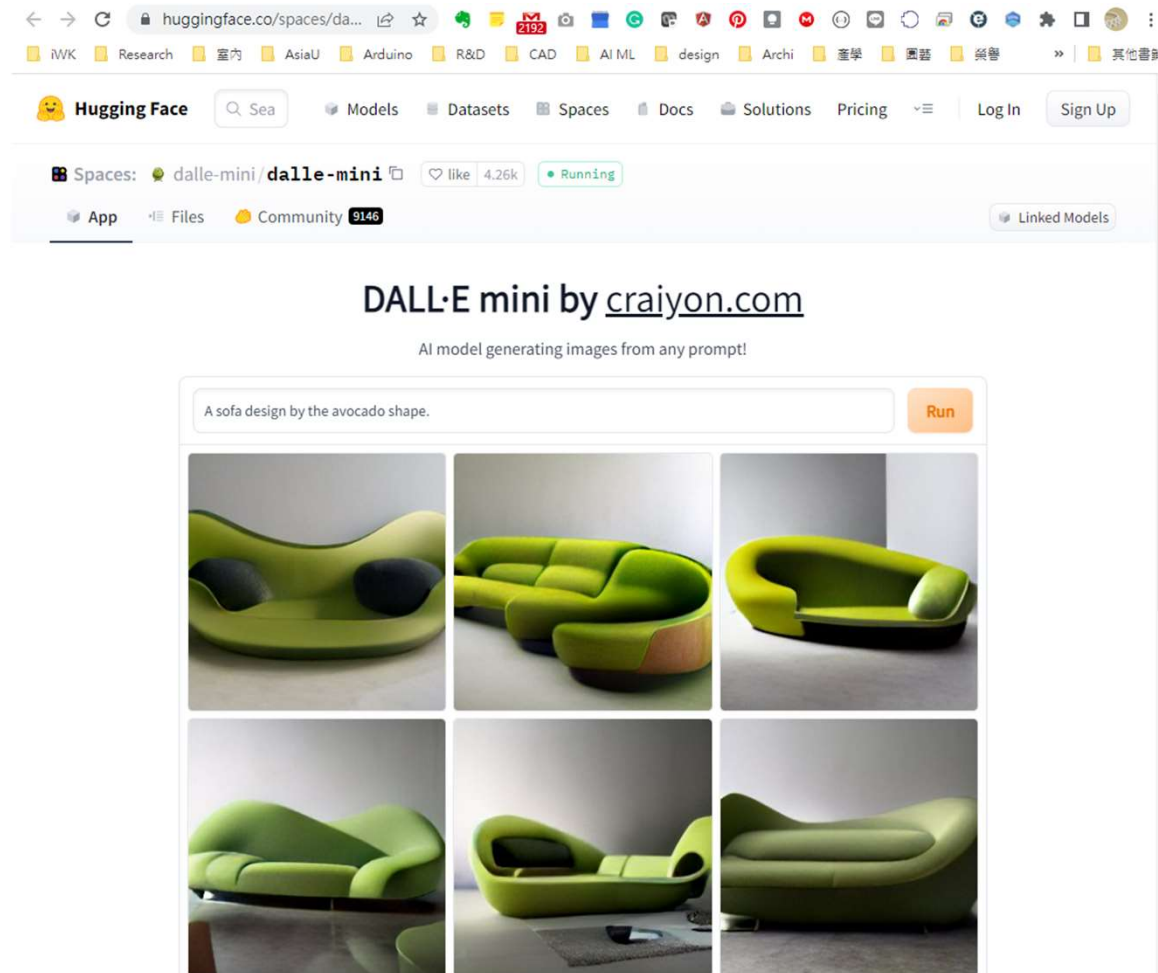
更快、更強、更彈性且可持續
優化、變異再提升細節等等

&



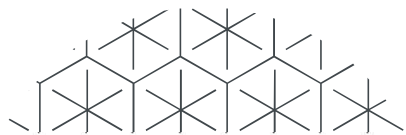
AI工具 – Image fusion, 由文字衍生成影像

DALL·E mini by craiyon.com



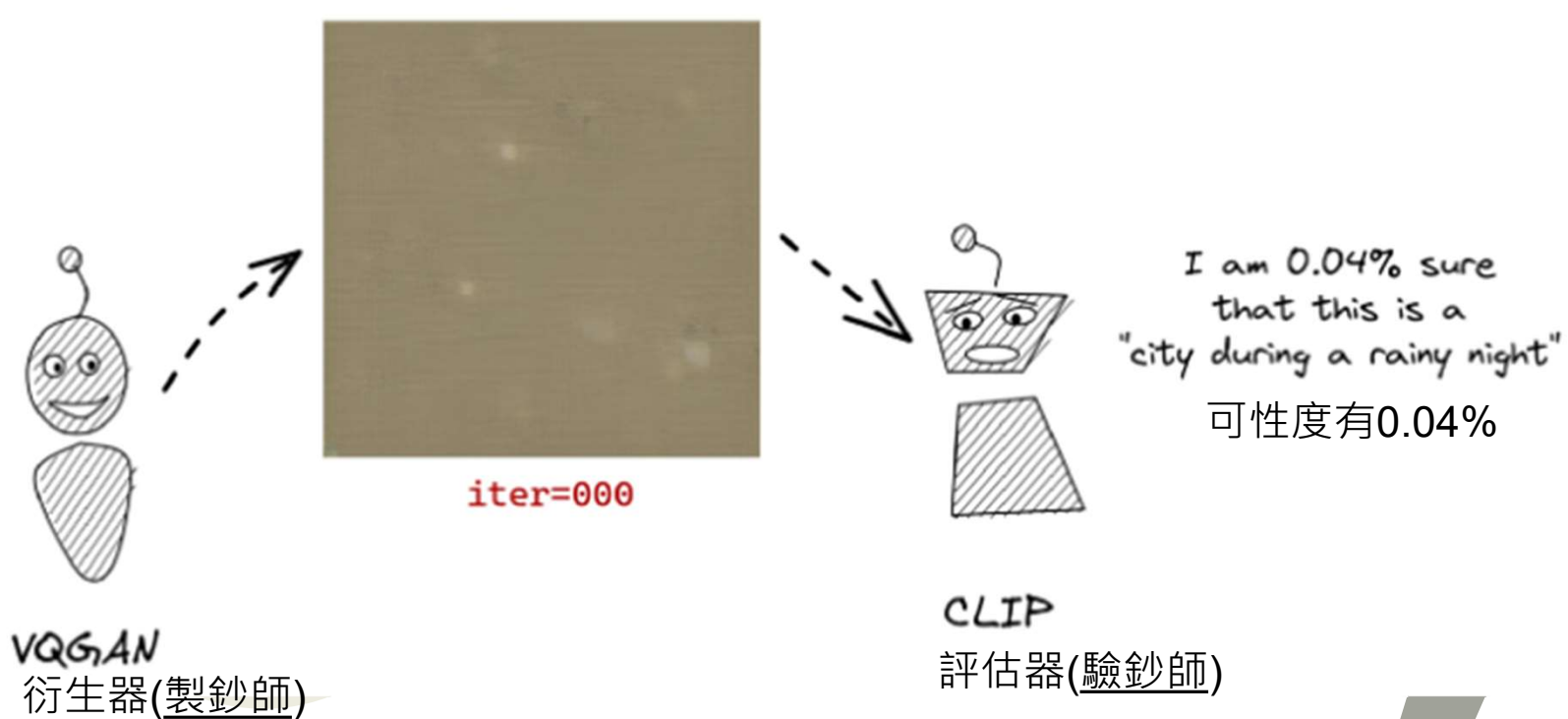
AI工具一點點背後原理之描述(How It Works)

- So how does VQGAN+CLIP work? In short, the generator will generate an image and the CLIP will measure how well the image matches the image. Then, the generator uses the feedback from the CLIP model to generate more “accurate” images. This iteration will be done many times until the CLIP score becomes high enough and the generated image matches the text.
- 那麼VQGAN+CLIP是如何工作的呢？簡而言之，**VQGAN** **生成器**將生成圖像，**CLIP** 將**測量**圖像與圖像的匹配程度。然後，生成器使用來自 CLIP 模型的反饋來生成更“準確”的圖像。此迭代將進行多次，直到 CLIP 分數變得足夠高並且生成的圖像與文本匹配。



輸入：雨夜的城市

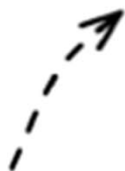
Prompt: "city during a rainy night"





經過幾個衍生與評估迭代後

After a few iterations...



iter=150
迭代數=150



I am 99% sure
that this is a
"city during a rainy night!"

可性度有99%，即獲得結果

VGGGAN
衍生器



CLIP
評估器

參考來源



小試一下，沙發家具範例
A sofa with the avocado shape.



This avocado armchair could be the future of AI

OpenAI has extended GPT-3 with two new models that combine NLP with image recognition to give its AI a better understanding of everyday concepts.

By Will Douglas Heaven

January 5, 2021

預言成真

早就預言會成功



商空設計小試身手，玩具賣場設計

A stunning store for lego toys with the order, open, and shining showcase.



A stunning store for lego toys deco by **metaverse** style with the order, open, and shining showcase.



A stunning store for lego toys deco by **art Nouveau** style with the order, open, and shining showcase.

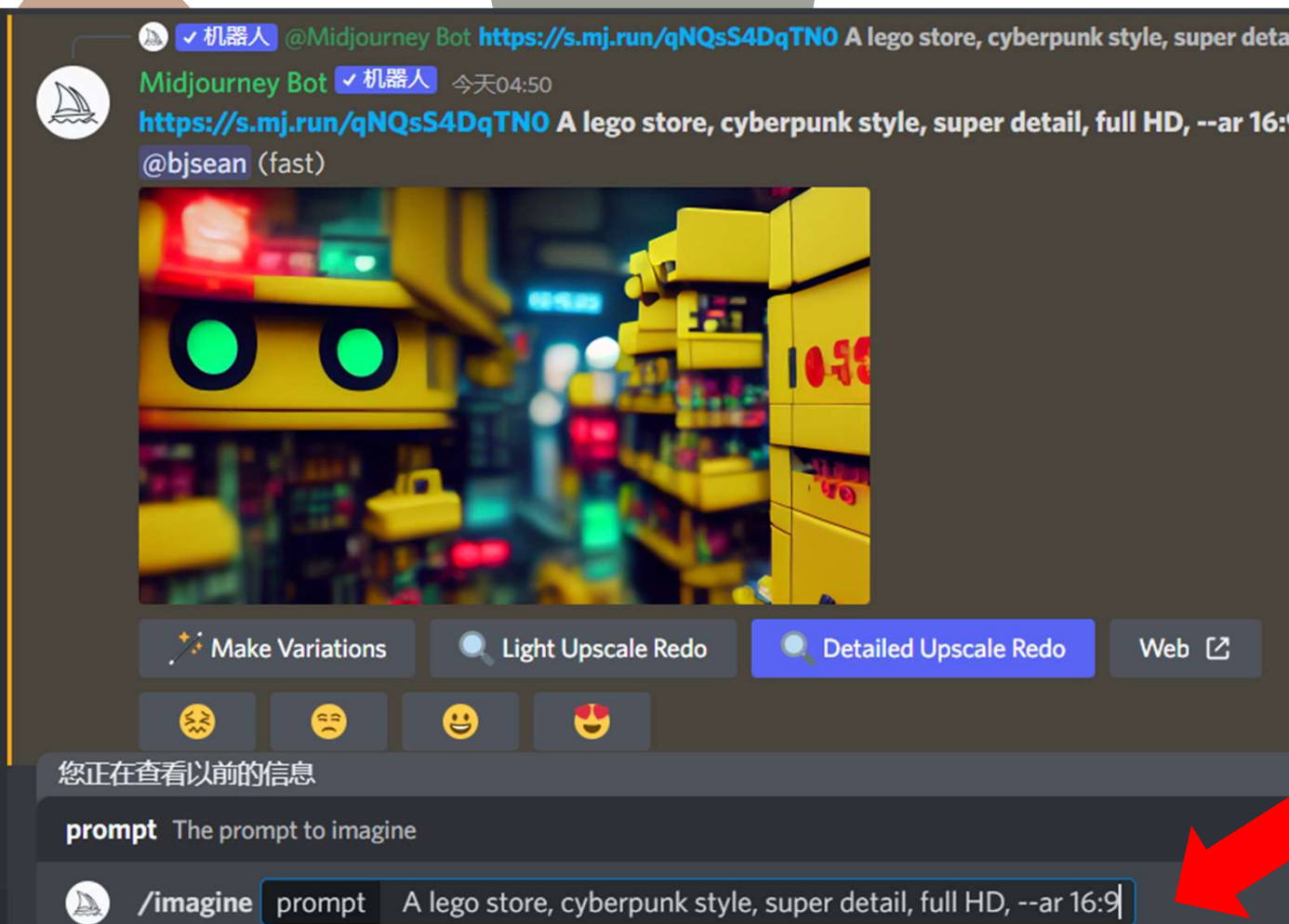


A stunning store for lego toys deco by **nature forest** style with the order, open, and shining showcase.



05 另一個AI工具：MidJourney

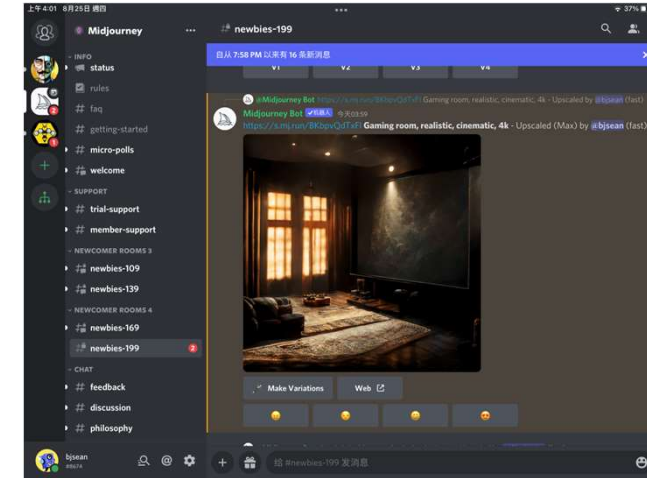
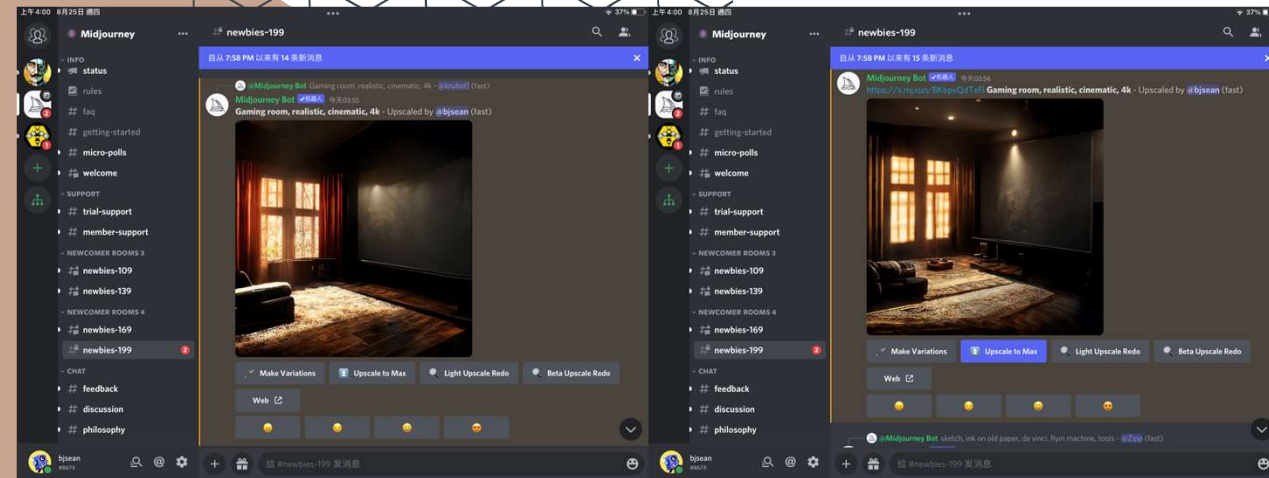
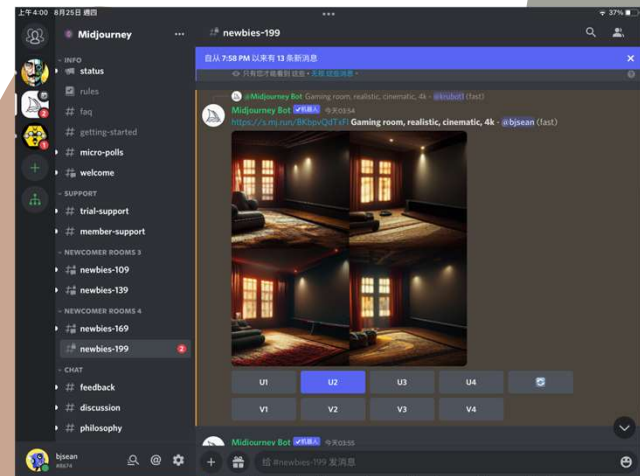
Midjourney 使用教程



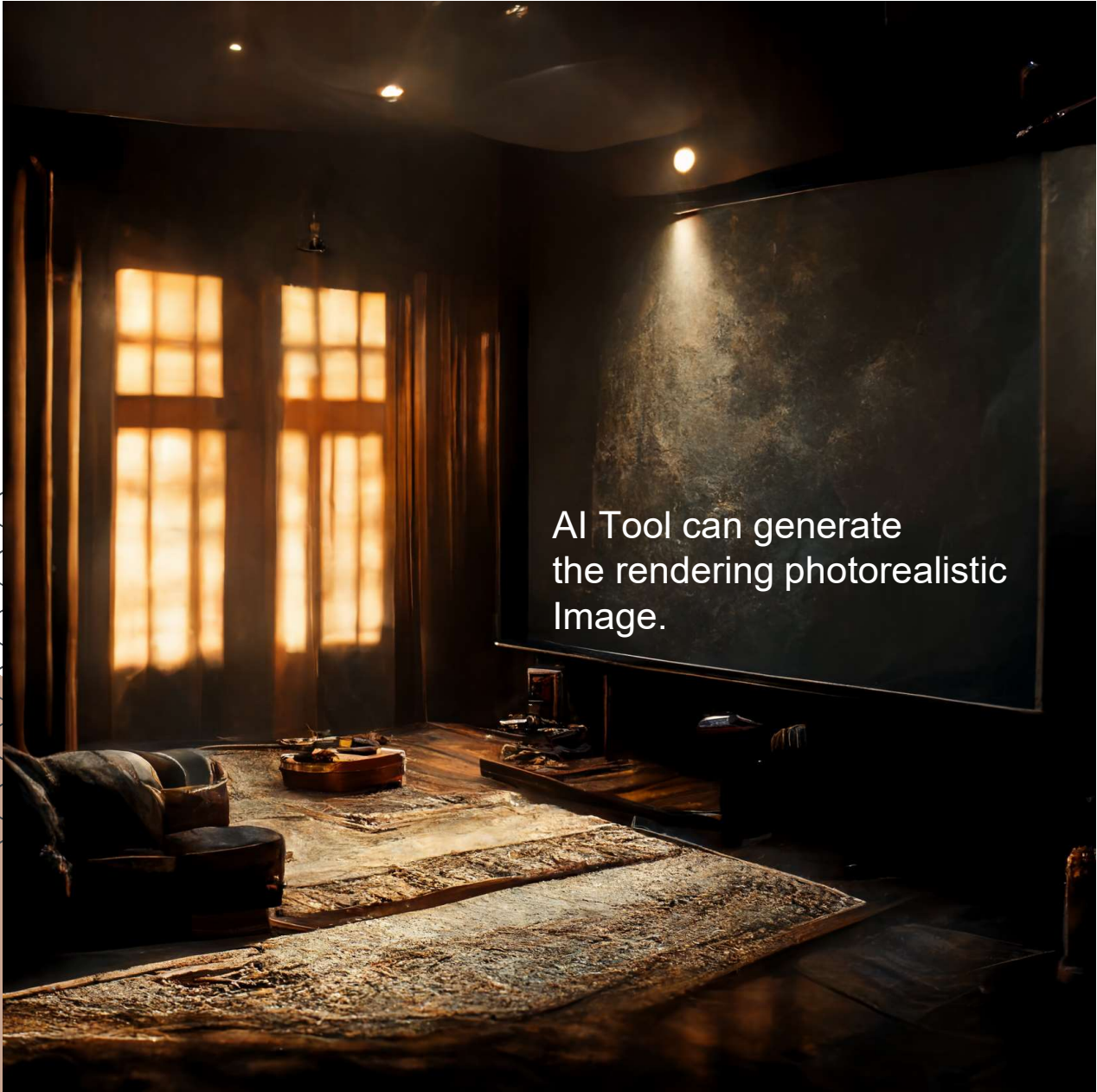
指令: /imagine

prompt: 輸入文字

05 另一個AI工具：MidJourney



MidJourney



AI Tool can generate the rendering photorealistic Image.

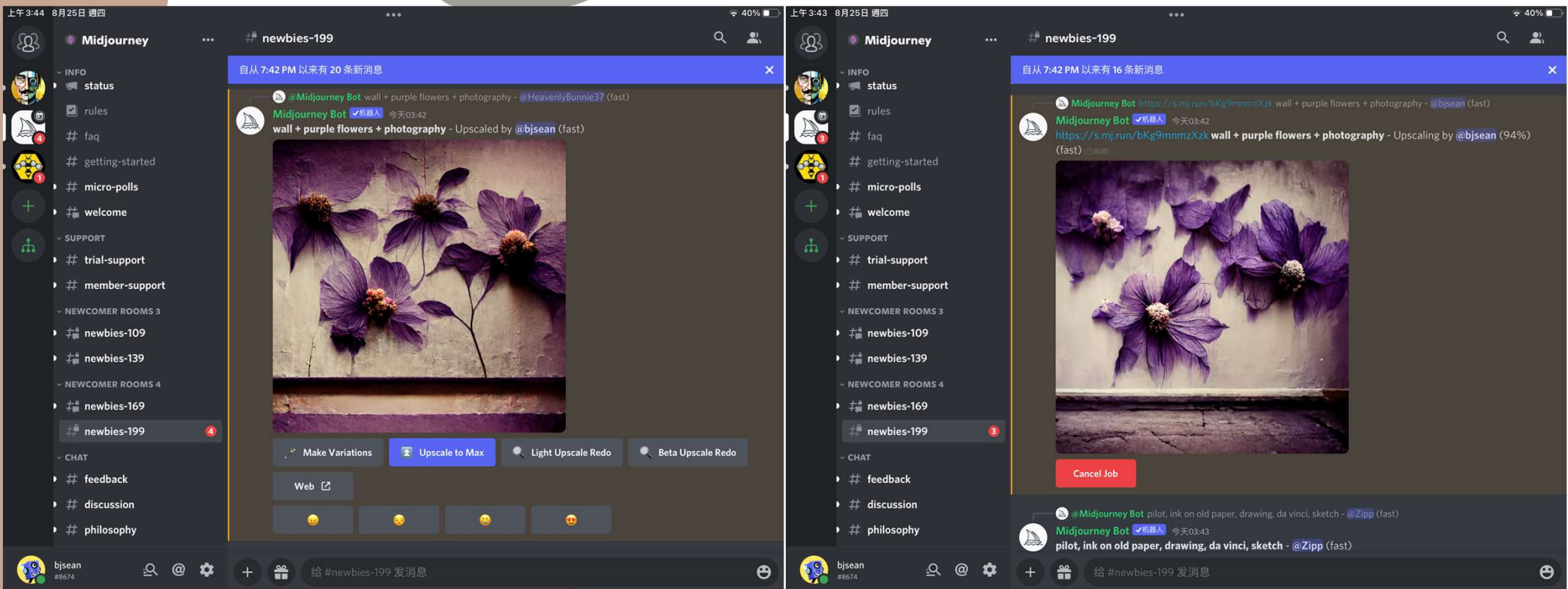


05 另一個AI工具：MidJourney

AI Tool can be the design power!



05 另一個AI工具：MidJourney



AI Tool can be the real texture generator.



MidJourney



05 另一個AI工具：MidJourney 商空設計

Prompt: A lego store, cyberpunk style, super detail, full HD, --ar 16:9

The screenshot shows a Discord chat window for the channel #newbies-199. The chat history shows a message from the MidJourney Bot at 04:38 with the prompt: "A lego store, cyberpunk style, super detail, full HD, --ar 16:9 - @bjsean (fast)". The bot has generated four variations (V1, V2, V3, V4) of a highly detailed, vibrant Lego store interior in a cyberpunk aesthetic. The store is filled with yellow and red Lego bricks, illuminated with colorful neon lights (blue, green, red). The perspective is from a low angle, looking down a long aisle lined with shelves of Lego sets. The lighting is dramatic, with strong highlights and deep shadows, creating a futuristic and immersive atmosphere. The chat interface includes a search bar, a list of channels on the left, and a list of team members on the right. The system tray at the bottom shows the date and time as 04:37 on 2022/8/25.



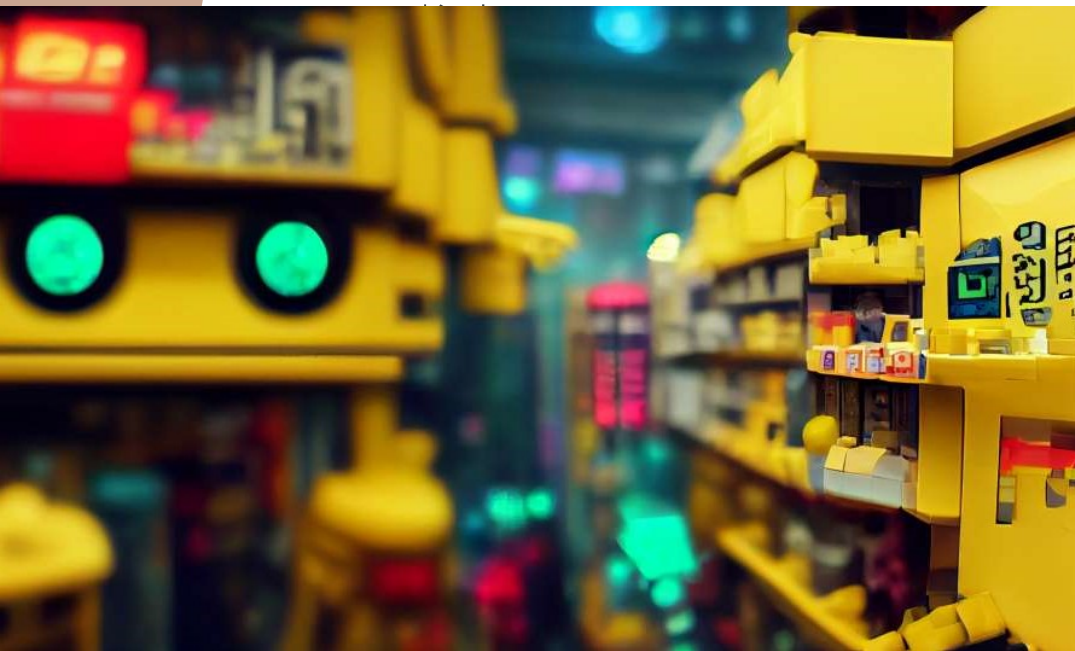
U: upscale 擴增細節

V: veriance 變異(產生類似且不同的方案)

05 另一個AI工具：MidJourney

Prompt: A lego store, cyberpunk style, super detail, full HD, --ar 16:9

迭代



05 另一個AI工具：MidJourney



2022/08/22

公開發表
在地安裝
完全開源

stability.ai

[Ecosystem](#) [Research](#) [Blog](#) [in](#) [🐦](#)

22 Aug • Written By Emad Mostaque

Stable Diffusion Public Release



01 Stable Diffusion 的起源

☰ README.md

Stable Diffusion

Stable Diffusion was made possible thanks to a collaboration with [Stability AI](#) and [Runway](#) and builds upon our previous work:

High-Resolution Image Synthesis with Latent Diffusion Models

Robin Rombach*, Andreas Blattmann*, Dominik Lorenz, Patrick Esser, Björn Ommer

[CVPR '22 Oral](#) | [GitHub](#) | [arXiv](#) | [Project page](#)



[Stable Diffusion](#) is a latent text-to-image diffusion model. Thanks to a generous compute donation from [Stability AI](#) and support from [LAION](#), we were able to train a Latent Diffusion Model on 512x512 images from a subset of the [LAION-5B](#) database. Similar to Google's [Imagen](#), this model uses a frozen CLIP ViT-L/14 text encoder to condition the model on text prompts. With its 860M UNet and 123M text encoder, the model is relatively lightweight and runs on a GPU with at least 10GB VRAM. See [this section](#) below and the [model card](#).

最簡單的stable diffusion網頁介面

完全開源

但需排隊等久一點點

Stable Diffusion Demo

Stable Diffusion is a state of the art text-to-image model that generates images from text.

For faster generation and forthcoming API access you can try [DreamStudio Beta](#)

A living room in the design style of Pantheon.

Generate image



網頁版(II)

<https://beta.dreamstudio.ai/dream>

有版權限制，可試用10張左右
超過則需購買點數

The screenshot shows the DreamStudio AI web interface. At the top, there are browser tabs for Stability.AI, DreamStudio, and Stable Diffusion Public Release. The address bar shows the URL beta.dreamstudio.ai/dream. The interface includes a navigation menu on the left with options like Dream, History, Prompt Guide, Social, and FAQ. The main area displays four generated images of a LEGO store. On the right, there are sliders and dropdowns for image generation settings: Width (1024), Height (768), Cfg Scale (15), Steps (100), Number of Images (4), and Sampler (k_lms). At the bottom, there is a text input area with a prompt: "A stunning store for lego toys deco by art Nouveau style with the order, open, and shining showcase." and a "Dream" button. A "Download All" button is also visible. The bottom of the browser shows a file explorer with several PNG files.

Annotations in the image include:

- 文字輸入區 (Text input area) pointing to the prompt box.
- 影像下載按鈕 (Image download button) pointing to the "Download All" button.
- 寬 (Width) pointing to the Width slider.
- 高 (Height) pointing to the Height slider.
- 信心 (Confidence) pointing to the Cfg Scale slider.
- 迭代數 (Iteration count) pointing to the Steps slider.
- 影像數 (Image count) pointing to the Number of Images slider.
- 取樣模型 (Sampling model) pointing to the Sampler dropdown.
- 執行按鈕 (Execute button) pointing to the "Dream" button.

A stunning store for lego toys deco by art Nouveau style with the order, open, and shining showcase.
一家令人驚嘆的樂高玩具商店，出售新藝術風格的樂高玩具，陳列有序、開放和閃亮。



A living room with stunning fireplace surrounds, beautiful built-in bookcases, welcoming window seats, marvelous material combinations, and more.

一客廳擁有迷人的壁爐、漂亮的內置書櫃、溫馨的靠窗座椅、奇妙的材料組合等等。



A Japanese design living room with stunning fireplace surrounds, beautiful built-in bookcases, welcoming window seats, marvelous material combinations, and more.

一日本風客廳擁有迷人的壁爐、漂亮的內置書櫃、溫馨的靠窗座椅、奇妙的材料組合等等。





Examples of

- 1) Google search VS..
- 2) DALL·E mini VS.
- 3) Stable Diffusion VS
- 4) Dream by WOMBO
- 5) MidJourney

A living room in the design style of Pantheon. (萬神殿設計風格的客廳)

1) Google search:

The image shows a Google search interface with the query "a living room in the design style of Pantheon". Below the search bar, there are navigation tabs for "全部", "圖片", "新聞", "地圖", "影片", "書籍", and "航班". The "圖片" tab is selected, showing a grid of search results. The results include various interior design images and architectural details of the Pantheon in Rome. A "相關搜尋" (Related searches) section is visible, listing terms like "interior", "rome italy", "apartments", "parthenon", "roman", "furniture", "buildings", "pantheon lol", "pantheon plan", "pantheon interior", and "pantheon section".

Search query: a living room in the design style of Pantheon

Navigation: 全部 圖片 新聞 地圖 影片 書籍 航班

Related searches: interior, rome italy, apartments, parthenon, roman, furniture, buildings

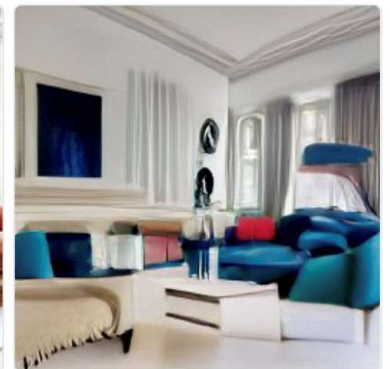
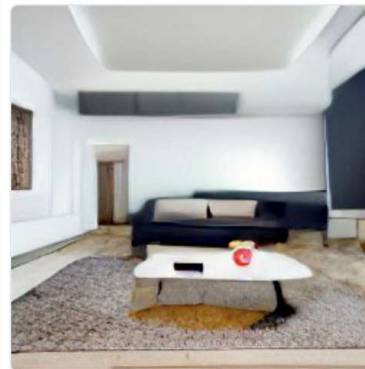
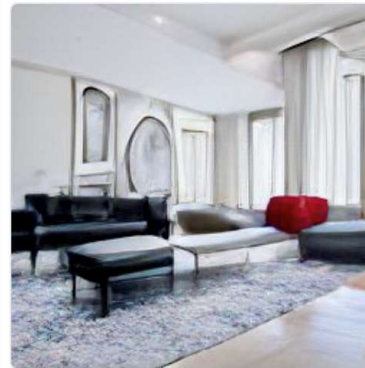
Search results include:

- Retro | Home, Retro interior design, 8... Pinterest
- Pantheon in Rome - FINE ITALIAN AR... Paolo Modena
- Tour the Pantheon in Rome | Architect... Architectural Digest
- The Pantheon — A temple to all gods Monolithic Dome
- Atena 3 – Pantheon Luxury Apartments Pantheon Luxury Apartments
- Interior view of the Pantheon in Rome... ResearchGate
- The Pantheon: The ancient building s... CNN
- The Pantheon (Rome) – Smarthistory Smarthistory
- The Pantheon In Rome Wall Art | Phot... ElephantStock
- The Influential Architecture of the Pan... ThoughtCo
- The Pantheon (Rome) – Smarthistory Smarthistory

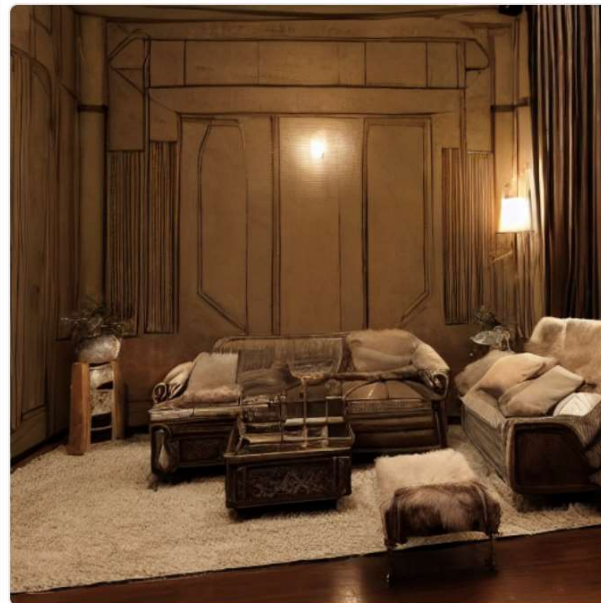
2) DALL.E mini

A living room in the design style of Pantheon

Run



3) Stable diffusion:



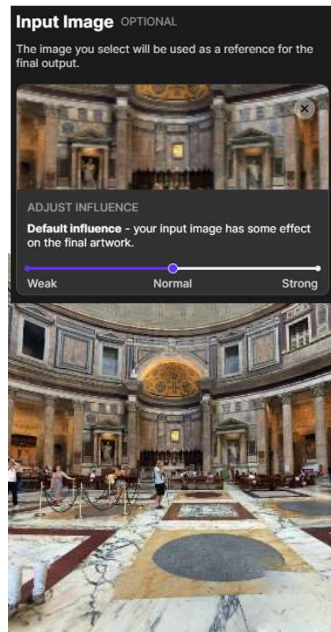
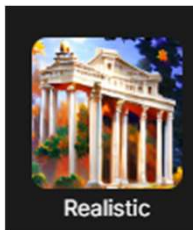
4) Dream by WOMBO

dream

From : <https://app.wombo.art/>

A living room in the design style of Pantheon with stunning fireplace surrounds, beautiful built-in bookcases, welcoming window seats, marvelous material combinations and more.

Art Style:



Dream by WOMBO

Art Style:



Realistic

Input Image: OPTIONAL
The image you select will be used as a reference for the final output.



ADJUST INFLUENCE
Default influence - your input image has some effect on the final artwork.

Weak Normal Strong



Google



 dream.ai made with dream
#DreamDiffusion



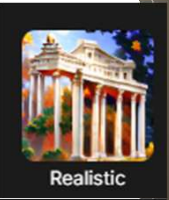
 dream.ai made with dream
#DreamDiffusion



 dream.ai made with dream
#DreamDiffusion

Dream by WOMBO

Art Style:



Input Image: OPTIONAL
The image you select will be used as a reference for the final output.



ADJUST INFLUENCE
Default influence - your input image has some effect on the final artwork.

Weak Normal Strong



Google



dream.ai made with dream
#DreamDiffusion



dream.ai made with dream
#DreamDiffusion



dream.ai made with dream
#DreamDiffusion

5) MidJourney:



upscale



upscale



upscale



upscale



1.A modern Aromatherapy
green environment-frien

(靈感來自亞馬遜森林和綠色環保風格的現代香薰俱樂部設計理念。)

1) Google search:

The screenshot shows a Google search interface with the search query: "A modern Aromatherapy Club design idea inspired by Amazon Forest and green environment-friendly". The search results are displayed in a grid format, featuring various images and captions related to green building design and interior trends.

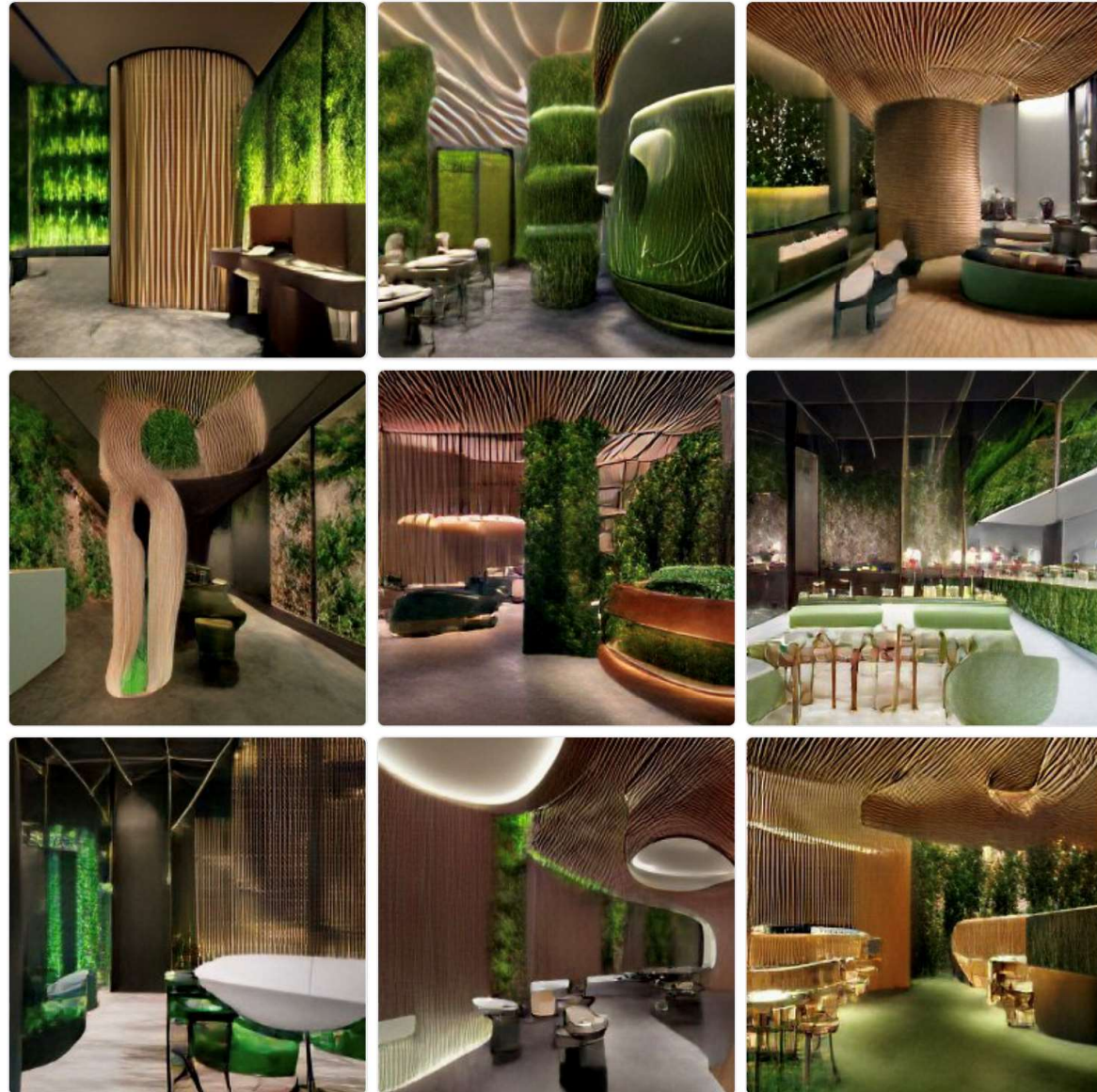
Search results include:

- Green building design was inspired by the Amazon rainforest - inhabitat.com
- Green building design was inspired by the ... - inhabitat.com
- Green building design was inspired by the ... - inhabitat.com
- Green building design was inspired by the Am... - inhabitat.com
- Green building design was inspired by the Am... - inhabitat.com
- Green building design was inspired by the Amazon ... - inhabitat.com
- Green building design was inspired by the Amazon ... - inhabitat.com
- Green building design was inspired by the Am... - inhabitat.com
- Friluftsliv Norwegian interior design trend brings open-air li... - cnn.com
- Nature-inspired design: How the Amazon can help us solve humani... - weforum.org
- Projects - Green Furniture Conc... - pinterest.com
- Amazon.com: LOVSPA Lavender De ... - amazon.com · 有庫存

2) Dall-E II:

A modern Aromatherapy Club design idea inspired by Amazon Forest and green environment-friendly style.

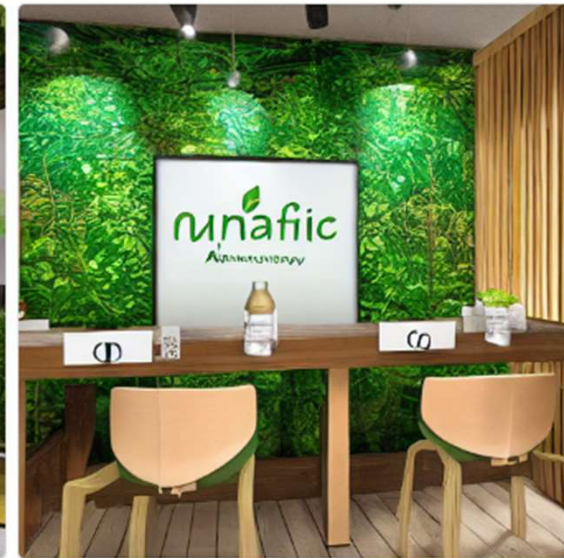
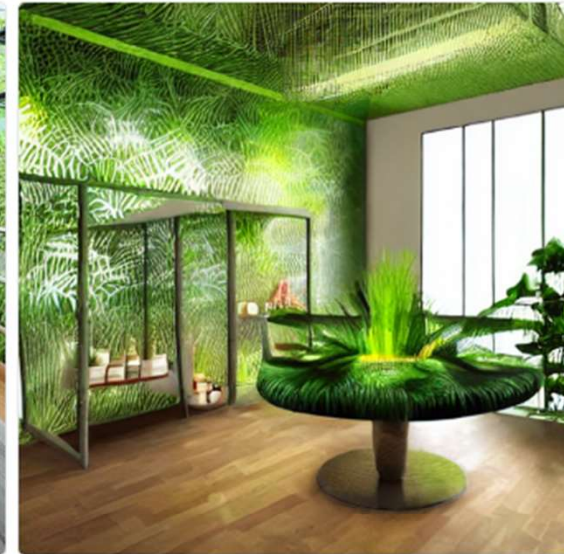
Run



3) Stable diffusion:

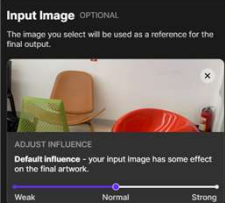
A modern Aromatherapy Club design idea inspired by Amazon Forest and green

Generate image



Dream by WOMBO

Prompt: A modern Aromatherapy Club design idea inspired by Amazon Forest and green environment-friendly style. (靈感來自亞馬遜森林和綠色環保風格的現代香薰俱樂部設計理念。)



dream.ai
#DreamDiffusion
made with dream



dream.ai
#DreamDiffusion
made with dream




dream.ai
#DreamDiffusion
made with dream

Dream by WOMBO

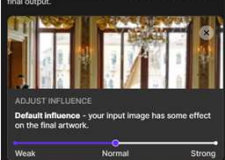
Prompt: A modern Aromatherapy Club design idea inspired by Amazon Forest and green environment-friendly style. (靈感來自亞馬遜森林和綠色環保風格的現代香薰俱樂部設計理念。)

Art Style:




Realistic

Input Image OPTIONAL
The image you select will be used as a reference for the final output.



ADJUST INFLUENCE
Default influence - your input image has some effect on the final artwork.

Weak Normal Strong



來源影像



dream.ai
#DreamDiffusion

made with dream



dream.ai
#DreamDiffusion

made with dream




dream.ai
#DreamDiffusion

made with dream

Dream by WOMBO




Prompt: A modern Aromatherapy Club design idea inspired by Amazon Forest and green environment-friendly style. (靈感來自亞馬遜森林和綠色環保風格的現代香薰俱樂部設計理念。)


Art Style:  Realistic

Input Image OPTIONAL
The image you select will be used as a reference for the final output.

ADJUST INFLUENCE
Default influence - your input image has some effect on the final artwork.

Weak Normal Strong




 dream.ai #DreamDiffusion made with dream



 dream.ai #DreamDiffusion made with drea



 dream.ai #DreamDiffusion made with dream

來源影像

5) MidJourney:



5) MidJourney:

- 影像再增強Upscale



5) MidJourney:

- 增強且變異 Upscaling (beta)



5) MidJourney:

- 再再增強細節Upscaling (Max)



5) MidJourney:

- 增強後再持續變異(新方案)



最新發展 Aug-2022

- Google DreamBooth (25-Aug-2022)
強調人決定「主題、個性化」介入的影像衍生
- OpenAI OpenArt (30-Sep-2022)
集大成，提供各大AI Image Fusion成果的搜尋



DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation

主題導向生程式影像融合模型應用於強化文字生成影像之應用

DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation

[Nataniel Ruiz](#) [Yuanzhen Li](#) [Varun Jampani](#) [Yael Pritch](#) [Michael Rubinstein](#) [Kfir Aberman](#)

Google Research



Input images



in the Acropolis

in a doghouse

in a bucket

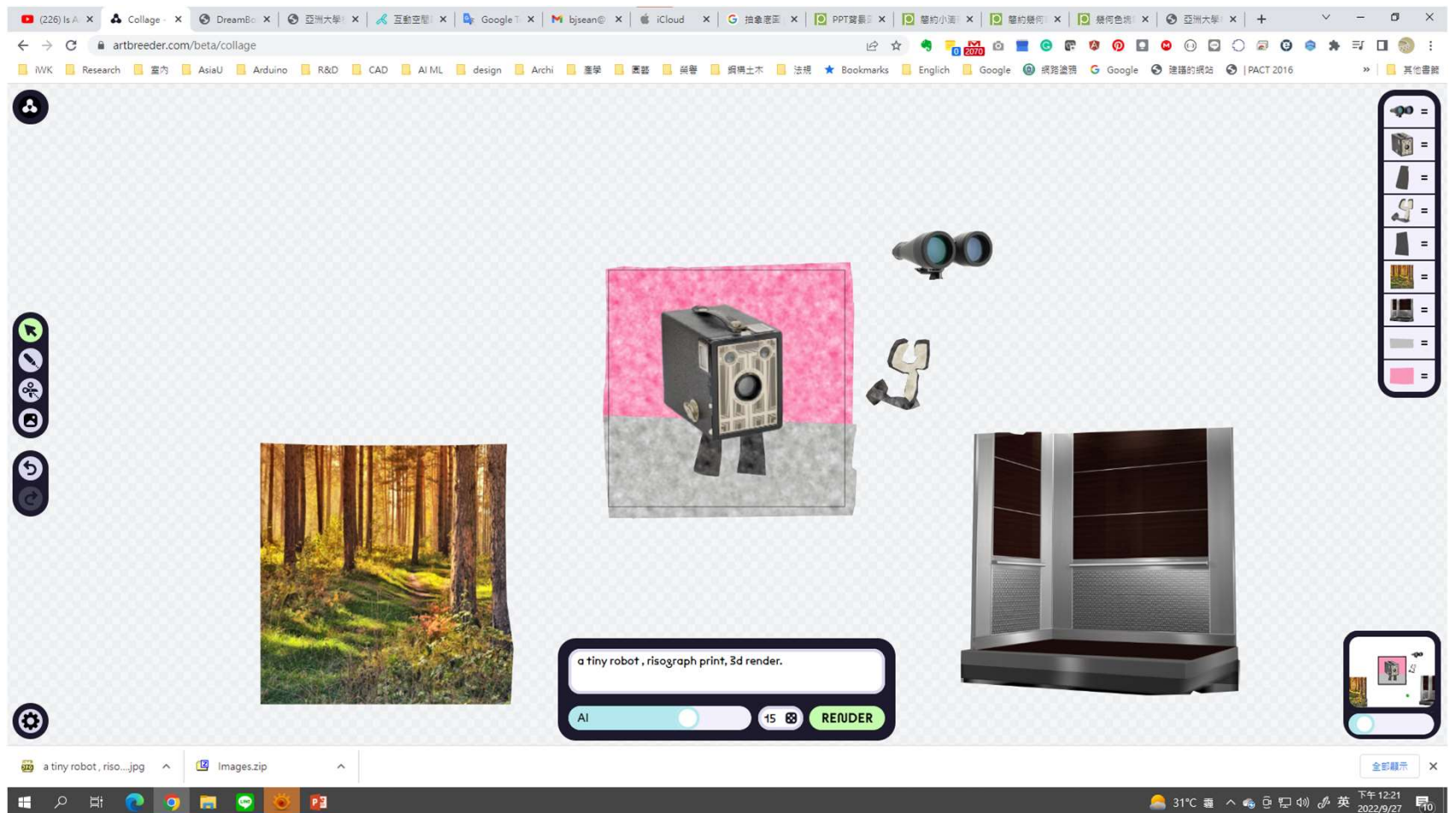
getting a haircut

It's like a photo booth, but once the subject is captured, it can be synthesized wherever your dreams take you...

[\[Paper\]](#)

[\[BibTeX\]](#)

Collager 拼貼畫+AI文字影像融合



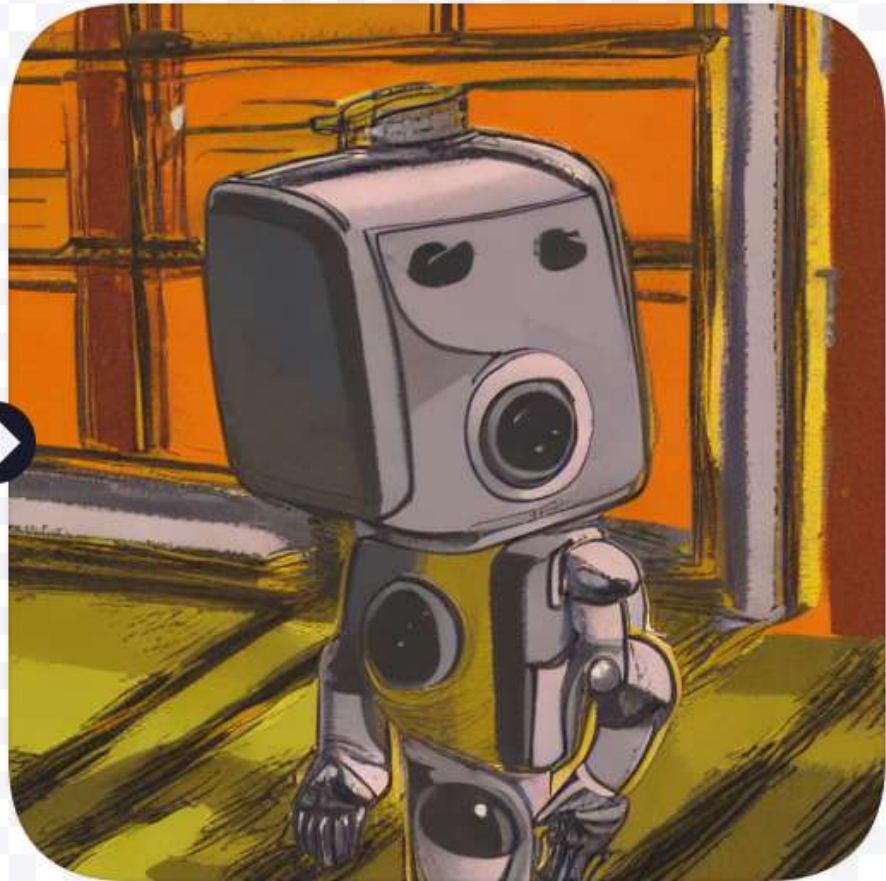
Art Breeder Collager:



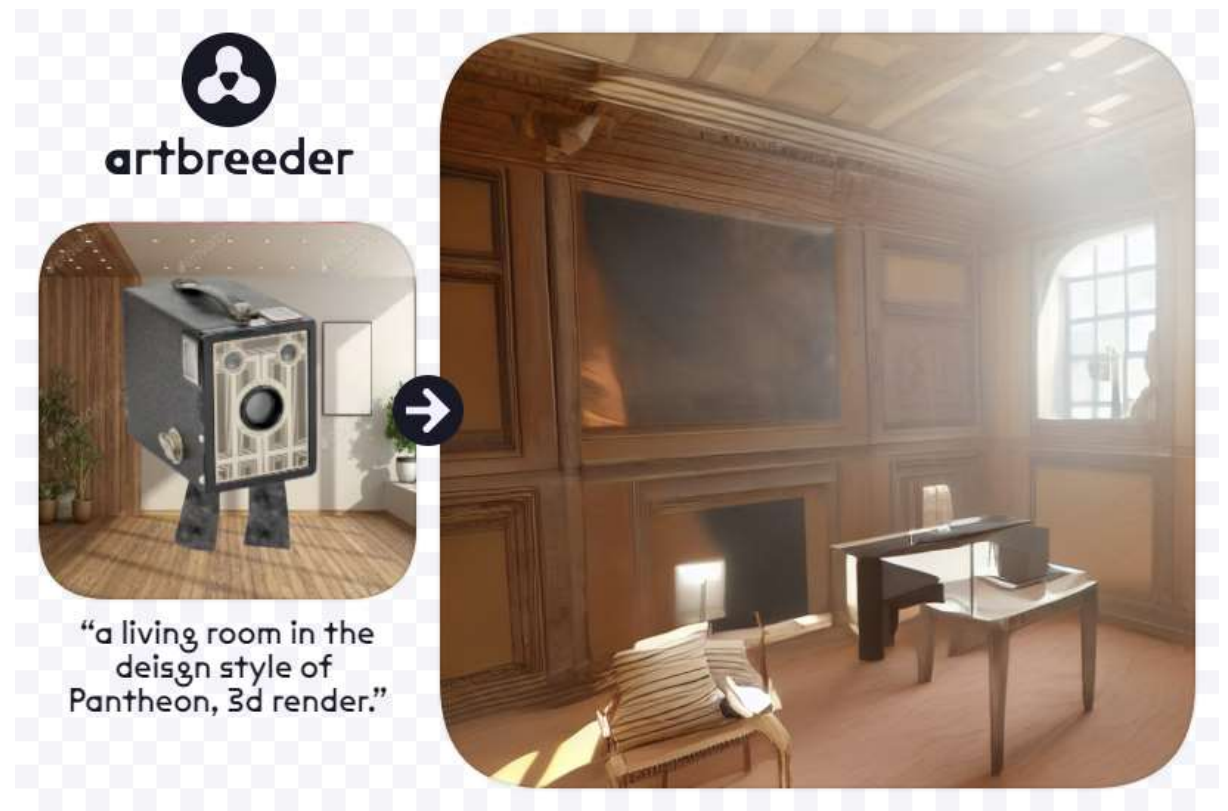
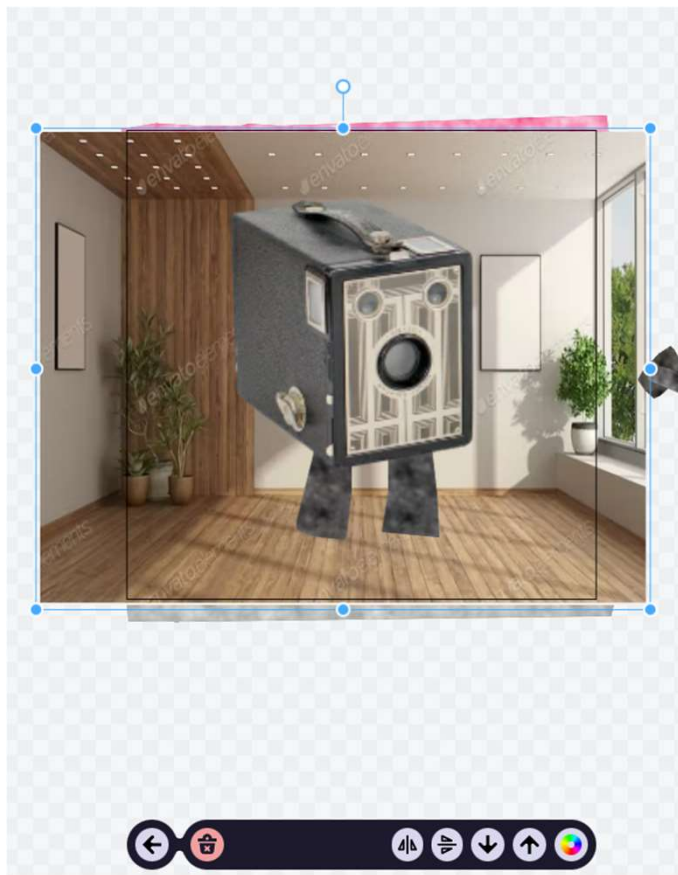
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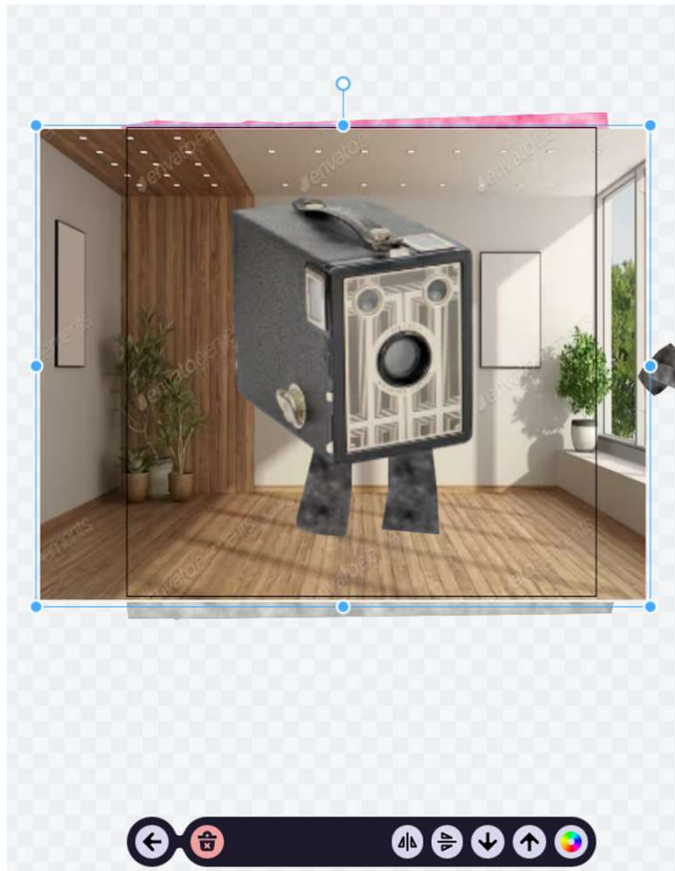
"a tiny robot , risograph
print, 3d render."



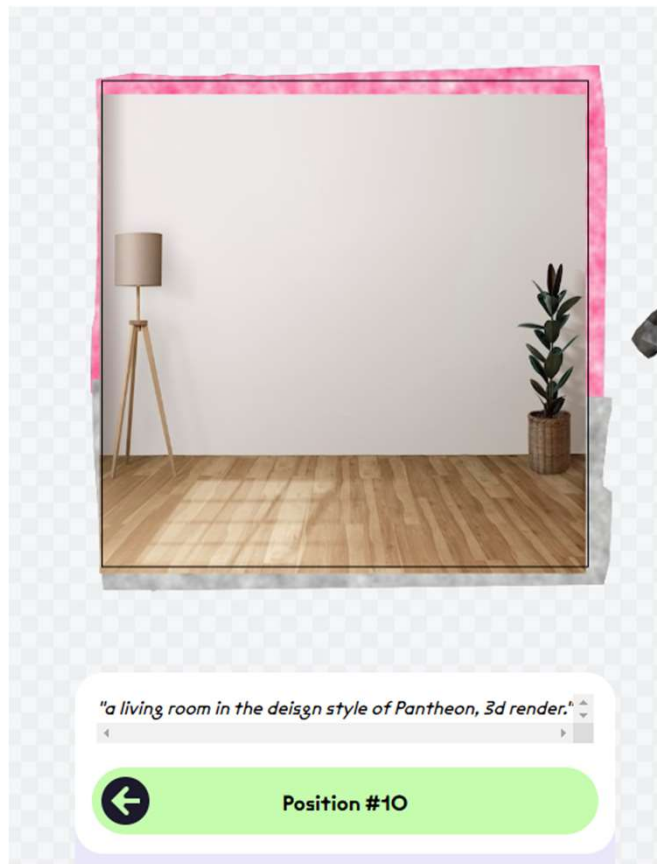
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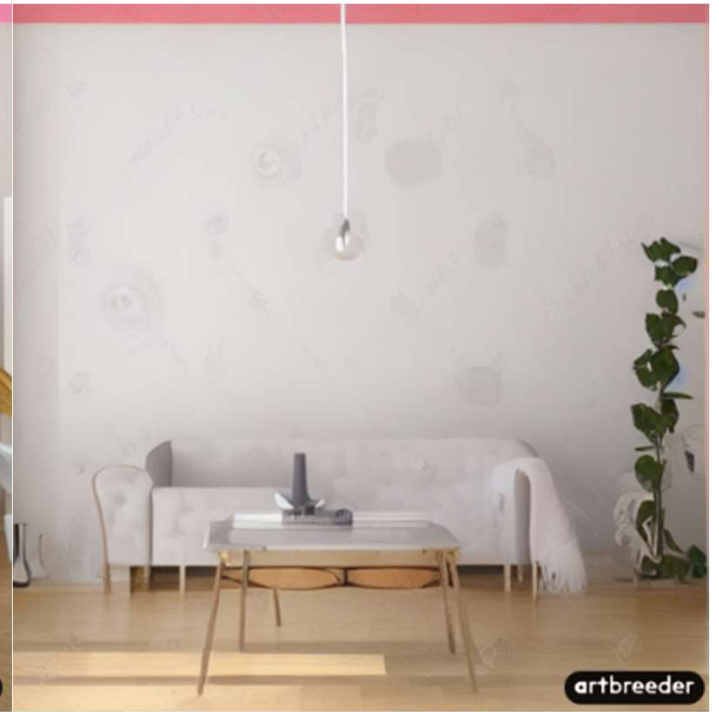
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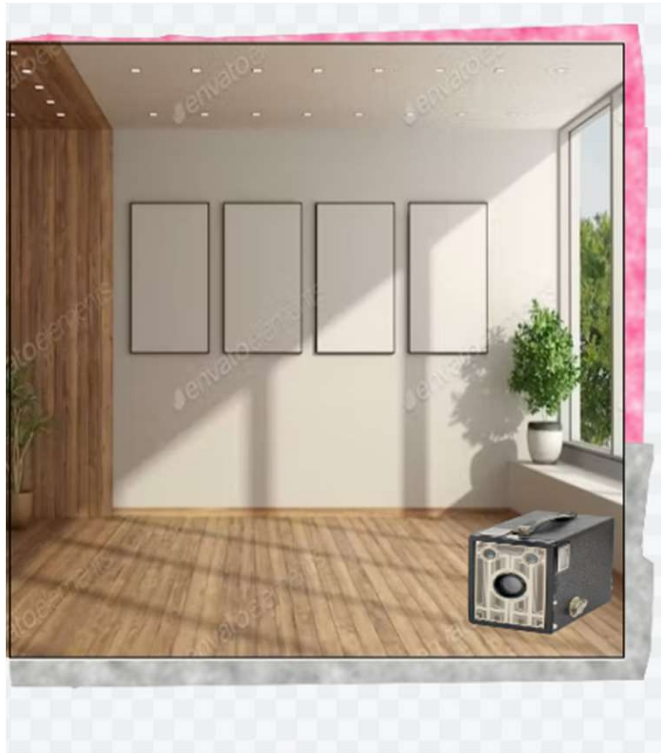
Art Breeder Collager:



A living room in the design style of Pantheon, within a modern sofa, 3d render.



A living room in the design style of Pantheon, within a modern sofa, 3d render.



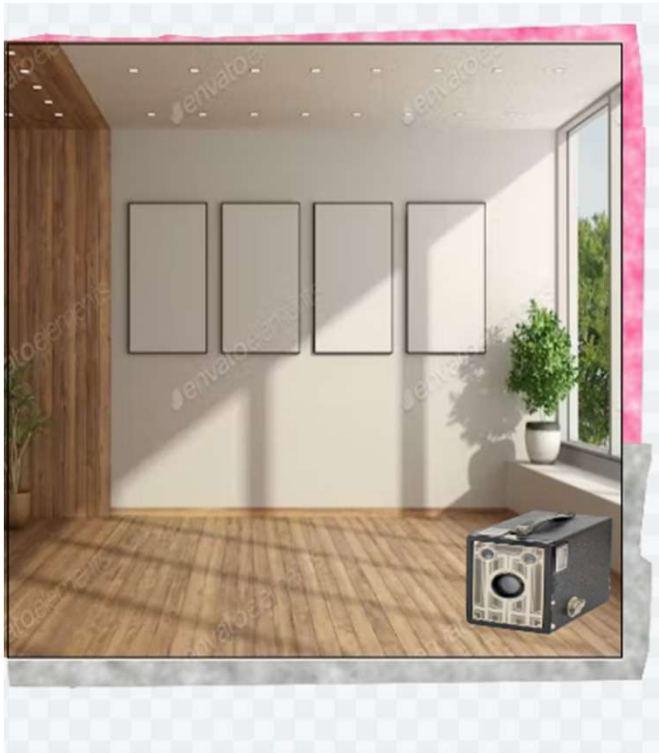
"A living room in the design style of Pantheon, within a modern sofa, 3d render."



Position #4



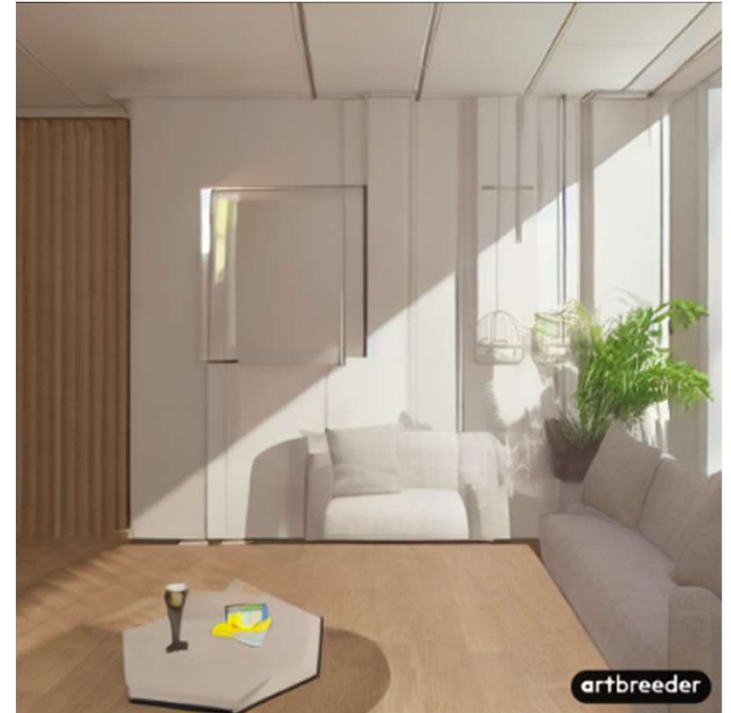
A living room in the design style of Pantheon, within a modern sofa, 3d render.



"A living room in the design style of Pantheon, within a modern sofa, 3d render."



Position #4



A living room in the design style of Pantheon, within a modern sofa, 3d render.



"A living room in the design style of Pantheon, within a modern sofa, 3d render."

← Position #4

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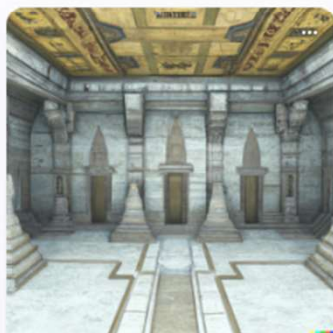
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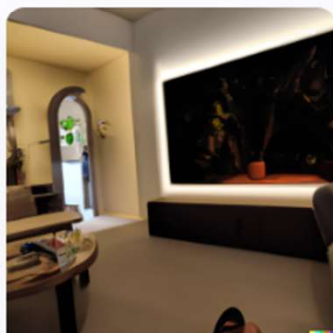
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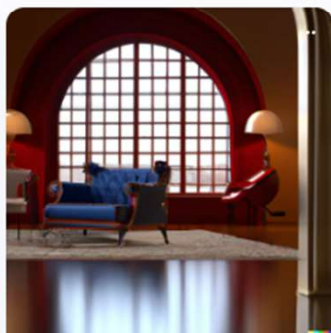
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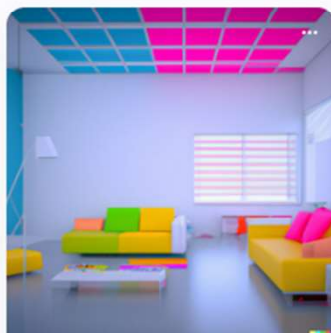
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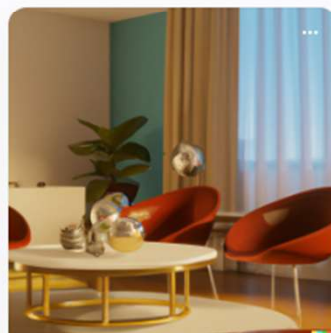
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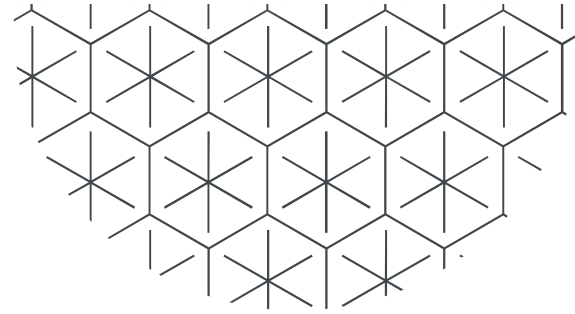


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Now, It is your turn.!

施勝誠