Al x Design

Professor Danne Woo aixdesign.danne.design

DESN 370 Fall 2024 Monday 1:40 PM – 5:30 PM <u>Klapper 10</u>7 / Hybrid

"An image of someone using a textto-image generative AI platform"

- Mid Journey v6.1



Technical Advancement and Impact

Industry Changes and Job Transitions

Camera Obscura, 1021

Artists began using it to trace images, which improved accuracy in drawings and paintings.

Daguerreotype, 1831

Photography as a profession was born.

Kodak Brownie Camera, 1900

With an increase in amateur photography led to a need for more film and development. This also create a job for photo journalism.

Polaroid Camera, 1948

Everyone became an instant photographer and helped with real estate, identification, fashion and events.

Digital Camera Prototype, 1975

Jobs were created for digital imaging technicians and digital archivists.

Apple II Personal Computer, 1977

Digital artists, creative coders and designers were born as well as desktop publishers and software developers.

Photoshop, 1988

Jobs were created in graphic design, photo retouching, digital arts and multimedia designers.

Camera Phones and Instagram, 2007 / 2012

Anyone could easily shoot and share their experiences with the world creating digital influencers.

Generative AI, 2021

It is unclear what types of jobs will materialize around this technology, but some potential jobs could be prompt engineers, Al-augmented creative roles, experimental digital artists, Al-assisted content creators, machine learning specialists, creative data specialists, Al-driven brand consultants...

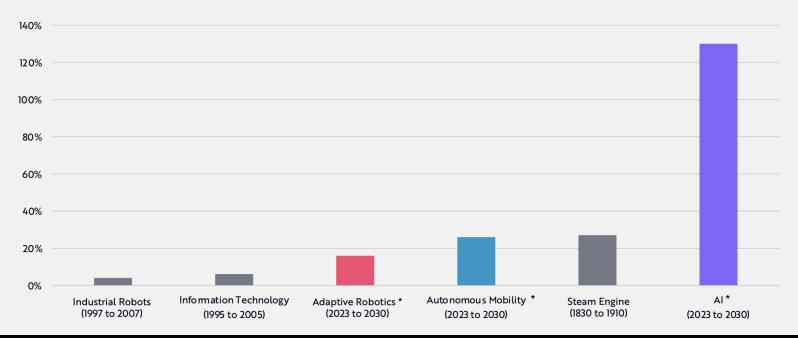
Technical Advancement and Impact

Economic Impact (ARK Investments)

The Impact Of These Technologies On The Economy Should Prove Dramatic

Economic Impact of Select Major Technologies

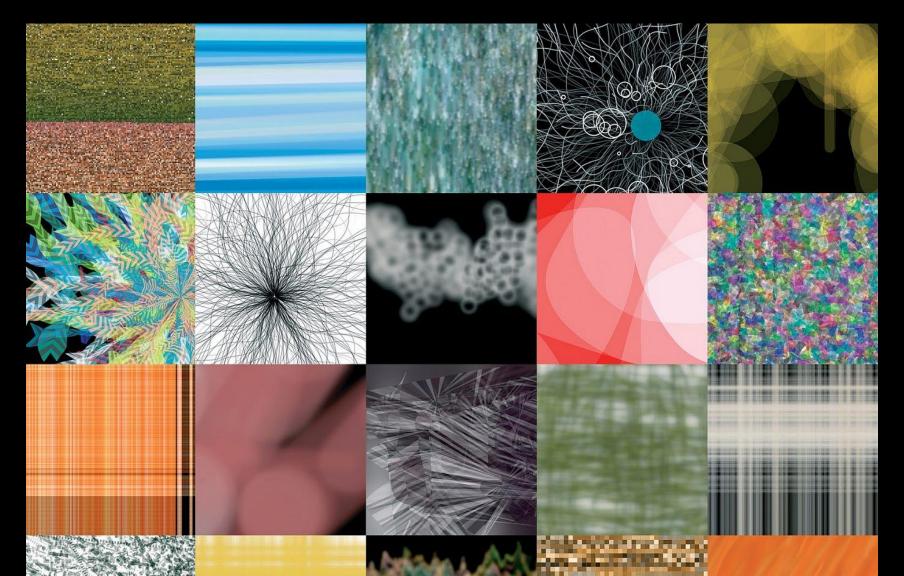
(Cumulative Increase In Real GDP Attributable to Technology After Introduction)



Code + Random

● ● ● ● 🔶 📌 p5.js Web Editor Week 4 - R 🗙 +	
← → C 😄 editor.p5js.org/dannewoo/sketches/hppg6Z3V2	ର୍ 🖈 💿 🖪 💩 🔼 📊 🖸 ଲୀ 🧌 Relaunch to update 🗄
★ Bookmarks 🗇 Personal 🗅 Olivia 🗅 Scripts 🗅 Materials 🗅 Design 🗅 DV 🗅 CUNY 🗅 C	CFS DVS CCC MIT DS Every Day Data DITP >> CAll Bookmarks
p5' File 👻 Edit 👻 Sketch 👻 Help 👻 English 👻 Log in or Sign up	
Auto-refresh Week 4 - Random Shapes by dannewoo	*
> sketch.js	Preview
<pre>var maxCol = 5; 2 var maxRow = 4; 3 var circleD = 60; 4 var maxPoints = 10; 5 7 function setup() { 7 createCanvas(600, 400); 8 smooth(); 9 noStroke(); 10 background(255); 11 12 var xSpacing = (width/maxCol); 13 var ySpacing = (height/maxRow); 14 //translate(55, 45); 15 v for (var x = 0; x < maxCol; x++) { 16 v for (var y = 0; y < maxRow; y++) { 17 v if (x == 3 && y == 2) { 18 fill(0, 255, 0); 19 v } else { 20 fill(0); 21 } 22 push(); 23 translate(x*xSpacing, y*ySpacing); 24 beginShape(); 25 v for (var i = 0; i < maxPoints; i++) { 26 vertex(random(10, 100), random(10, 100)); 27 } 28 endShape(); 29 pop(); 30 } 31 } 32 } </pre>	

John Maeda



Zachary Lieberman



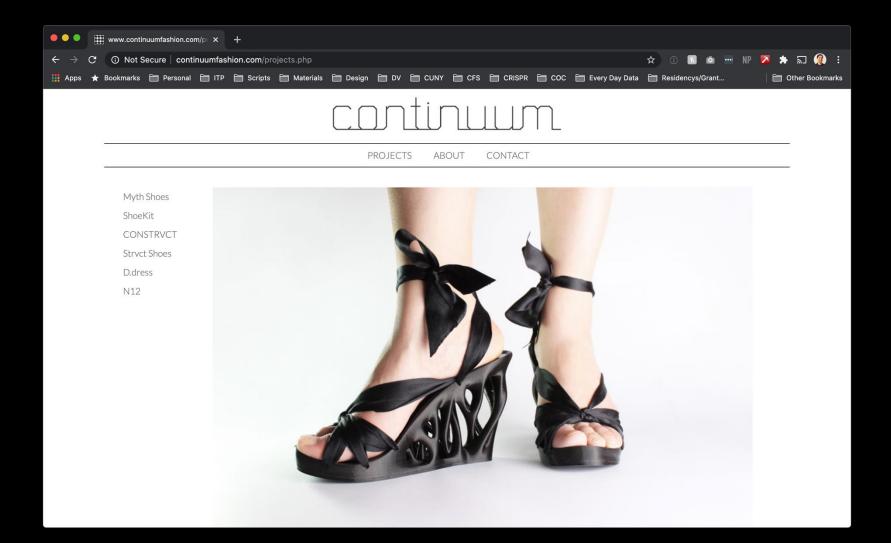
Rune Madsen



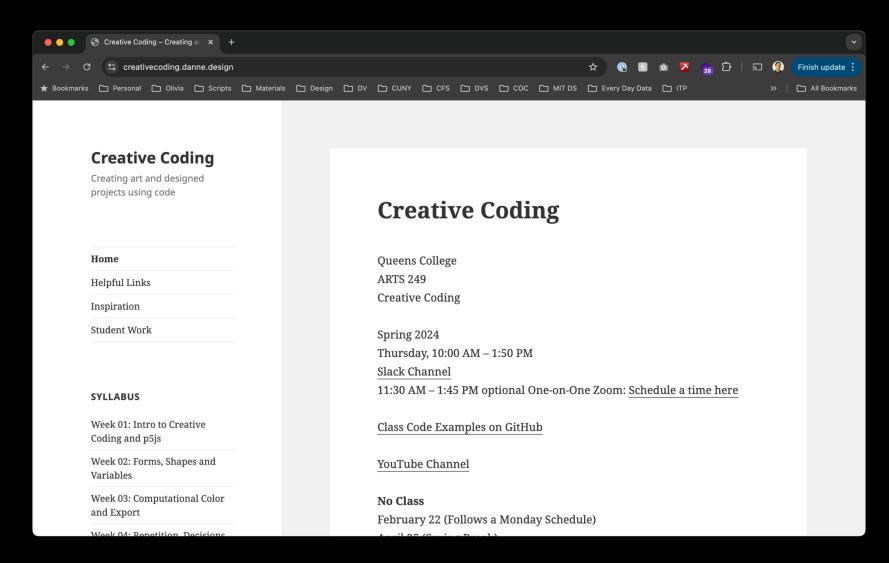
The Green Eyl / MIT Media Lab Logo



Continuum Fashion



Creative Coding Course (creativecoding.danne.design)



Suggested Reading



"The possibilities of programming languages such as Processing will change the role of the designer. We are experiencing a paradigm shift in design that will lead to new realms of visual imagery. Knowledge of this change, however, has been somewhat inaccessible. Until now, designers have used the tools that programmers have developed for them, which has forced designers to adjust to their systems."

- Generative Design

generative AI

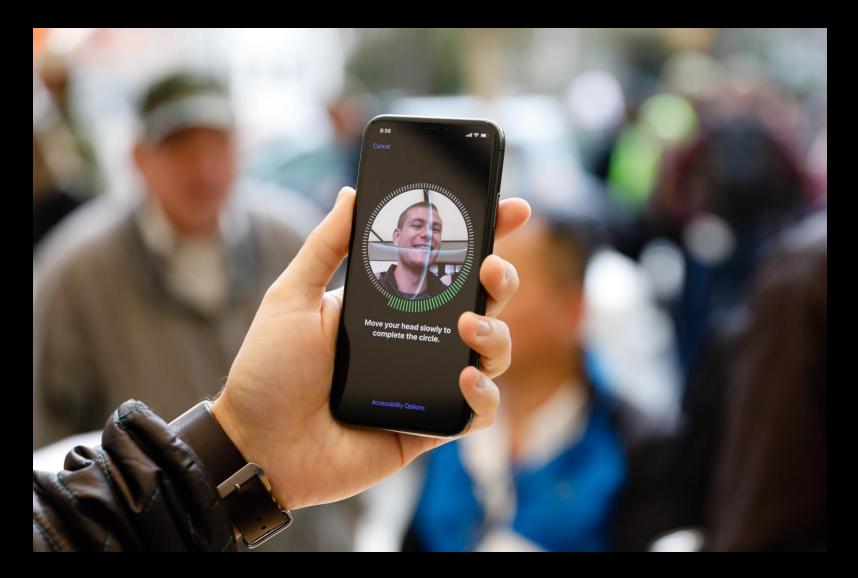
ChatGPT MidJourney "The possibilities of programming languages such as Processing will change the role of the designer. We are experiencing a paradigm shift in design that will lead to new realms of visual imagery. Knowledge of this change, however, has been somewhat inaccessible. Until now, designers have used the tools that programmers have developed for them, which has forced designers to adjust to their systems."

- Generative Design

Computer Vision



Computer Vision





Trained on hundreds of millions to billions of images

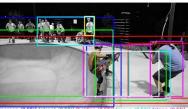


Image Tagging and Captioning



men (0.59)] (group (0.66)] (woman (0.64)) [people (0.89)] (holding (0.60)) (playing (0.61)] (tennis (0.69)) [court (0.57)] (standing (0.59)] (sikis (0.58)) [street (0.52)] [man (0.77)] [skateboard (0.67)] a group of people standing next to each other

people stand outside a large ad for gap featuring a young boy



 [person (0.55)] [street (0.53)] [holding (0.55)] [group (0.63)] [slope (0.51)]

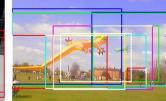
 [standing (0.62)] [snow (0.51)] [skii (0.74)] [player (0.54)]

 [people (0.85)] [men (0.57)] [skiig (0.51)]

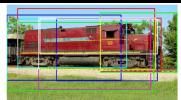
 [skateboard (0.86)] [riding (0.75)] [termis (0.74)] [trick (0.53)] [skate (0.52)]

 [woman (0.52)] [man (0.85)] [down (0.61)]

a group of people riding skis down a snow covered slope a guy on a skate board on the side of a ramp



arpane (0.57) [clane (0.58)] kites (0.33) [people (0.80)] [filying (0.33)] [man (0.57)] [meach (0.84)] [wave (0.61)] [sky (0.61)] [kite (0.74)] [finde (0.75)] a couple of people flying kites in a field people in a field flying different styles of kites

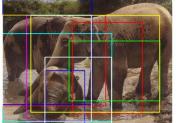


[parked (0.72]] [bench (0.63)] [truck (0.70)] [red (0.88)] [train (100)] [stiling (0.73)] [cars (0.58)] [traveling (0.52)] [grass (0.65)] [track (0.63)] [car (0.55)] [velow (0.57)] [field (0.60)] [engine (0.56)] [down (0.54)] [tracks (0.94)] a train traveling down train tracks near a field a red train is coming down the tracks



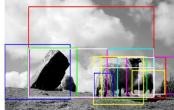
(umbrelia (0.59)] [woman (0.52)] [tire (0.89)] [hydrant (0.96)] [street (0.79)] [old (0.50)] [bonch (0.81)] [building (0.75)] [standing (0.57)] [baseball (0.55)] [white (0.82)] [sitting (0.65)] [people (0.79)] [photo (0.53)] [black. (0.84)] [kitchen (0.54)] [man (0.72)] [water (0.56)] a black and white photo of a fer bydrant

a courtyard full of poles pigeons and garbage cans also has benches on either side of it one of which shows the back of a large person facin g in the direction of the pigeons



[horse (0.53)] [bear (0.71)] [elephant (0.99)] [elephants (0.53)] [brown (0.58)] [baby (0.52)] [walking (0.57)] [laying (0.61)] [man (0.57)] [standing (0.79)] [field (0.55)] [water (0.53)] [large (0.71)] [drt (0.55)] [river (0.58)] a baby elephant standing next to each other on a field

elephants are playing together in a shallow watering hole



[man (0.59)] [beach (0.54)] [sky (0.53)] [bird (0.50)] [field (0.88) [snow (0.86)] [mountain (0.59)] [standing (0.87)] [white (0.64)] [people (0.57)] [dog (0.60)] [cosws (0.55)] [sheep (0.57)] [black (0.84)] [grass (0.64)] [horse (0.60)] [elephants (0.57)] [bear (0.81)]

a black bear standing on top of a grass covered field a couple of sheep standing up on a small hill



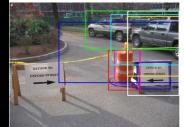
 bus (0.56)] (car (0.79)] (black (0.57)] (mok (0.86))

 gitreet (0.57)] (bed (0.51)] (preved (0.55)) (dog (0.65))

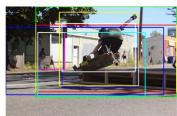
 [stiting (0.55)] (man (0.53)) [cat (0.72)]

 a dog sitting on top of a car

 a cat is lying on the hood of a black car



[street (0.89)] [truck (0.76)] [road (0.86)] [fre (0.95)] [hydrant (0.91)] [stitug (0.53)] [biack (0.51)] [red (0.53)] [barking (0.88)] [parked (0.82)] [sign (0.78)] a fire hydrant on the side of a road two signs with arrows pointing to each other for detour



eps (0.68) [stitug (0.53)] ateboard (0.99)] [skateboarder (0.76)] [doing (0.65)] [skate (0.64)] [ramp (0.54)] [board (0.51)] res (0.79)] [rink (0.73)] [motorcycle (0.59)] [parson (0.54)] [paople (0.57)] an (0.99)] [trick (0.78)] [parked (0.81)] [horse (0.53)]

a man doing a trick on a skateboard a skateboarder is is mid air performing a stunt



[laptop (0.97)] [table (0.74)] [open (0.71)] [sitting (0.61)] [station (0.52)] [desk (0.97)] [computer (0.94)] [keyboard (0.68)] [computers (0.65)]

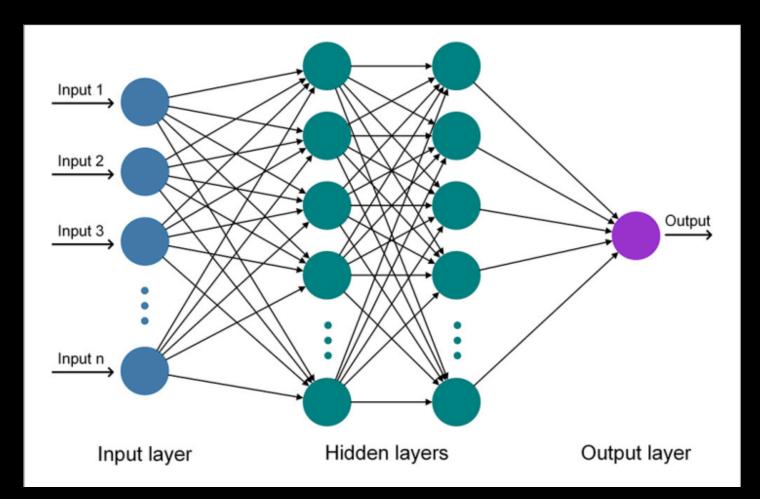
[tv (0.54)] [television (0.50)] [monitor (0.59)] an open laptop computer sitting on top of a desk

two computers are shown together on a desk



a basebal (037) [payer (083)] [bat (082)] [man (080)] [payer (085)] [game (080)] a baseball player swinging a bat at a ball a boy is playing with a baseball bat

AI Model / Neural Network



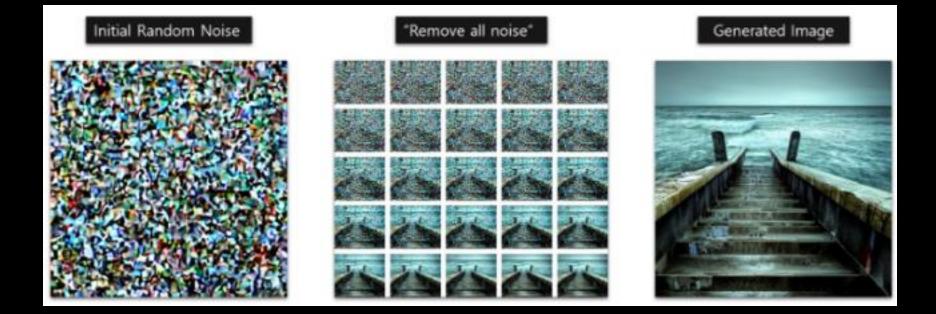
Generative Adversarial Networks (GANs)



Diffusion Models



Random Seeding



Aesthetics Imperfections, by Gianpaolo Tucci



Models and Platforms



MidJourney \$10 month OpenAl Dalle \$20 month Stable Diffusion Free (Open Source) Adobe Firefly Comes with CC

Models and Platforms

Prompt: unicorn in a wooded forest



MidJourney



OpenAI Dalle





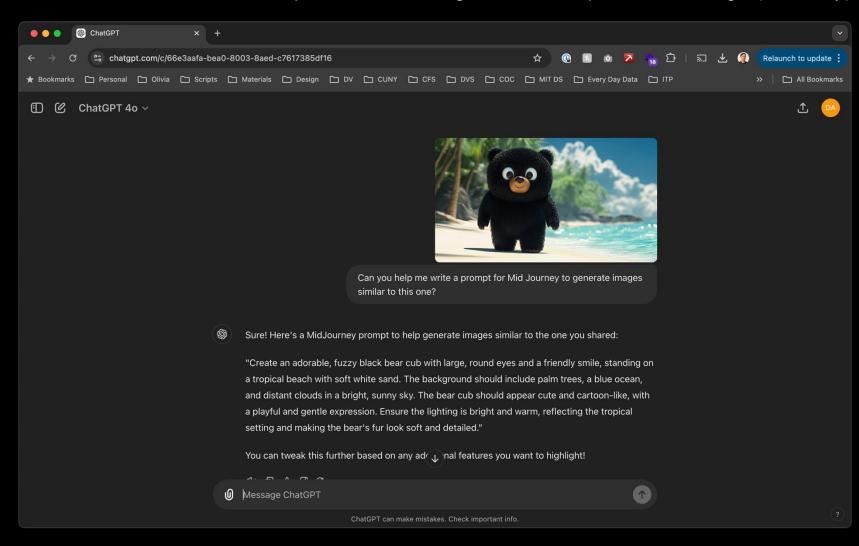


Text-to-Image Prompt Tips

- Pick a Medium: Photorealistic, Block Print, Graffiti, Pixel Art, Cross Stitch, etc.
- Be Specific: Continuous Line Sketch, Charcoal Sketch, Life Drawing Sketch, etc.
- Time Travel: 1400s, 1500s, 1600s, 1700s, etc.
- Add Emotion: Happy, Sad, Shy, Sleepy, Angry, Determined, etc.
- **Get Colorful:** Pastel, Acid Green, Desaturated, Neutral, Iridescent, etc.
- Environmental Exploration: Forest, Desert, City, Farm, Garden, Jungle, etc.
- Technical Photographic Terms: Exposure, Aperture, ISO, Shutter Speed, etc.

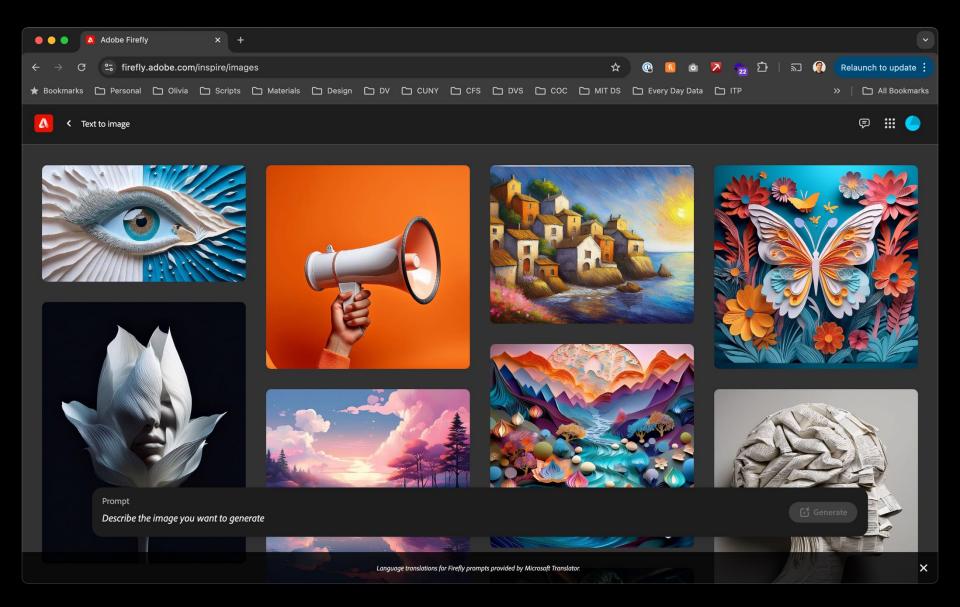
ChatGPT Prompting Assistance

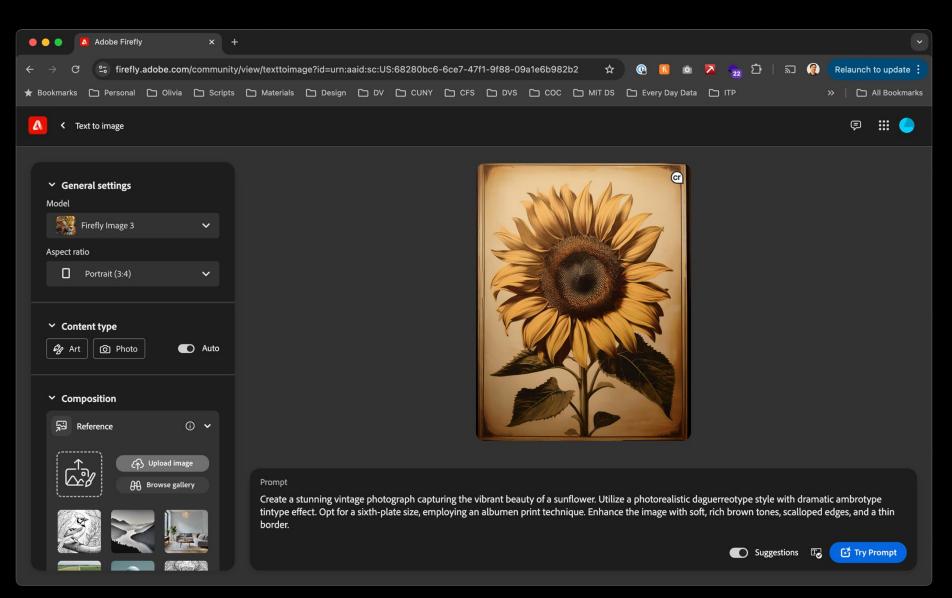
Use ChatGPT to write a Prompt or Reverse Engineer a Prompt from an Image (Pro Only)

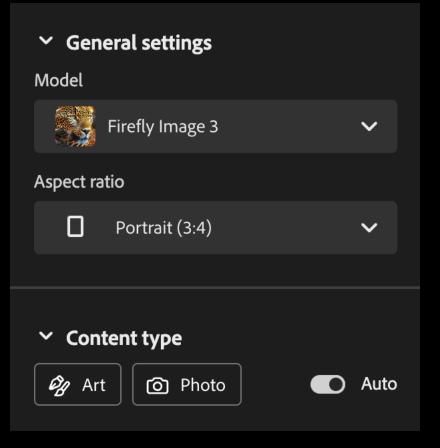


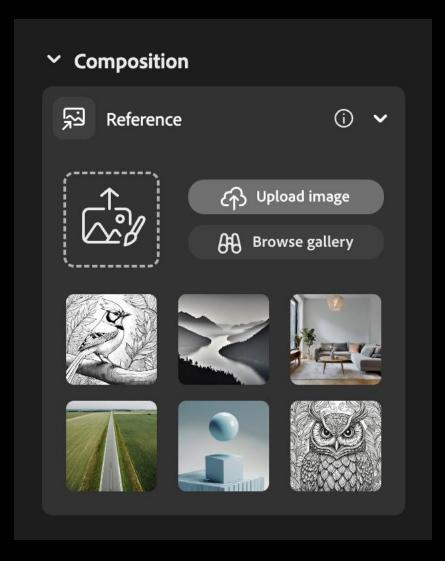
Demo

- Adobe Firefly (https://www.adobe.com/products/firefly.html)
- Adobe Illustrator
- Adobe Photoshop Generative Fill
- MidJourney
- Dalle in ChatGPT Pro
- Stable Diffusion
- Flux





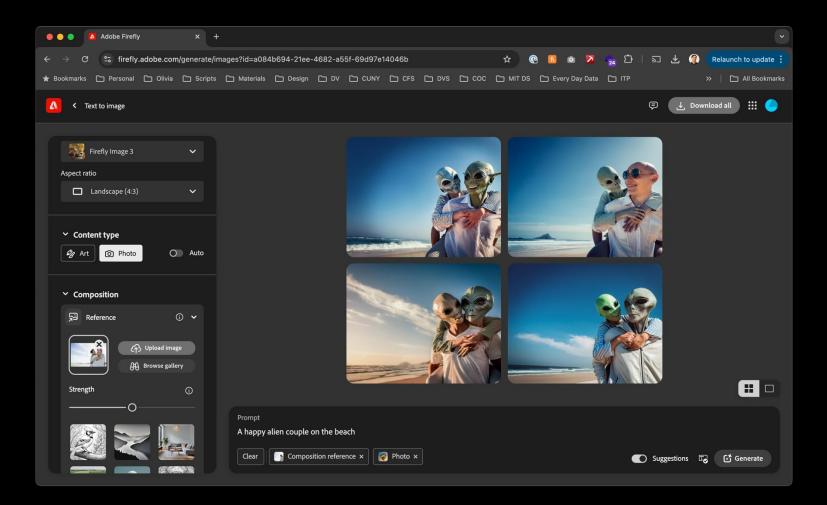




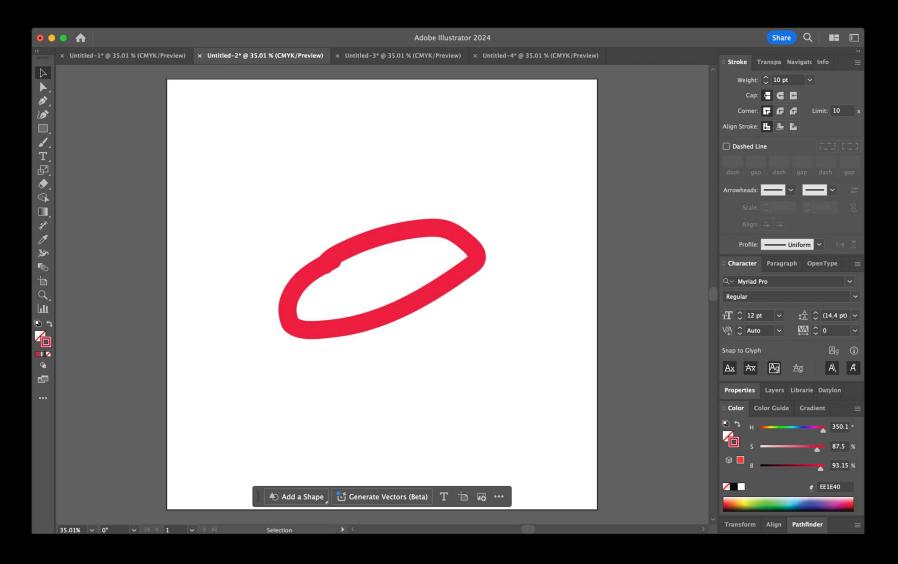
Composition Reference Image



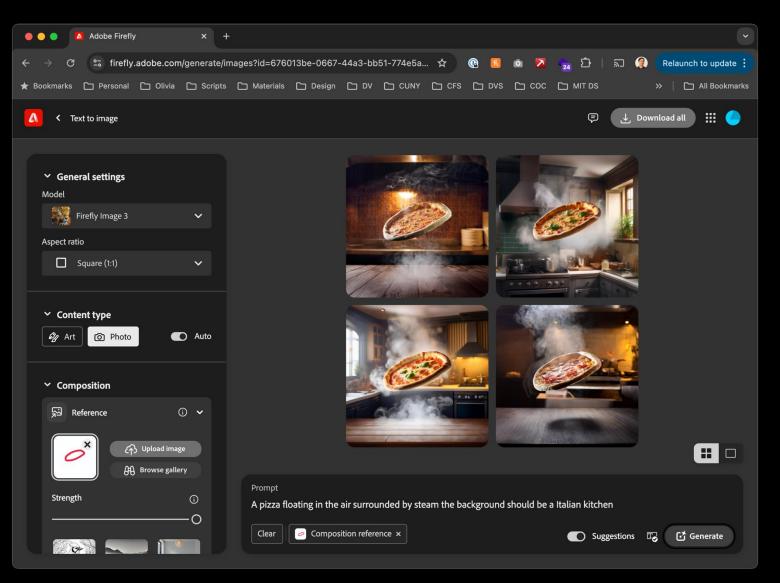
Composition Reference Image



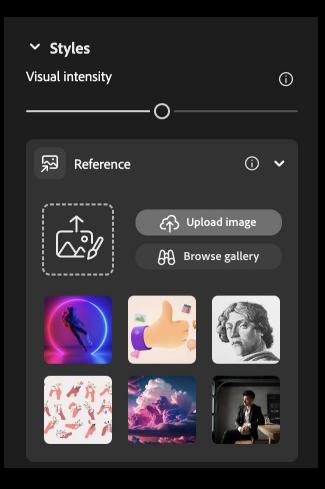
Composition Reference Image / Graphic



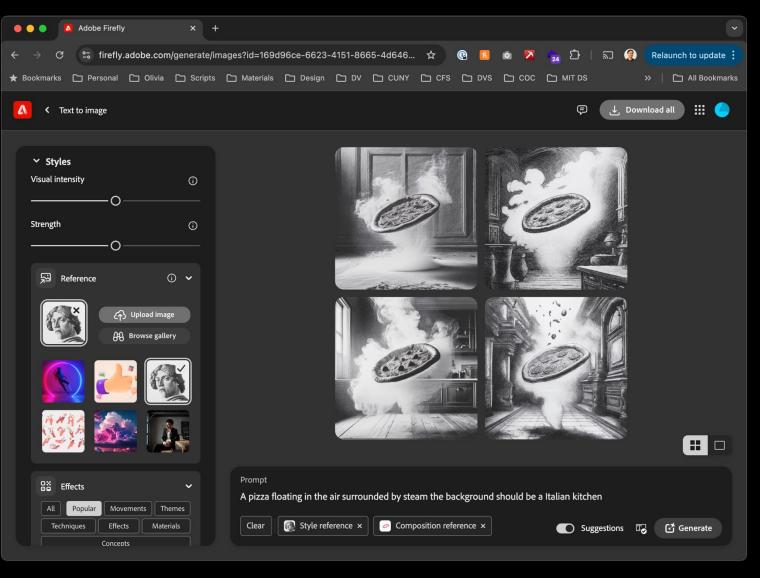
Composition Reference Image / Graphic



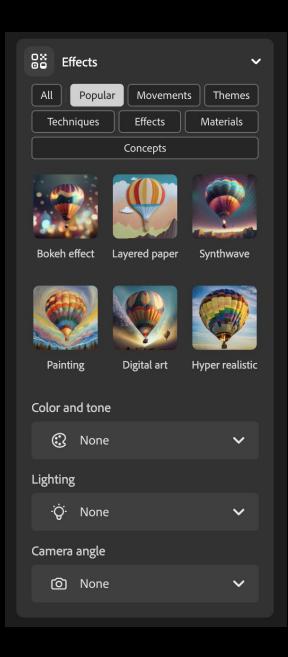
Style Reference Image



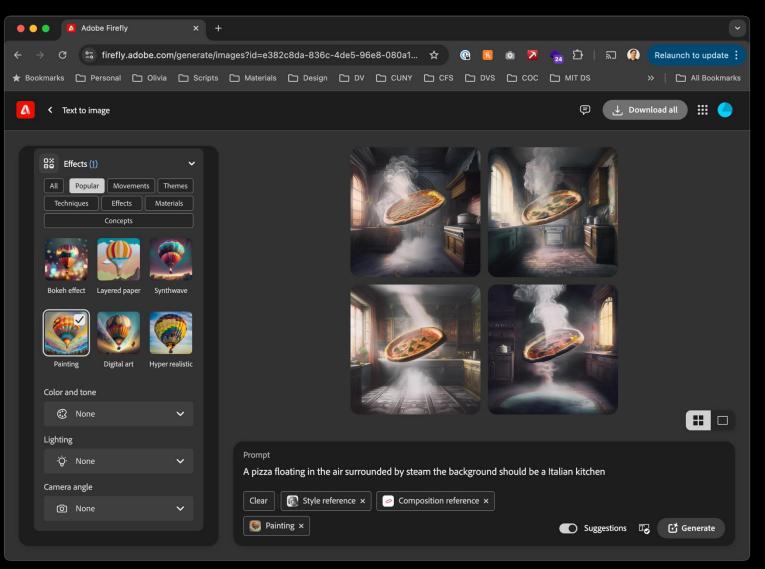
Style Reference Image



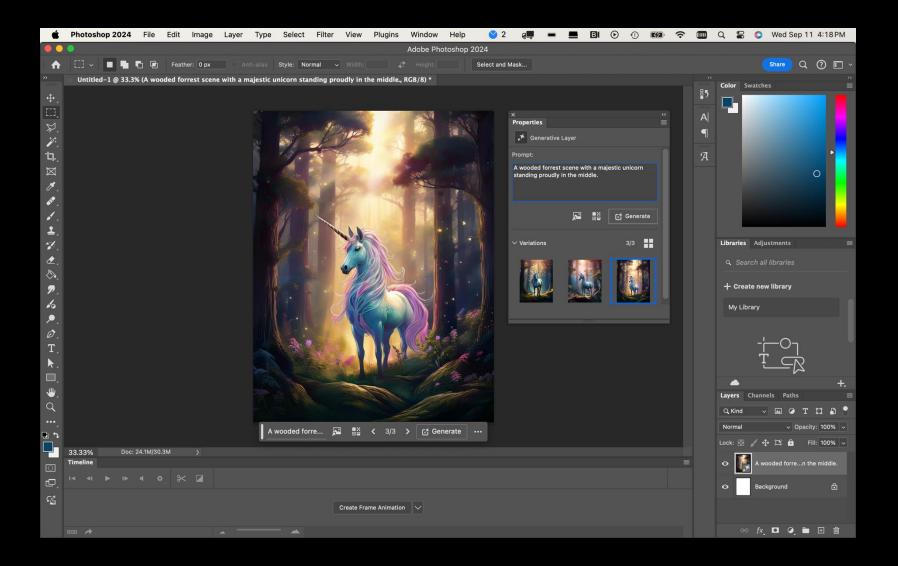
Effects



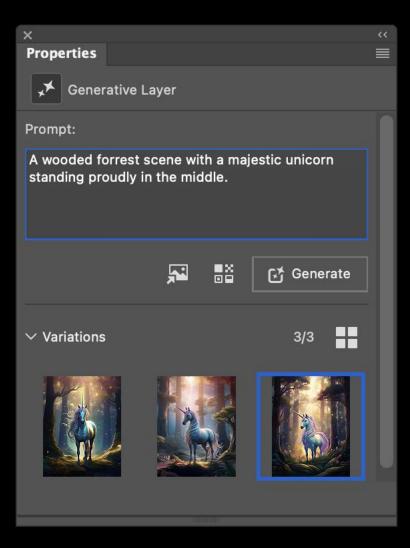
Effects



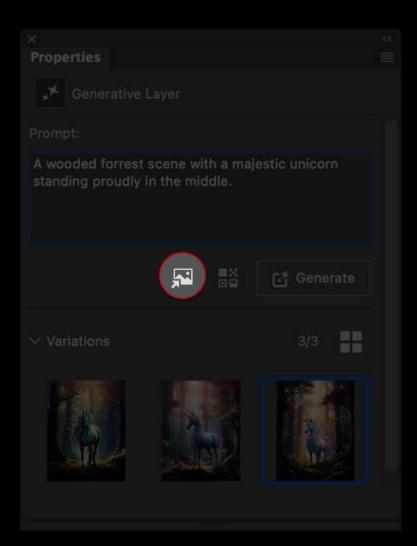
Generative Fill



Properties



Reference Image



Reference image

Select from the gallery or choose your own image

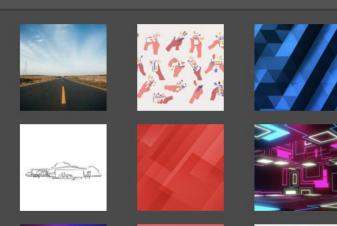


Choose image

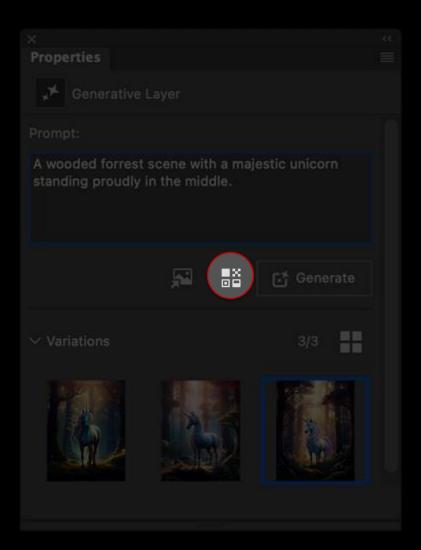
X

Match the style from your own reference image.

Gallery



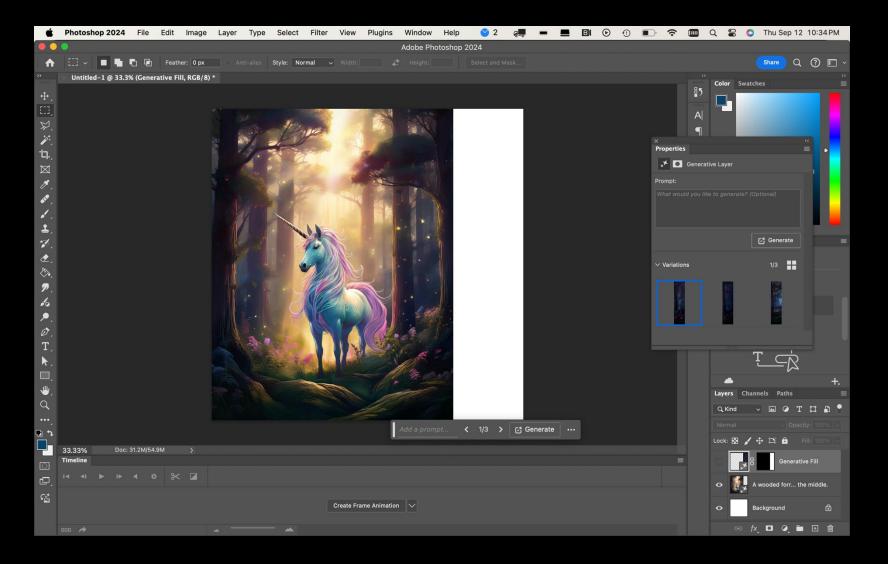
Content Type



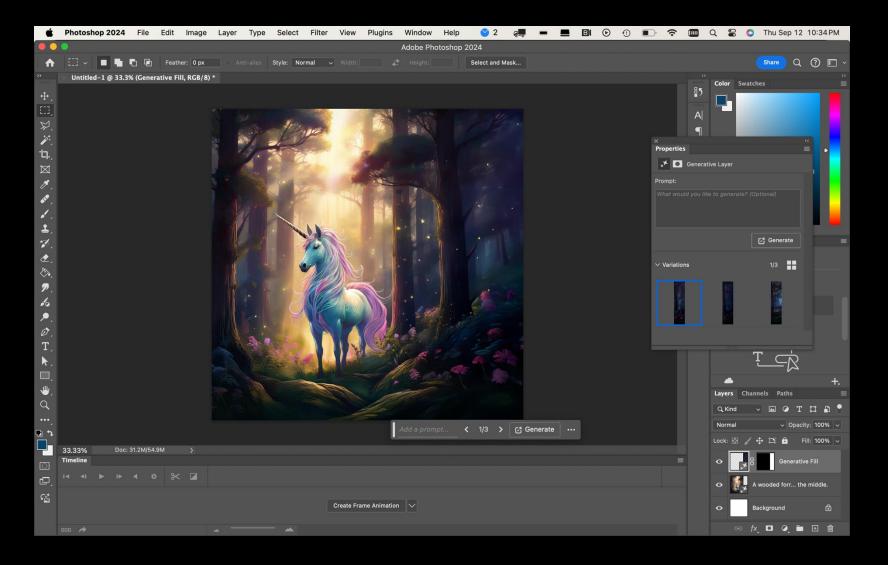
Content type			×
Art		Photo	
Effects			
Selected	All	Movements	Themes
Techniques	Effects	Materials	Concepts

No effects added to this variation. Add one or more effects from the categories above and generate again.

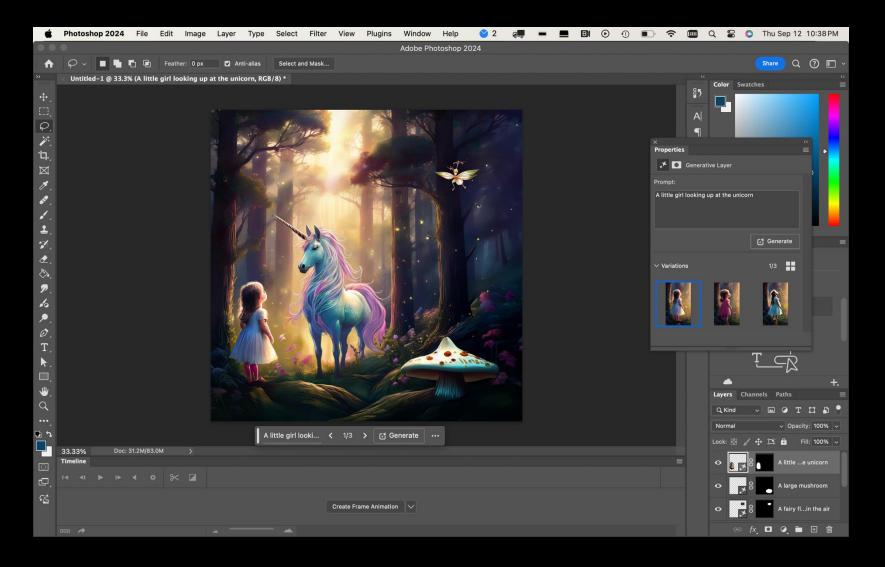
Out Painting



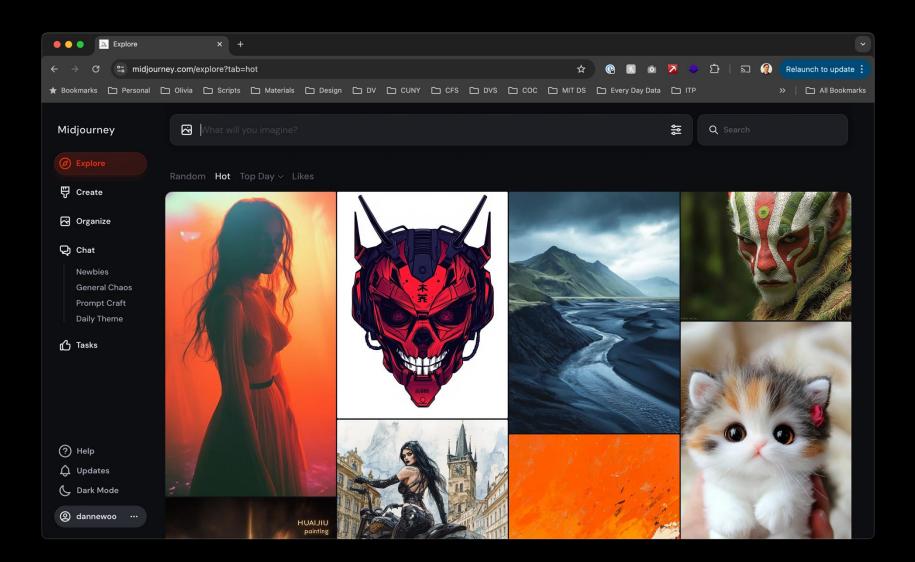
Out Painting



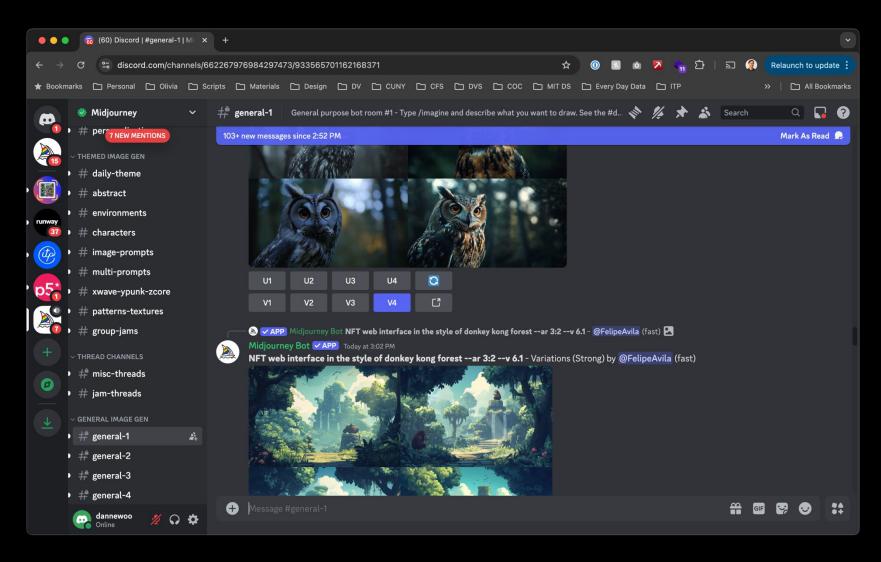
In Painting



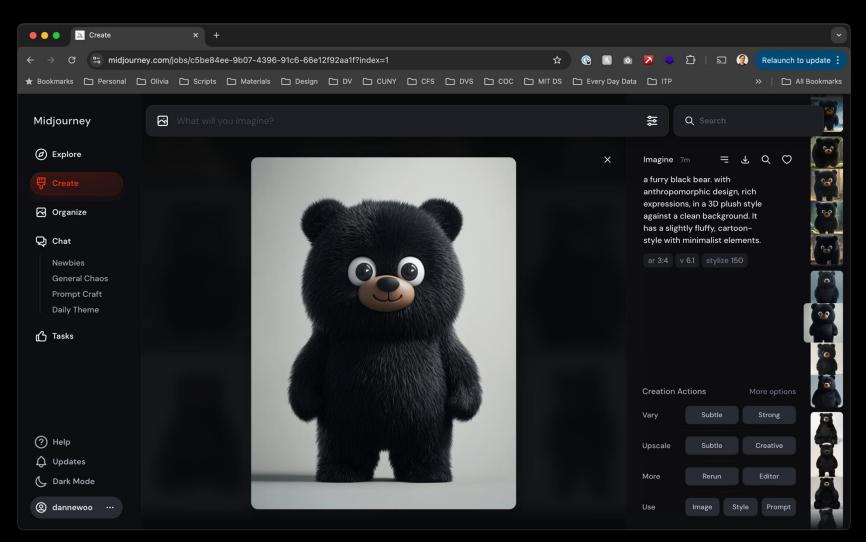
Mid Journey (\$10 month)



Discord Channel



Character Reference



Character Reference

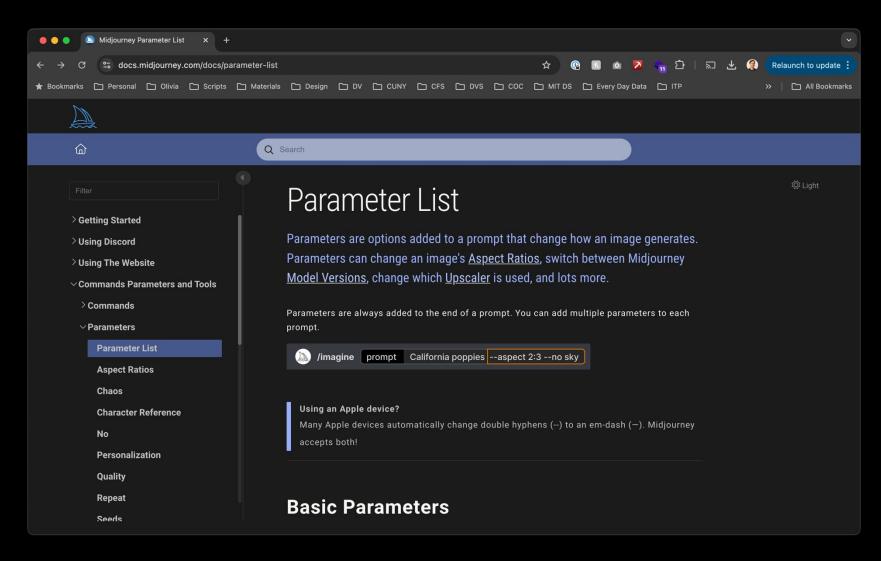
A beach scene with a furry black bear walking





A wooded scene with a furry black bear walking

Documentation and Parameter List (docs.midjourney.com/docs)



/describe Parameter



💿 dannewoo used 👪 describe

Midjourney Bot <<pre>Output
Midjourney Bot
Today at 3:14 PM

1 3D cute bear character, standing on the beach, with big eyes and black fur, in a cartoon style reminiscent of Pixar animation, Disney, and DreamWorks, in high resolution and super detailed. --ar 128:71

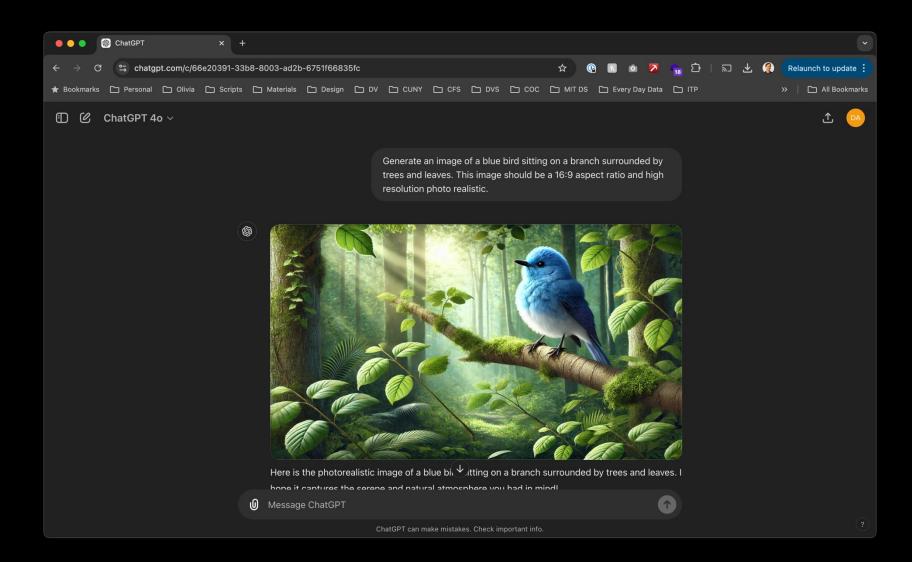
2 A cute black bear with big eyes stands on the beach, in the style of Pixar's style, cartoon character design, cartoon background, full-body shot, high definition. --ar 128:71

3 A cute black bear with big eyes stands on the beach, in the style of Pixar, in the style of Disney, 3D rendering, high resolution. -- ar 128:71

4 3D cute bear character, with black fur and white highlights, standing on a beach in Hawaii, in the style of Disney Pixar. --ar 128:71



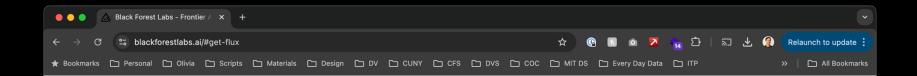
Dalle via ChatGPT Pro (\$20 month)



Stable Diffusion

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\leftrightarrow \rightarrow C \mathfrak{S} stability.ai		*	🕜 🖪 🗅 🔼 😼	ር 🗆 🖘 🔞	Relaunch to update
★ Bookmarks	Materials 🗅 Design 🕒 DV 🗅 CUNY		DS 🗅 Every Day Data 🗅	ITP	» 🗀 All Bookmarks
	Our top 3 text-to-image models a	re now available in Amazon Bedrock. <u>Re</u>	ead more.		×
stability ai	Models ~	Applications - Deployment	👻 Company 👻 New	s 日本語	Contact Us
Activating I through gen	numanity's po nerative Al	tential			2
Open models in every for everyone, everyone		1	Joseph Kanada	ale ale	
Get Started with API	Try Stable Assistant			Transie	-
	TANKA /			- Ann	

Flux





FLUX.1

A new era of creation

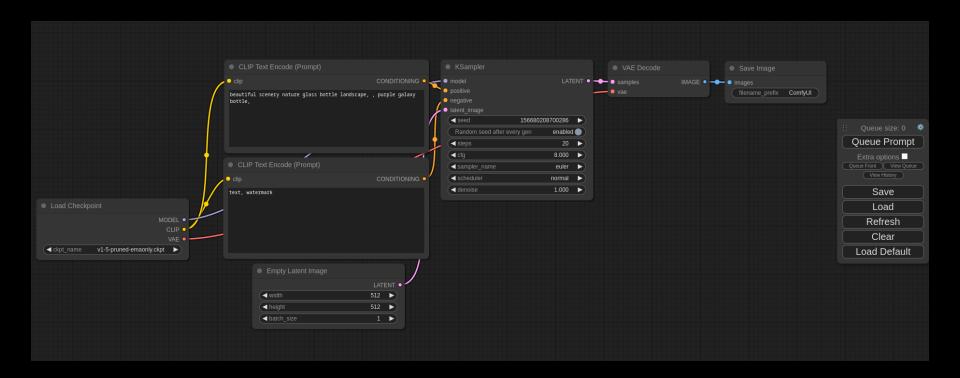


Hugging Face Spaces

	Spaces - Hugging Face	× +						
\leftrightarrow \rightarrow	C 25 huggingface.co/s	spaces			☆	0 1 0	🛛 🐂 එ ක	🛃 🏟 Relaunch to update 🗄
🛨 Bookmark	ks 🗀 Personal 🗀 Olivia	🗅 Scripts 🗅 Ma	erials 🗀 Design 🗀 D\	CUNY 🗅 CFS	С DVS С СОС С М	IT DS 🗋 Every Day	Data 🗋 ITP	» 📔 🗅 All Bookmarks
	😐 Hugging Face	Q Search models,	latasets, users		🎯 Models 🛛 🛢 Dataset	ts 🖹 Spaces 🕯	🕨 Posts 🥤 Docs P	ricing ∽≡
	B Spaces Discover amazing Al	apps made by th	e community!			Crea	te new Space 🛛 or 🔖 🗠	earn more about Spaces
	Q Search Spaces				Bro	owse 🏶 ZeroGPU Spac	es ↗ Full-text search	1↓ Sort: Trending
	☆ Spaces of the	e week 🦂						
	Running on A100	♡ 125	Running on ZERO	♡ 35	Running on ZERO	♡ 54	Running on ZERO	♡ 39
	RB Modul	ation	Qwen2 VL Lo	calization	csco		Sapiens	Depth
	Train Free Personaliz [®] Diff w/					omposition (GoGoGo)		
	🔋 fffiloni	7 days ago	• maxiw	7 days ago	<pre>xingpng</pre>	8 days ago	facebook	2 days ago
	Running	♡ 87	Running on ZERO	♡ 438	Running on ZERO	♡ 48	Running on ZERO	♡ 59
	MeshLRM (Ur	official)	FLUX.1 Rea		vî ĉoders		FLUX.1 Dev Contro	INet Union Pro
	🛯 sudo-ai	23 days ago	😡 DamarJati	FLUX.1 RealismLora 4 days ago	 state-of-the-art coding perform Tonic 		Shakker-Labs	15 days ago

Comfy UI

github.com/comfyanonymous/ComfyUI



IP and Commercial Use

Adobe Firefly and iStock Photo AI are trained on their own stock image library and thus is safe for commercial use and a more ethical option as they pay or have paid the artists who created the images.

Dalle, MidJourney, Stable Diffusion and Flux used a mix of both licensed and not licensed data so it's a little less clear how safe these outputs are to use for commercial use.

Outputs from these platforms can not be copyrighted and anyone can use the outputs without your permission.

Output Issues

Hands



Prompt: Close up of two hands shaking MidJourney v4

Text



Prompt: A poster hanging on a wall that says "Hello world" MidJourney v5

Character Consistency



Historically it has been a challenge to have consistent characters from one output to the next. This can now be done with MidJourney.

Ethical Issues

Diversity



Prompt: Portrait of a person MidJourney v5.1

Misinformation and

Deepfakes



Prompt: A realistic photo of Donald Trump being arrested and put into handcuffs surrounded by police officers struggling to escape. 4k. Photorealistic. Journalistic. Flux v1

Industry Policed

Prompt: A realistic photo of Donald Trump being arrested and put into handcuffs surrounded by police officers struggling to escape. 4k. Photorealistic. Journalistic.

靣

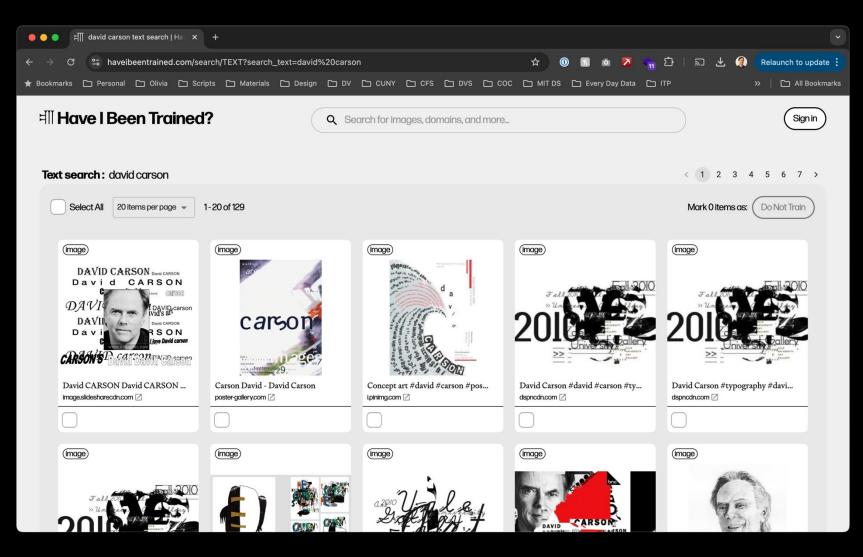
Sorry! Please try a different prompt. We're not sure this one meets our community guidelines.

Generate an image of "A realistic photo of Donald Trump being arrested and put into handcuffs surrounded by police officers struggling to escape. 4k. Photorealistic. Journalistic."

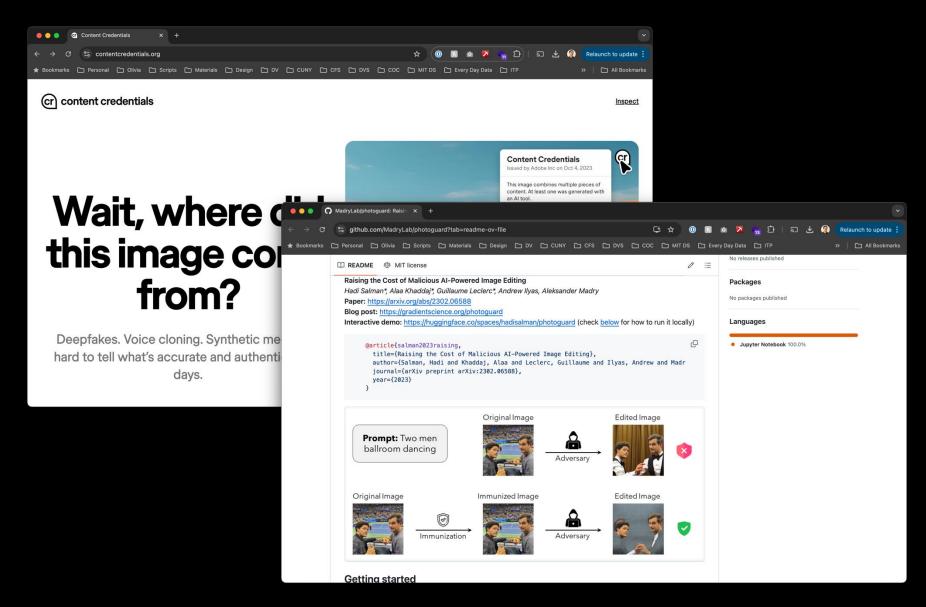
I can't create or depict images of specific public figures in compromising or harmful situations, including realistic portrayals of arrests. However, if you need an alternative creative direction, I can help generate a more neutral or abstract concept while maintaining a journalistic or photorealistic style. Let me know how you would like to proceed!

Search Training Data

haveibeentrained.com

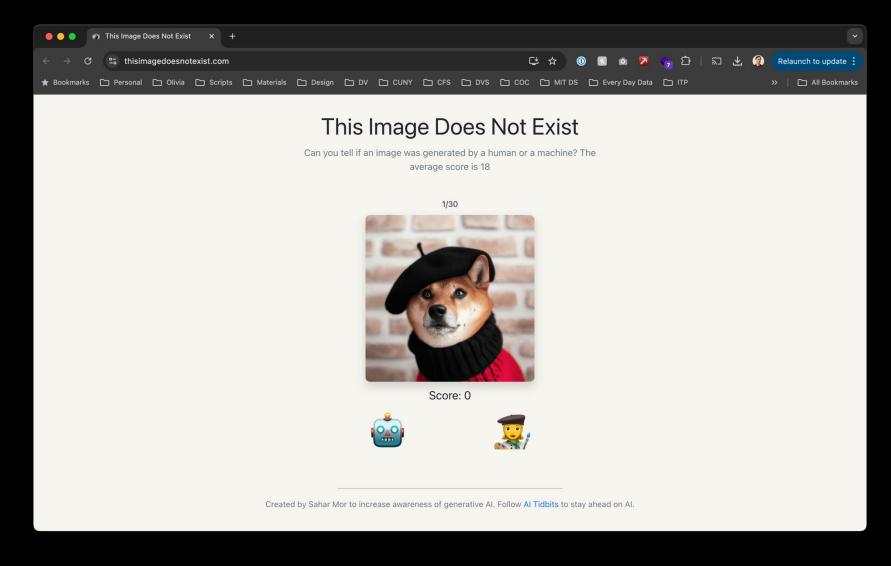


Protecting Your Digital Assets



Can you tell what is AI created?

thisimagedoesnotexist.com



In Class Assignment

- 1. Test your ability to see if you can tell what is AI generated versus human generated at thisimagedoesnotexist.com and share your score on Slack.
- 2. Play with AI image generators to see what you can output and try to test the same prompt on multiple platforms to see the difference in the outputs.
- 3. Explore the spaces on Hugging Face. Share on Slack what Spaces you found interesting and why.

Homework

- 1. Use ChatGPT (or another LLM) to generate a short story around a topic of your choosing.
- 2. Use text-to-image platforms to generate visuals for the story.
- 3. Use ChatGPT (or another LLM) to help you with the design process for the book.
- 4. Using Adobe InDesign to design/layout a small book for the story.
 - The book must be at least 10 pages (5 Spreads).
 - You must include a cover and back cover design as well.
 - Dimensions can be whatever you would like.
- 5. Export your book spreads as a PDF and share that on Slack.
- 6. Write a blog post about your experience using generative AI platforms to design this short story.

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