

# ML Workshop Day 3

# Recap of yesterday

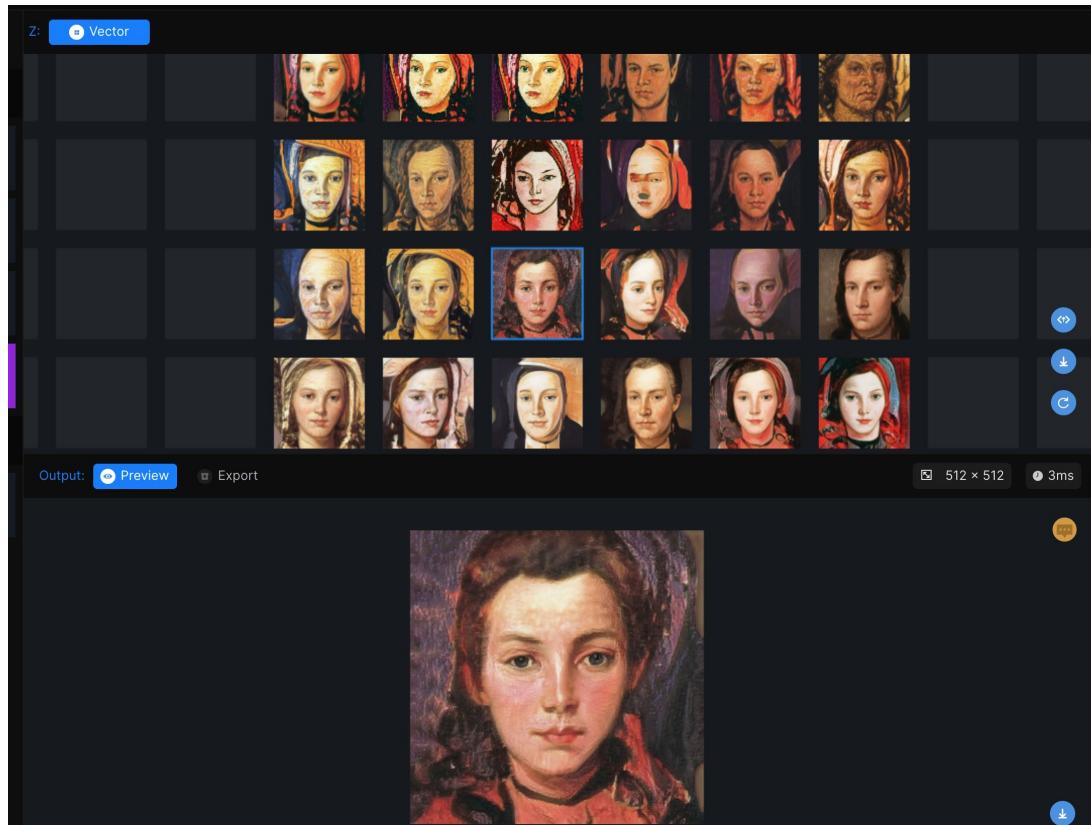
- Search and recommendations
- Generative models
- Dataset

# Dataset results

# Intro to Runway training

# Controlling GANs

# Random walks in the GAN space



# Artbreeder



Edit-Genes Children Crossbreed

Chaos 1,15€ X	Age 0 X	Gender 0 X	Width -0,39 X	Height 0 X	Yaw 0 X	Pitch 0 X	Asian 0 X
Indian 0 X	Black 0 X	White 0 X	Middle-Eastern 0 X	Latino-Hispanic 0 X	Art -1,28 X	Red 0 X	Green 0 X
Blue 0 X	Hue 0,375 X	Saturation 0 X	Brightness 0 X	Sharpness 0 X	Happy 0 X	Angry 0 X	Blue Eyes 0 X
Earrings 0 X	Eyesopen 0 X	Mouthopen 0 X	Black Hair 0 X	Blonde Hair 0 X	Brown Hair -0,31 X	Makeup 0 X	Eyeglasses 0,935 X
			Facial Hair 0,975 X	Hat 0 X			

Add Gene Reset Save

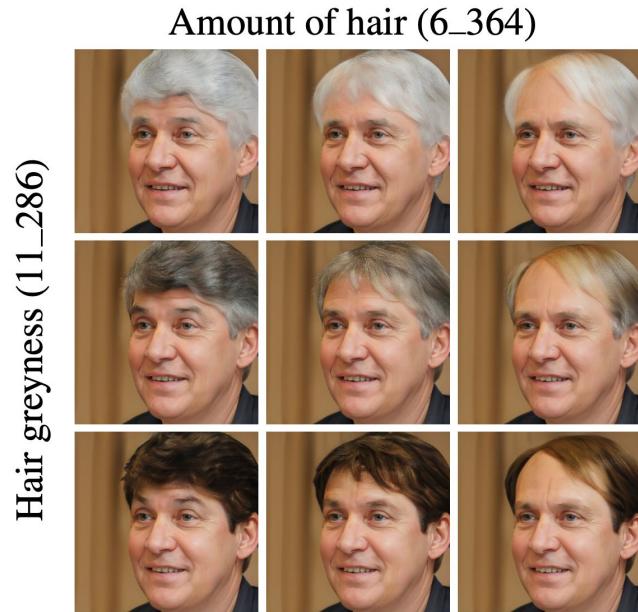
Saved

the minimuse 2 hours ago

Heart # Download Share

Lunch

# Learning disentangled controls

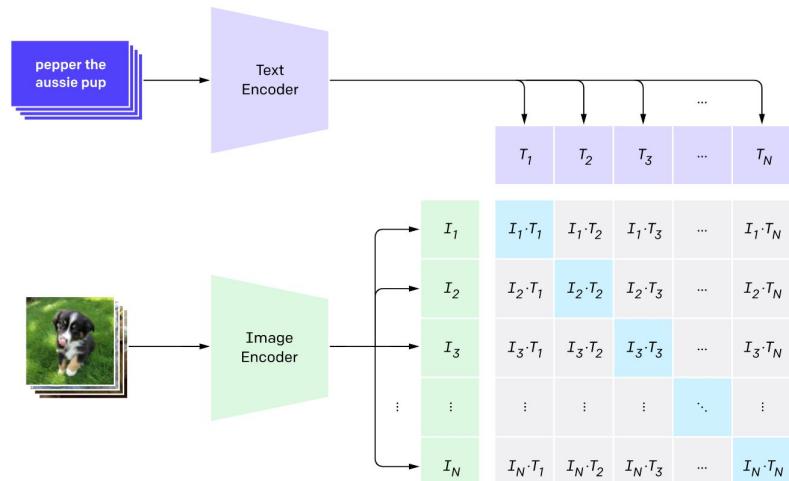


# CLIP

Contrastive Language-Image Pretraining (2021)

- “Multi-modal” : Can encode text and image into a shared vectorspace
- Trained on 400M general image-pairs
- Is able to compete with state-of-the-art image classifiers, but is much more robust

## 1. Contrastive pre-training

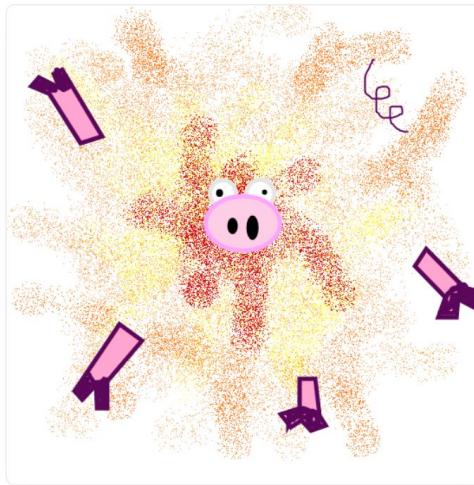


# paint.wtf



**Draw an exploding pig**

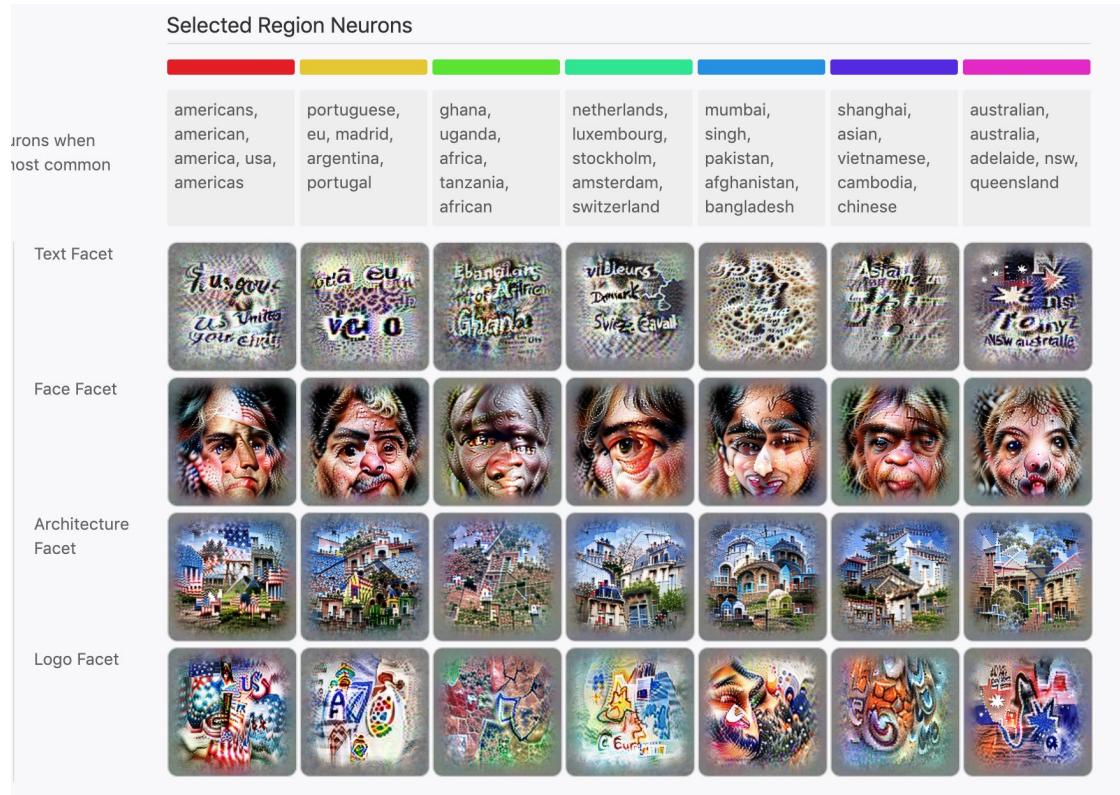
Global Ranking: 1 out of 16,361 submissions



**TRY AGAIN**

or [choose another prompt](#)

# Visualizing what CLIP is looking at



# CLIP-Guided Generative Latent Space Search



(a) the face of a man with brown eyes  
and stubble beard



(b) the face of a blonde woman with  
blue eyes and glasses



(c) the face of a bald man with beard  
and brown eyes

Figure 3: Input caption and related output image generated via StyleGAN2-face.



(a) a black SUV in the snow



(b) a red truck in a street



(c) a yellow beetle in an intersection

Figure 4: Input caption and related output image generated via StyleGAN2-car.

*Generating images from caption and vice versa via CLIP-Guided Generative Latent Space Search , Galatolo et al (2021)*

# Finding stuff in StyleGAN2 via CLIP-Glass



“A person grinning from ear to ear”

# Finding stuff in StyleGAN2 via CLIP-Glass



“A naval captain”



“A young rapper”



“A famous interaction designer”

# OpenAI DALL·E

TEXT PROMPT

an illustration of a baby daikon radish in a tutu walking a dog

AI-GENERATED  
IMAGES



[Edit prompt or view more images↓](#)

TEXT PROMPT

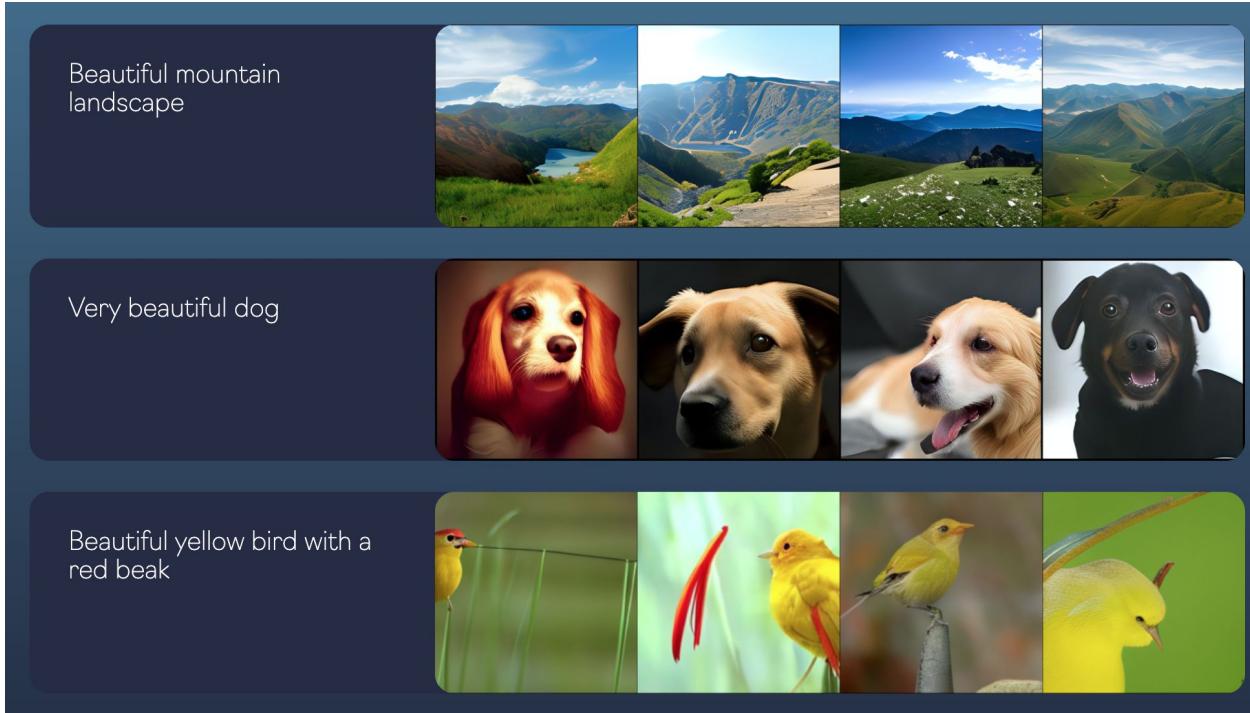
an armchair in the shape of an avocado....

AI-GENERATED  
IMAGES



[Edit prompt or view more images↓](#)

# RuDALL·E



Trained on dataset of russian text + image by Sberbank AI, November 2021

# CLIP + Generative models

- CLIP + BIGGAN
- CLIP + VQGAN
- CLIP + Diffusion models

Developed by:

- Katherine Crowson (@rivershavewings)
- Ryan Murdock (@advanoun)
- Daniel Russel (@danielrussruss)
- ++

# Diffusion models + CLIP



*Disco Diffusion model, “Dream Theater” by @nin\_artifical*

# Diffusion models + CLIP



*Disco Diffusion model, El Chaten by @nin\_artifical*

# Midjourney (currently in beta)



**GUBA** @gubatron · 15h

Titans Slaying Gods

#MidJourney

...



# Midjourney (currently in beta)

 **GUBA** @gubatron · 20h

A Snowy day in the City of Caracas, Venezuela

#MidJourney

...



Comment  Share  Heart  2 Upload 

# Midjourney (currently in beta)

 **mind overlord** @kettlebellz · 4h

mugshot, but underwater

#midjourney #Alartwork #generativeart #aiartcommunity #AI #GAN  
#machinelearning #imagesynthesis #art



0 1 1

# Midjourney (currently in beta)



proxima centauri b @proximasan · 22h

"beautiful female portrait, cat squid princess, artstation, CGSociety, by Ross Tran" made with [@midjourney](#)

...

#aiartcommunity #Alart #midjourney



# Midjourney (currently in beta)



Brad Connell @fauxjebus · 21h

First #midjourney prompt: Fake Jesus. New PFP?

...



1



1

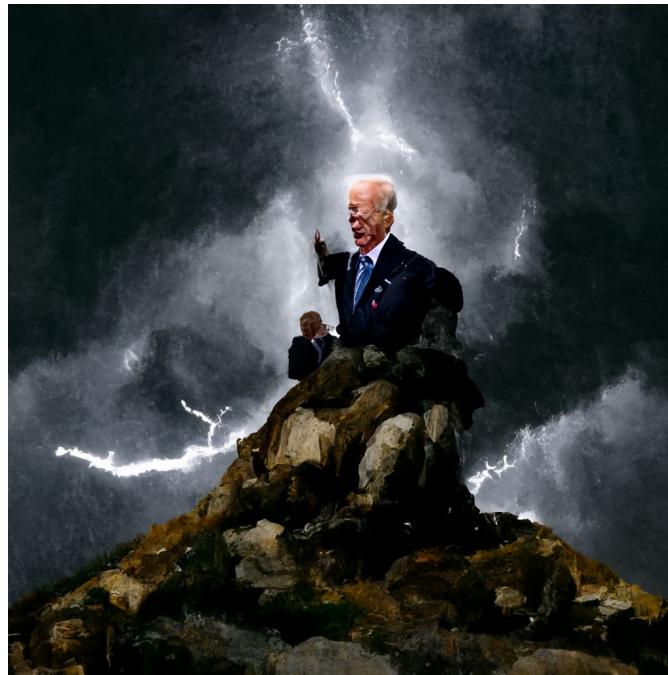


# Midjourney (currently in beta)



“Person holding a speech on top of the mountain backlit by a thunderstorm in the style of gustav dore”

# Midjourney (currently in beta)



“Joe Biden holding a powerful speech on top of the mountain backlit by a thunderstorm in the style of gustav dore”

# Midjourney (currently in beta)



“Magnus Carlsen”

# Some midjourney examples



“Portrait photo of a nurse, HDR”

# Some midjourney examples



“Portrait photo of a doctor, HDR”

End