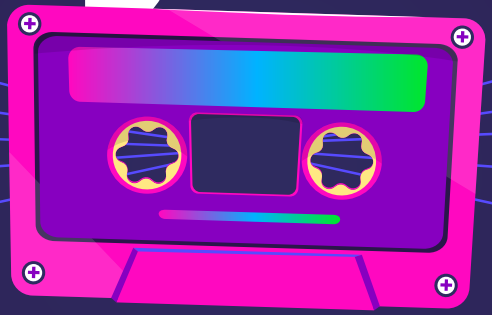
Project 3



P(AI)nting Picker

By Karston Chase

ABSTRACT

Do you have a room with boring, blank walls?

Have no fear, P(AI)nt Picker is here!

- The idea is for users to answer questions about their homes and the AI would find or create images/paintings that best accentuate the space.

WHAT WOULD THE USER INPUT?

01

BUILDING COLORS

Paint colors, wallpapers, ceiling and floor colors.

02

LIGHTING TYPES

Types of lighting present in room such as artificial or natural lighting.

03

ACCENT COLORS

Any out of place or additional accent colors. This could be things like pillows or rugs.

04

FURNITURE COLORS

Colors of chairs, couches, tables, etc.

HOW WOULD THIS WORK?

1. The user-inputted answers would be translated into color categories. (Certain colors would be matched with others.)
2. Then BigGAN can pull these categories and create images that correctly match the given palette.

Red	Orange	Yellow	Green	Blue	Purple	Black	Brown	Gray	White	Pink
Kite #21	Goldfish #1	European Fire S	Bullfrog #30	Blue Jay #17	Jellyfish #107	Black Widow #7	Ostrich #9	Great White Sha	Sea Snake #65	Axolotl #29
Kingsnake #56	Chicken #7	Macaw #88	Common Iguana	Peacock #84		Black Swan #10	Bald Eagle #22	Stingray #6	Sulphur-Crested	Cockatoo #89
Macaw #88	Robin #15	Bee Eater #92	American Cham	Macaw #88		King Penguin #1	Loggerhead Turt	Chickadee #19	Jellyfish #107	Jellyfish #107
King Crab #121	Gila Monster #4	King Penguin #1	African Crocodil	Bee Eater #92		Killer Whale #14	Diamondback Ra	Sea Lion #150	Chambered Nau	Sea Anemone #
American Lobste	Jellyfish #107	Golden Retrieve	Vine Snake #59	Hummingbird #94		Beagle #162	Platypus #103	Koala #105	White Stork #12	Flamingo #130
	Sea Anemone #	Labrador Retrive	Bee Eater #92	Jellyfish #107		Labrador Retrive	Wombat #106	Eskimo Dog #24	King Penguin #145	
	Chambered Nautilus #117		Hummingbird #94			Cocker Spaniel #	American Lobster #122		Killer Whale #148	
	Red Fox #277					German Shephe	Sea Lion #150		Beagle #162	
						Eskimo Dog #24	Beagle #162		Eskimo Dog #248	
							Labrador Retriver #208		Samoyed #258	
							Cocker Spaniel #219			
							German Shepherd #235			

BigGAN_handson.ipynb

Code git Python (tf-gpu-cyclegan)

(Try 207 for golden retriever, and 8 for hen)

[10]:
```
def interpolate_and_shape(A, B, num_samples, num_interps):
  interps = interpolate(A, B, num_interps)
  return (interps.transpose(1, 0, *range(2, len(interps.shape)))
                 .reshape(num_samples * num_interps, -1))
```

[11]:
```
# sampling parameters
num_samples = 2
num_interps = 10
truncation = 0.25

# class and noise vectors
noise_seed_A = 0
category_A = 29 # komodo dragon # complete list: ["0) tench, Tinca tinca", "1) goldfish, Carassius auratus", "2) great white sh

noise_seed_B = 0
category_B = 258 # ox # complete list: ["0) tench, Tinca tinca", "1) goldfish, Carassius auratus", "2) great white shark, white

# noise vectors
z_A, z_B = [
    truncated_z_sample(num_samples, truncation, noise_seed)
    for noise_seed in [noise_seed_A, noise_seed_B]
]

# class vectors
y_A, y_B = [
    one_hot([category] * num_samples)
    for category in [category_A, category_B]
]

z_interp = interpolate_and_shape(z_A, z_B, num_samples, num_interps)
y_interp = interpolate_and_shape(y_A, y_B, num_samples, num_interps)

ims = sample(sess, z_interp, y_interp, truncation=truncation)
imshow(imgrid(ims, cols=num_interps))
```

BIGGAN SAMPLE IMAGES

HOW COULD THIS BE APPLIED FURTHER?

- Further categorization or even some sort of code that could categorize data for you would improve data diversity and go beyond the animal dataset.
- An implication of StyleGAN applied to the generated images could also be used to customize images to a preferred style or even to better accent the room palette.

BigGAN will create an image that brings out the best of your interior space!

GAN you believe finding artwork could be so easy?