

Generative AI-Powered AI Text_to_image Generator

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OBJECTIVES

- **The purpose of AI text to image generator is to generate visual content ,including images, artwork, and designs, by using advanced computational techniques.**
- **Digital art and creative content.**
- **Education and training.**
- **Medical applications and artistic exploration.**

Challenges & Solutions

1. Ambiguity in Prompts

Challenge: Text can be vague or have multiple meanings.

Solution: Use descriptive prompts and train models to better understand context.

2. Inconsistent Output

Challenge: Images may have unrealistic features (e.g., extra limbs).

Solution: Use advanced models with spatial attention and post-processing.

Advantages

- 1. Transforms text into visuals quickly and creatively.**
- 2. Reduces the cost and time of manual image creation.**
- 3. Allows anyone to create art without design skills.**
- 4. Enables fast prototyping for various industries.**
- 5. Supports visual learning in education.**

Source code

```
import torch
from diffusers import StableDiffusionPipeline, DPMSolverMultistepScheduler

small_model = "stabilityai/stable-diffusion-2-1"

pipe = StableDiffusionPipeline.from_pretrained(small_model, torch_dtype=torch.bfloat16)
pipe.scheduler = DPMSolverMultistepScheduler.from_config(pipe.scheduler.config)
pipe.enable_attention_slicing()
pipe = pipe.to("cuda")

prompts = [
    "a programmer touching grass",
    "A dreamlike landscape with floating islands and waterfalls under a starry sky.",
    "A Roman soldier standing guard in front of the Colosseum during sunset.",
    "A cyberpunk character with neon tattoos in a rain-soaked alley."
]

results = pipe(
    prompts,
    num_inference_steps=50,
    guidance_scale=3.5,
    height=512,
    width=512
)

images = results.images

# Save or display the images
for i, img in enumerate(images):
    img.save(f"image_{i}.png") # Save each image
```

**These are following which
will be pip install**

diffusers[torch]

huggingface_hub

transformers

accelerate

sentencepiece

protobuf

How it works

Create and Activate a Virtual Environment:

```
python -m venv myenv  
source myenv/bin/activate # On Windows use `myenv\Scripts\activate`
```

Install library which i written in previous page.

Create Hugging face account and access token and login

Run the program

Test any prompts

Thank you