

```
!pip install -U diffusers
```

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Requirement already satisfied: diffusers in /usr/local/lib/python3.12/dist-packages (0.36.0)
Requirement already satisfied: importlib_metadata in /usr/local/lib/python3.12/dist-packages (from diffusers) (8.0)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from diffusers) (3.20.2)
Requirement already satisfied: httpx<1.0.0 in /usr/local/lib/python3.12/dist-packages (from diffusers) (0.28.1)
Requirement already satisfied: huggingface-hub<2.0,>=0.34.0 in /usr/local/lib/python3.12/dist-packages (from diffusers) (0.34.0)
Requirement already satisfied: numpy in /usr/local/lib/python3.12/dist-packages (from diffusers) (2.0.2)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.12/dist-packages (from diffusers) (202)
Requirement already satisfied: requests in /usr/local/lib/python3.12/dist-packages (from diffusers) (2.32.4)
Requirement already satisfied: safetensors>=0.3.1 in /usr/local/lib/python3.12/dist-packages (from diffusers) (0.3.1)
Requirement already satisfied: Pillow in /usr/local/lib/python3.12/dist-packages (from diffusers) (11.3.0)
Requirement already satisfied: anyio in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (4.0.0)
Requirement already satisfied: certifi in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (0.0.0)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (0.1.1)
Requirement already satisfied: idna in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (3.1)
Requirement already satisfied: h11>=0.16 in /usr/local/lib/python3.12/dist-packages (from httpcore==1.*->httpx<1.0.0->diffusers) (0.1.0)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: packaging>=20.9 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: tqdm=>4.42.1 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: hf-xet<2.0.0,>=1.1.3 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: zipp=>3.20 in /usr/local/lib/python3.12/dist-packages (from importlib_metadata->diffusers) (3.20)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages (from requests->diffusers) (3.2)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/dist-packages (from requests->diffusers) (3.2)
```

▼ Local Inference on GPU

Model page: <https://huggingface.co/stabilityai/stable-diffusion-xl-base-1.0>

⚠ If the generated code snippets do not work, please open an issue on either the [model repo](#) and/or on [huggingface.js](#) ⚡

```
pip install -U diffusers transformers accelerate
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Requirement already satisfied: diffusers in /usr/local/lib/python3.12/dist-packages (0.36.0)
Requirement already satisfied: transformers in /usr/local/lib/python3.12/dist-packages (4.57.5)
Requirement already satisfied: accelerate in /usr/local/lib/python3.12/dist-packages (1.12.0)
Requirement already satisfied: importlib_metadata in /usr/local/lib/python3.12/dist-packages (from diffusers) (8.0)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from diffusers) (3.20.2)
Requirement already satisfied: httpx<1.0.0 in /usr/local/lib/python3.12/dist-packages (from diffusers) (0.28.1)
Requirement already satisfied: huggingface-hub<2.0,>=0.34.0 in /usr/local/lib/python3.12/dist-packages (from diffusers) (0.34.0)
Requirement already satisfied: numpy in /usr/local/lib/python3.12/dist-packages (from diffusers) (2.0.2)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.12/dist-packages (from diffusers) (202)
Requirement already satisfied: requests in /usr/local/lib/python3.12/dist-packages (from diffusers) (2.32.4)
Requirement already satisfied: safetensors>=0.3.1 in /usr/local/lib/python3.12/dist-packages (from diffusers) (0.3.1)
Requirement already satisfied: Pillow in /usr/local/lib/python3.12/dist-packages (from diffusers) (11.3.0)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.12/dist-packages (from transformers) (25)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.12/dist-packages (from transformers) (6.0.3)
Requirement already satisfied: tokenizers<=0.23.0,>=0.22.0 in /usr/local/lib/python3.12/dist-packages (from transformers) (0.22.0)
Requirement already satisfied: tqdm=>4.27 in /usr/local/lib/python3.12/dist-packages (from transformers) (4.67.1)
Requirement already satisfied: psutil in /usr/local/lib/python3.12/dist-packages (from accelerate) (5.9.5)
Requirement already satisfied: torch=>2.0.0 in /usr/local/lib/python3.12/dist-packages (from accelerate) (2.9.0+cu12)
Requirement already satisfied: anyio in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (4.0.0)
Requirement already satisfied: certifi in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (0.0.0)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->diffusers) (0.1.1)
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Requirement already satisfied: h11>=0.16 in /usr/local/lib/python3.12/dist-packages (from httpcore==1.*->httpx<1.0.0->diffusers) (0.1.0)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0)
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Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (60)
Requirement already satisfied: sympy>=1.13.3 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (1.13.3)
Requirement already satisfied: networkx>=2.5.1 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (2.5.1)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (3.1)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (12.6.77)
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (12.6.77)
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.6.80 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (12.6.80)
Requirement already satisfied: nvidia-cudnn-cu12==9.10.2.21 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (9.10.2.21)
Requirement already satisfied: nvidia-cublas-cu12==12.6.4.1 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (12.6.4.1)
Requirement already satisfied: nvidia-cufft-cu12==11.3.0.4 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (11.3.0.4)
Requirement already satisfied: nvidia-curand-cu12==10.3.7.77 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (10.3.7.77)
Requirement already satisfied: nvidia-cusolver-cu12==11.7.1.2 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (11.7.1.2)
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Requirement already satisfied: nvidia-nccl-cu12==2.27.5 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (2.27.5)
Requirement already satisfied: nvidia-nvshmem-cu12==3.3.20 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (3.3.20)
Requirement already satisfied: nvidia-nvtx-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (12.6.77)
Requirement already satisfied: nvidia-nvjitlink-cu12==12.6.85 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (12.6.85)
Requirement already satisfied: nvidia-cufile-cu12==1.11.1.6 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (1.11.1.6)
Requirement already satisfied: triton==3.5.0 in /usr/local/lib/python3.12/dist-packages (from torch=>2.0.0->accelerate) (3.5.0)
Requirement already satisfied: zipp=>3.20 in /usr/local/lib/python3.12/dist-packages (from importlib_metadata->diffusers) (3.20)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages (from requests->diffusers) (3.2)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/dist-packages (from requests->diffusers) (3.2)
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Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from sympy>=1.13.3->)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from jinja2>=2.11.3->)
```

```
import torch
from diffusers import StableDiffusionPipeline
import os
from PIL import Image
import matplotlib.pyplot as plt

os.makedirs("synthetic_dataset", exist_ok=True)

device = "cuda" if torch.cuda.is_available() else "cpu"
print("Using device:", device)

pipe = StableDiffusionPipeline.from_pretrained(
    "runwayml/stable-diffusion-v1-5",
    torch_dtype=torch.float16
)

pipe.to(device)
pipe.enable_attention_slicing()

prompts = [
    "A futuristic city with flying cars",
    "A serene lake at sunset",
    "An astronaut cat on Mars",
    "A steam train in autumn",
    "A robot playing chess"
]

for i, prompt in enumerate(prompts):
    image = pipe(prompt).images[0]

    path = f"synthetic_dataset/sample_{i+1}.png"
    image.save(path)

    # DISPLAY
    plt.figure(figsize=(4,4))
    plt.imshow(image)
    plt.axis("off")
    plt.title(prompt)
    plt.show()

print("DONE")
```

