

```
!pip install diffusers transformers accelerate scipy safetensors
```

```
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 (5.0.0)
Requirement already satisfied: accelerate in /usr/local/lib/python3.12/dist-packages (1.12.0)
Requirement already satisfied: scipy in /usr/local/lib/python3.12/dist-packages (1.16.3)
Requirement already satisfied: safetensors in /usr/local/lib/python3.12/dist-packages (0.7.0)
Requirement already satisfied: importlib_metadata in /usr/local/lib/python3.12/dist-packages (from diffusers) (8.7.1)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from diffusers) (3.20.3)
Requirement already satisfied: httpxx<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) (1.3.7)
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) (2025.11.3)
Requirement already satisfied: requests in /usr/local/lib/python3.12/dist-packages (from diffusers) (2.32.4)
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) (26.0)
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)
Requirement already satisfied: typer-slim in /usr/local/lib/python3.12/dist-packages (from transformers) (0.21.1)
Requirement already satisfied: tqdm=4.27 in /usr/local/lib/python3.12/dist-packages (from transformers) (4.67.2)
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+cu126)
Requirement already satisfied: anyio in /usr/local/lib/python3.12/dist-packages (from httpxx<1.0.0->diffusers) (4.12.1)
Requirement already satisfied: certifi in /usr/local/lib/python3.12/dist-packages (from httpxx<1.0.0->diffusers) (2026.1.4)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.12/dist-packages (from httpxx<1.0.0->diffusers) (1.0.9)
Requirement already satisfied: idna in /usr/local/lib/python3.12/dist-packages (from httpxx<1.0.0->diffusers) (3.11)
Requirement already satisfied: h11=>0.16 in /usr/local/lib/python3.12/dist-packages (from httpcore==1.*->httpxx<1.0.0->diffusers)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0->d)
Requirement already satisfied: hf-xet<2.0.0,>=1.2.0 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.
Requirement already satisfied: shellingham in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0->diffus)
Requirement already satisfied: typing-extensions>=4.1.0 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<2.0,>=0.34.0->diffus)
Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->accelerate) (75.2.0)
Requirement already satisfied: sympy>=1.13.3 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->accelerate) (1.14.0)
Requirement already satisfied: networkx>=2.5.1 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->accelerate) (3.6.1)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->accelerate) (3.1.6)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.6.80 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cudnn-cu12==9.10.2.21 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cublas-cu12==12.6.4.1 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cufft-cu12==11.3.0.4 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-curand-cu12==10.3.7.77 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cusolver-cu12==11.7.1.2 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cusparse-cu12==12.5.4.2 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cusparselt-cu12==0.7.1 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-ncc1-cu12==2.27.5 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-nvshmem-cu12==3.3.20 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-nvtx-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-nvjitlink-cu12==12.6.85 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: nvidia-cufile-cu12==1.11.1.6 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: triton==3.5.0 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.0->acc)
Requirement already satisfied: zipp>=3.20 in /usr/local/lib/python3.12/dist-packages (from importlib_metadata->diffusers) (3.23.0)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages (from requests->diffusers) (3.23.0)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/dist-packages (from requests->diffusers) (2.5.0)
Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.12/dist-packages (from typer-slim->transformers) (8.3.1)
Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from sympy>=1.13.3->torch>=2.0.0->acc)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from jinja2->torch>=2.0.0->acc)
```

```
pip install huggingface_hub
```

```
Requirement already satisfied: huggingface_hub in /usr/local/lib/python3.12/dist-packages (1.3.7)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (3.20.3)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (2025.3.0)
Requirement already satisfied: hf-xet<2.0.0,>=1.2.0 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (1.2.0)
Requirement already satisfied: httpxx<1,>=0.23.0 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (0.28.1)
Requirement already satisfied: packaging=20.9 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (26.0)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (6.0.3)
Requirement already satisfied: shellingham in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (1.5.4)
Requirement already satisfied: tqdm=4.42.1 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (4.67.2)
Requirement already satisfied: typer-slim in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (0.21.1)
Requirement already satisfied: typing-extensions>=4.1.0 in /usr/local/lib/python3.12/dist-packages (from huggingface_hub) (4.15.0)
Requirement already satisfied: anyio in /usr/local/lib/python3.12/dist-packages (from httpxx<1,>=0.23.0->huggingface_hub) (4.12.1)
Requirement already satisfied: certifi in /usr/local/lib/python3.12/dist-packages (from httpxx<1,>=0.23.0->huggingface_hub) (2026.1.4)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.12/dist-packages (from httpxx<1,>=0.23.0->huggingface_hub)
Requirement already satisfied: idna in /usr/local/lib/python3.12/dist-packages (from httpxx<1,>=0.23.0->huggingface_hub) (3.11)
Requirement already satisfied: h11=>0.16 in /usr/local/lib/python3.12/dist-packages (from httpcore==1.*->httpxx<1,>=0.23.0->huggi)
Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.12/dist-packages (from typer-slim->huggingface_hub) (8.3.1)
```

```
from huggingface_hub import notebook_login
```

```
notebook_login()
```

```
from diffusers import StableDiffusionPipeline
import torch

# Load model

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

# Move model to GPU

pipe= pipe.to("cuda")

model_index.json: 100%                                         541/541 [00:00<00:00, 63.9kB/s]

Download complete:      5.48G/? [00:47<00:00, 233MB/s]

Fetching 15 files: 100%                                         15/15 [00:37<00:00,  2.46s/it]

Loading pipeline components...: 100%                                         7/7 [00:21<00:00,  4.72s/it]

Loading weights: 100%                                         196/196 [00:01<00:00, 267.67it/s, Materializing param=text_model.final_layer_norm.weight]

CLIPTextModel LOAD REPORT from: /root/.cache/huggingface/hub/models--runwayml--stable-diffusion-v1-5/snapshots/451f4fe16113bff5a
Key                           | Status   | |
-----+-----+-----+
text_model.embeddings.position_ids | UNEXPECTED | |
```

Notes:

- UNEXPECTED :can be ignored when loading from different task/architecture; not ok if you expect identical arch.

```
Loading weights: 100%                                         396/396 [00:05<00:00, 65.40it/s, Materializing param=visual_projection.weight]

StableDiffusionSafetyChecker LOAD REPORT from: /root/.cache/huggingface/hub/models--runwayml--stable-diffusion-v1-5/snapshots/45
Key                           | Status   | |
-----+-----+-----+
vision_model.vision_model.embeddings.position_ids | UNEXPECTED | |
```

Notes:

- UNEXPECTED :can be ignored when loading from different task/architecture; not ok if you expect identical arch.

```
prompt = "astronaut floating inside futuristic space station, zero gravity, glowing control panels, ultra realistic, high detail
#things you dont want in image
negative_prompt = "blurry , low quality, distorted, bad anatomy, poor lighting"
#Fix seed for consistent result
generator = torch.Generator("cuda").manual_seed(42)
#Generate image with hyperparameter tuning
image = pipe(prompt=prompt, negative_prompt=negative_prompt,
             num_inference_steps=55, guidance_scale=9,
             generator = generator).images[0]
#show image
image
```

100%

55/55 [00:08<00:00, 6.66it/s]

