```
!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
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from diffusers
Requirement already satisfied: httpx<1.0.0 in /usr/local/lib/python3.12/dist-packages (from diffus
Requirement already satisfied: huggingface-hub<2.0,>=0.34.0 in /usr/local/lib/python3.12/dist-pack
Requirement already satisfied: numpy in /usr/local/lib/python3.12/dist-packages (from diffusers) (
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.12/dist-packages (from
Requirement already satisfied: requests in /usr/local/lib/python3.12/dist-packages (from diffusers
Requirement already satisfied: Pillow in /usr/local/lib/python3.12/dist-packages (from diffusers)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.12/dist-packages (from tr
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.12/dist-packages (from transf
Requirement already satisfied: tokenizers<=0.23.0,>=0.22.0 in /usr/local/lib/python3.12/dist-packa
Requirement already satisfied: typer-slim in /usr/local/lib/python3.12/dist-packages (from transfc
Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.12/dist-packages (from transfc
Requirement already satisfied: psutil in /usr/local/lib/python3.12/dist-packages (from accelerate)
Requirement already satisfied: torch>=2.0.0 in /usr/local/lib/python3.12/dist-packages (from accel
Requirement already satisfied: anyio in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0-
Requirement already satisfied: certifi in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.12/dist-packages (from http
Requirement already satisfied: idna in /usr/local/lib/python3.12/dist-packages (from httpx<1.0.0->
Requirement already satisfied: h11>=0.16 in /usr/local/lib/python3.12/dist-packages (from httpcore
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.12/dist-packages (from h
Requirement already satisfied: hf-xet<2.0.0,>=1.2.0 in /usr/local/lib/python3.12/dist-packages (fr
Requirement already satisfied: shellingham in /usr/local/lib/python3.12/dist-packages (from huggin
Requirement already satisfied: typing-extensions>=4.1.0 in /usr/local/lib/python3.12/dist-packages
Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-packages (from torch>=
Requirement already satisfied: sympy>=1.13.3 in /usr/local/lib/python3.12/dist-packages (from torc
Requirement already satisfied: networkx>=2.5.1 in /usr/local/lib/python3.12/dist-packages (from tc
Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages (from torch>=2.0.
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.6.77 in /usr/local/lib/python3.12/dist-p
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.6.77 in /usr/local/lib/python3.12/dist
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.6.80 in /usr/local/lib/python3.12/dist-p
Requirement already satisfied: nvidia-cudnn-cu12==9.10.2.21 in /usr/local/lib/python3.12/dist-pack
Requirement already satisfied: nvidia-cublas-cu12==12.6.4.1 in /usr/local/lib/python3.12/dist-pack
Requirement already satisfied: nvidia-cufft-cu12==11.3.0.4 in /usr/local/lib/python3.12/dist-packa
Requirement already satisfied: nvidia-curand-cu12==10.3.7.77 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: nvidia-cusolver-cu12==11.7.1.2 in /usr/local/lib/python3.12/dist-pa
Requirement already satisfied: nvidia-cusparse-cu12==12.5.4.2 in /usr/local/lib/python3.12/dist-pa
Requirement already satisfied: nvidia-cusparselt-cu12==0.7.1 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: nvidia-nccl-cu12==2.27.5 in /usr/local/lib/python3.12/dist-packages
Requirement already satisfied: nvidia-nvshmem-cu12==3.3.20 in /usr/local/lib/python3.12/dist-packa
Requirement already satisfied: nvidia-nvtx-cu12==12.6.77 in /usr/local/lib/python3.12/dist-package
Requirement already satisfied: nvidia-nvjitlink-cu12==12.6.85 in /usr/local/lib/python3.12/dist-pa
Requirement already satisfied: nvidia-cufile-cu12==1.11.1.6 in /usr/local/lib/python3.12/dist-pack
Requirement already satisfied: triton==3.5.0 in /usr/local/lib/python3.12/dist-packages (from torc
Requirement already satisfied: zipp>=3.20 in /usr/local/lib/python3.12/dist-packages (from importl
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/dist-packages (from
Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.12/dist-packages (from typer
Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from ji
```

```
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 huggingfa
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.12/dist-packages (from h
```

```
Requirement already satisfied: hf-xet<2.0.0,>=1.2.0 in /usr/local/lib/python3.12/dist-packages (fr
Requirement already satisfied: httpx<1,>=0.23.0 in /usr/local/lib/python3.12/dist-packages (from h
Requirement already satisfied: packaging>=20.9 in /usr/local/lib/python3.12/dist-packages (from hu
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.12/dist-packages (from huggin
Requirement already satisfied: shellingham in /usr/local/lib/python3.12/dist-packages (from huggin
Requirement already satisfied: tqdm>=4.42.1 in /usr/local/lib/python3.12/dist-packages (from huggi
Requirement already satisfied: typer-slim in /usr/local/lib/python3.12/dist-packages (from hugging
Requirement already satisfied: typing-extensions>=4.1.0 in /usr/local/lib/python3.12/dist-packages
Requirement already satisfied: anyio in /usr/local/lib/python3.12/dist-packages (from httpx<1,>=0.
Requirement already satisfied: certifi in /usr/local/lib/python3.12/dist-packages (from httpx<1,>=
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.12/dist-packages (from http
Requirement already satisfied: idna in /usr/local/lib/python3.12/dist-packages (from httpx<1,>=0.2
Requirement already satisfied: h11>=0.16 in /usr/local/lib/python3.12/dist-packages (from httpcore
Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.12/dist-packages (from typer
```

```python
from huggingface_hub import notebook_login
notebook_login()
```

```python
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, 38.9kB/s]

Download complete:         5.48G/? [00:48<00:00, 208MB/s]

Fetching 15 files: 100%                                         15/15 [00:48<00:00,  3.19s/it]

Loading pipeline components...: 100%                            7/7 [00:22<00:00,  3.80s/it]

Loading weights: 100%                    396/396 [00:04<00:00, 79.39it/s, Materializing param=visual_projection.weight]
StableDiffusionSafetyChecker LOAD REPORT from: /root/.cache/huggingface/hub/models--runwayml--stab
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 expec
Loading weights: 100%             196/196 [00:01<00:00, 150.76it/s, Materializing param=text_model.final_layer_norm.weight]
CLIPTextModel LOAD REPORT from: /root/.cache/huggingface/hub/models--runwayml--stable-diffusion-v1
Key                                    | Status      | |
---------------------------------------+-------------+--+-
text_model.embeddings.position_ids | UNEXPECTED |  |

Notes:
- UNEXPECTED    :can be ignored when loading from different task/architecture; not ok if you expec
```

```python
prompt = "A photo of an astronaut riding a horse on mars"
#things you dont want in image
negative_prompt = "blurry , low quality, disorted, bad anatomy, poor lighting"
#Fix seed for consistent result
generator = torch.Generator("cuda").manual_seed(42)
```

```python
#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,   7.40it/s]


```python
image.save("ast.png")
```

Start coding or generate with AI.