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# 使用Hugging Face在本地端執行stable-diffusion-v1-5



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## Hugging Face

### 簡介

Hugging Face 提供開源平台讓開發者能夠輕鬆使用各種先進的預訓練模型進行自然語言處理任務

#### **Hugging Face - The AI community building the future.**

We're on a journey to advance and democratize artificial intelligence through open source and open science.

[huggingface.co](https://huggingface.co)

### Transformers

Hugging Face 的 Transformers 是一個開源庫，提供了許多強大的預訓練模型

#### **GitHub - huggingface/transformers: 🤗 Transformers: State-of-the-art Machine Learning for Pytorch...**

🤗 Transformers: State-of-the-art Machine Learning for Pytorch, TensorFlow, and JAX. - huggingface/transformers

[github.com](https://github.com)

### Tokenizers

Tokenize 一般翻譯為斷詞，把一個句子裡面的每個字都拆出來。

## GitHub - huggingface/tokenizers: 🌟 Fast State-of-the-Art Tokenizers optimized for Research and...

🌟 Fast State-of-the-Art Tokenizers optimized for Research and Production - huggingface/tokenizers

github.com

## Datasets

Hugging Face Datasets 提供了和 Hub 取得資料集的 API

## GitHub - huggingface/datasets: 😊 The largest hub of ready-to-use datasets for ML models with fast...

😊 The largest hub of ready-to-use datasets for ML models with fast, easy-to-use and efficient data manipulation tools...

github.com

## 下載 Hugging Face 模型到本地端

### 步驟

以stable-diffusion-v1-5範例程式為例

## stable-diffusion-v1-5/stable-diffusion-v1-5 - Hugging Face

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huggingface.co

需先下載diffusers庫 `pip install diffusers`

- transformers庫中提供多種分詞器和文字編碼器用以研究NLP任務
- diffusers庫提供了文生圖(stable diffusion)、文生影片(stable video diffusion)等模型

且須下載PyTorch且檢查CUDA 是否可用和相容性，即使用系統中 NVIDIA 的 GPU 運算，如下

## PyTorch框架安裝

### PyTorch

框架安裝 PyTorchmedium.com

模型預設下載到C:\Users\<your\_username>\.cache\huggingface\hub

from\_pretrained裡面加入cache\_dir參數，可以指定模型的下載路徑

### 執行

```
from diffusers import StableDiffusionPipeline
import torch

model_id = "sd-legacy/stable-diffusion-v1-5" #模型名稱
pipe = StableDiffusionPipeline.from_pretrained(model_id, torch_dtype=torch.float16)
pipe = pipe.to("cuda") #模型放到gpu

prompt = "a photo of an astronaut riding a horse on mars" #提示字
image = pipe(prompt).images[0] #生成圖

image.save("astronaut_rides_horse.png") #保存圖片
```

### 輸出



## 另一種方式

### 安裝huggingface-hub庫

```
pip install huggingface_hub
```

### 驗證是否安裝成功

```
huggingface-cli --help
```

### 登入huggingface-hub

```
huggingface-cli login
```

### 取得token

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[huggingface.co](https://huggingface.co)

```
huggingface-cli download <model_id>
```

或指定下載路徑

```
huggingface-cli download --resume-download<model_id><address>
```

此方法須安裝git

## Git — Downloading Package

```
git --version 檢查
```

Hugging Face

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Stable Diffusion

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## Written by WZX

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