Hugging Face 인공지능 플랫폼

제주대학교 컴퓨터공학과
변영철 교수

github.com/yungbyun/ai

제주대학교
JEJU NATIONAL UNIVERSITY

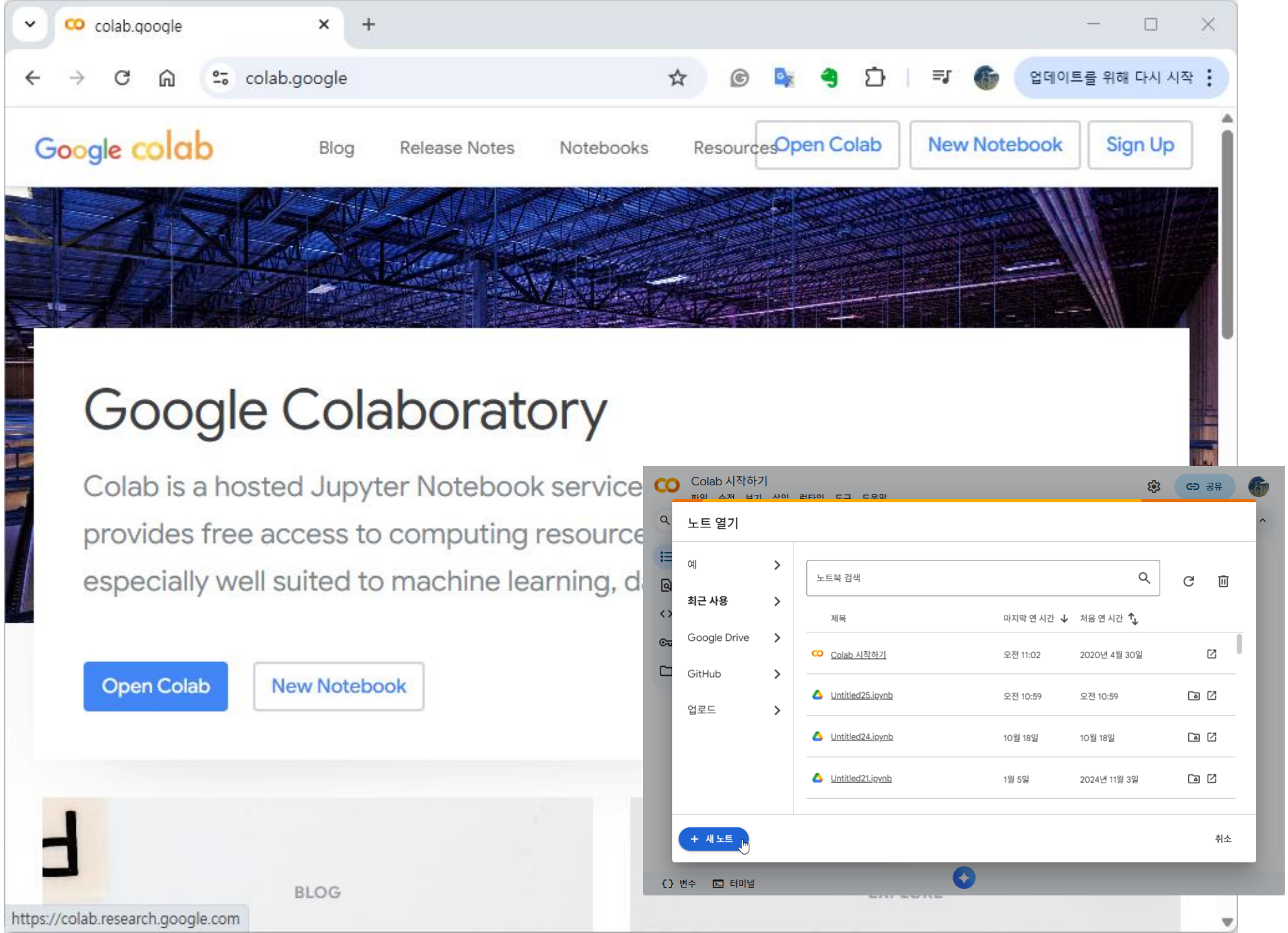

https://raw.githubusercontent.com/yungbyun/ai2/refs/heads/main/a.jpg.jfif

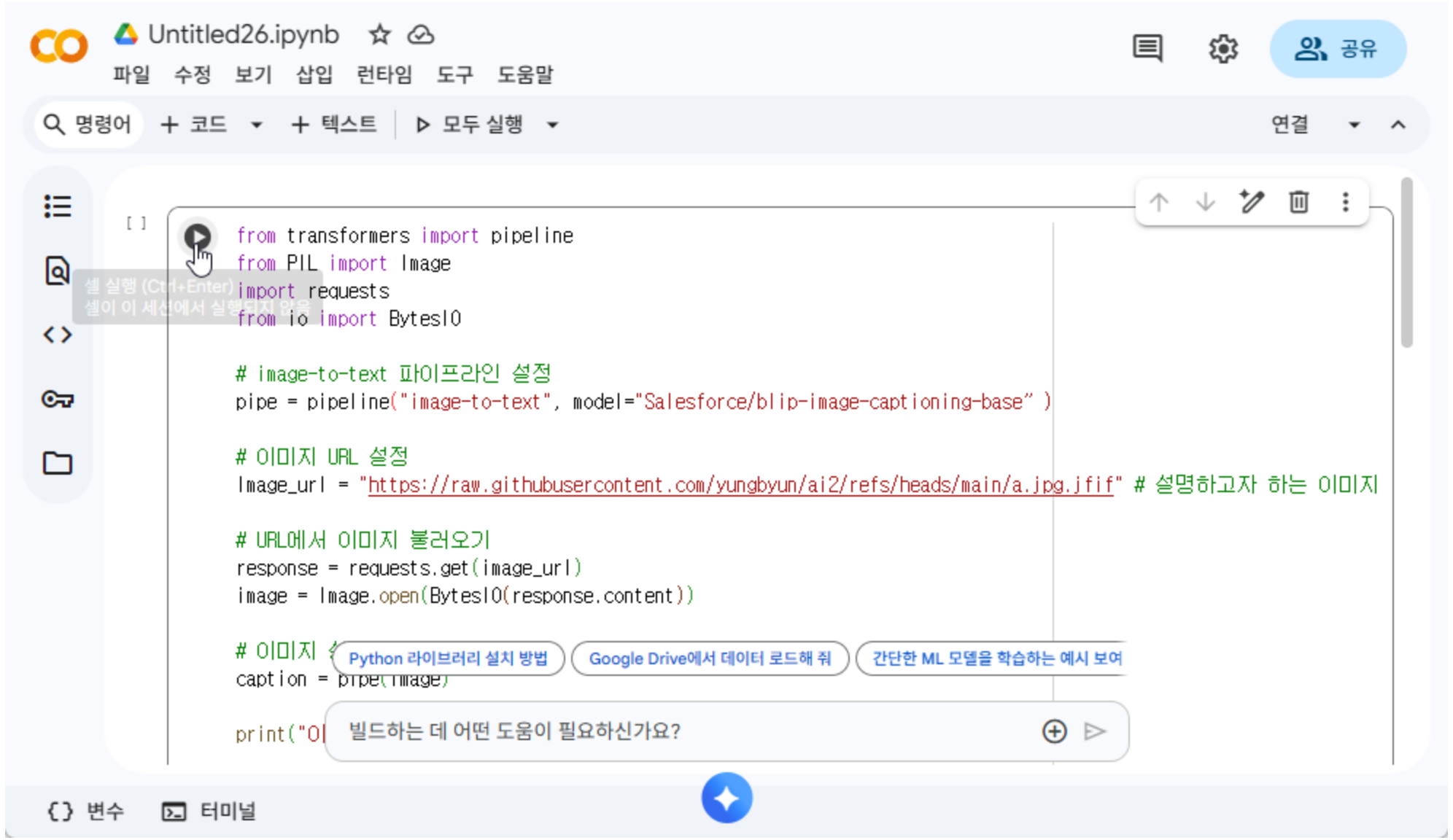
“

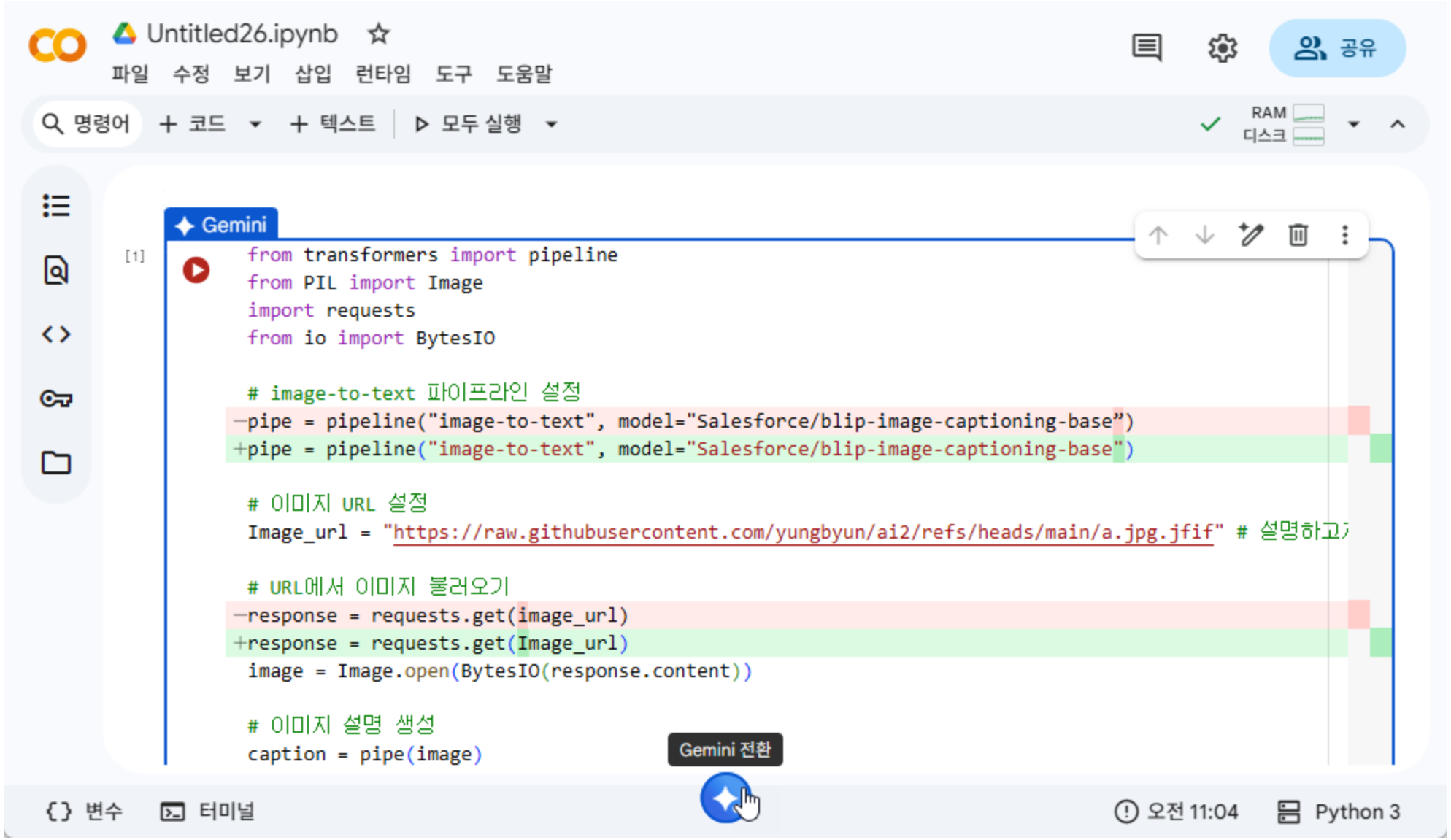
파이프라인 코드로 허깅페이스 모델을 이용하여
그림을 설명해주는 AI 코드를 작성해봐.

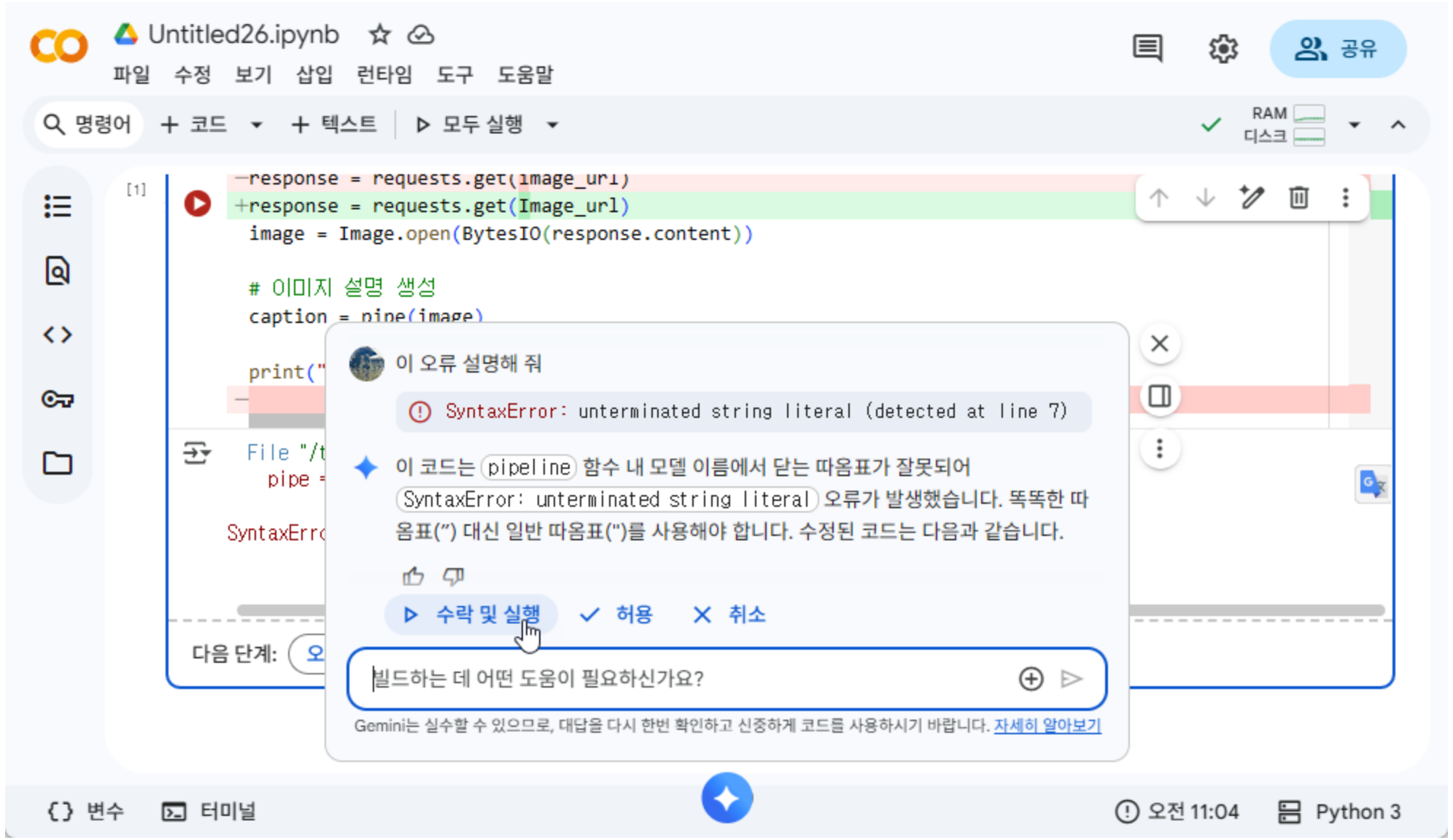

```
pip install transformers
pip install tensorflow
pip install tf_keras
```

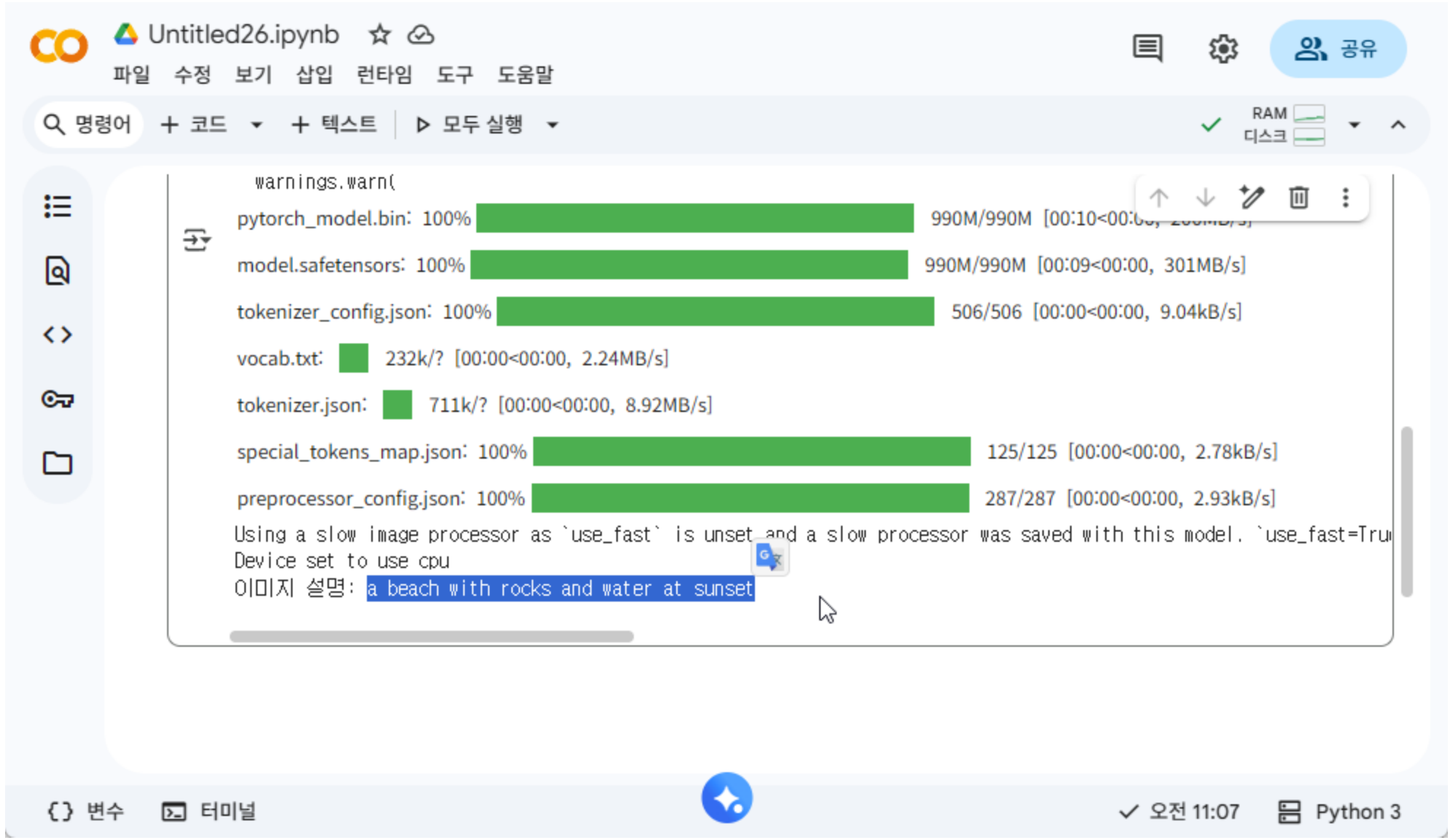
```
from transformers import pipeline
from PIL import Image
import requests
from io import BytesIO

# image-to-text 파이프라인 설정
pipe = pipeline("image-to-text", model="Salesforce/blip-image-captioning-base”)

# 이미지 URL 설정
Image_url = "https://raw.githubusercontent.com/yungbyun/ai2/refs/heads/main/a.jpg.jfif" # 설명하고자 하는 이미지의 URL로 변경하세요

# URL에서 이미지 불러오기
response = requests.get(image_url)
image = Image.open(BytesIO(response.content))

# 이미지 설명 생성
caption = pipe(image)

print("이미지 설명:", caption[0]['generated_text'])
```


colab.google
colab.google
업데이트를 위해 다시 시작
Google colab
Blog
Release Notes
Notebooks
Resources
Open Colab
New Notebook
Sign Up
Google Colaboratory
Colab is a hosted Jupyter Notebook service
provides free access to computing resource
especially well suited to machine learning, d
Open Colab
New Notebook
BLOG
https://colab.research.google.com
Colab 시작하기
공유
노트 열기
예
최근 사용
Google Drive
GitHub
업로드
노트북 검색
제목
마지막 연 시간
처음 연 시간
Colab 시작하기
오전 11:02
2020년 4월 30일
Untitled25.ipynb
오전 10:59
오전 10:59
Untitled24.ipynb
10월 18일
10월 18일
Untitled21.ipynb
1월 5일
2024년 11월 3일
+ 새 노트
취소
변수
터미널


Untitled26.ipynb
파일 수정 보기 삽입 런타임 도구 도움말
공유
명령어
+ 코드
+ 텍스트
모두 실행
연결
[ ]
from transformers import pipeline
from PIL import Image
import requests
from io import BytesIO
# image-to-text 파이프라인 설정
pipe = pipeline("image-to-text", model="Salesforce/blip-image-captioning-base")
# 이미지 URL 설정
image_url = "https://raw.githubusercontent.com/yungbyun/ai2/refs/heads/main/a.jpg.jfif" # 설명하고자 하는 이미지
# URL에서 이미지 불러오기
response = requests.get(image_url)
image = Image.open(BytesIO(response.content))
caption = pipe(image)
print("O
셀 실행 (Ctrl+Enter)
셀이 이 세션에서 실행되지 않음
Python 라이브러리 설치 방법
Google Drive에서 데이터 로드해 줘
간단한 ML 모델을 학습하는 예시 보여
빌드하는 데 어떤 도움이 필요하신가요?
변수
터미널


Untitled26.ipynb
파일 수정 보기 삽입 런타임 도구 도움말
공유
명령어 + 코드 + 텍스트 모두 실행
RAM
디스크
Gemini
[1]
from transformers import pipeline
from PIL import Image
import requests
from io import BytesIO
# image-to-text 파이프라인 설정
-pipe = pipeline("image-to-text", model="Salesforce/blip-image-captioning-base”)
+pipe = pipeline("image-to-text", model="Salesforce/blip-image-captioning-base")
# 이미지 URL 설정
Image_url = "https://raw.githubusercontent.com/yungbyun/ai2/refs/heads/main/a.jpg.jfif" # 설명하고
# URL에서 이미지 불러오기
-response = requests.get(image_url)
+response = requests.get(Image_url)
image = Image.open(BytesIO(response.content))
# 이미지 설명 생성
caption = pipe(image)
Gemini 전환
변수 터미널
오전 11:04
Python 3


Untitled26.ipynb
파일 수정 보기 삽입 런타임 도구 도움말
공유
명령어 + 코드 + 텍스트 모두 실행
RAM
디스크
[1]
-response = requests.get(image_url)
+response = requests.get(Image_url)
image = Image.open(BytesIO(response.content))
# 이미지 설명 생성
caption = pipe(image)
print("
File "/t
pipe =
SyntaxErro
이 오류 설명해 줘
SyntaxError: unterminated string literal (detected at line 7)
이 코드는 pipeline 함수 내 모델 이름에서 닫는 따옴표가 잘못되어 SyntaxError: unterminated string literal 오류가 발생했습니다. 똑똑한 따옴표(") 대신 일반 따옴표(')를 사용해야 합니다. 수정된 코드는 다음과 같습니다.
수락 및 실행
허용
취소
다음 단계:
빌드하는 데 어떤 도움이 필요하신가요?
Gemini는 실수할 수 있으므로, 대답을 다시 한번 확인하고 신중하게 코드를 사용하시기 바랍니다. 자세히 알아보기
변수
터미널
오전 11:04
Python 3


Untitled26.ipynb
파일 수정 보기 삽입 런타임 도구 도움말
공유
명령어 + 코드 + 텍스트 모두 실행
RAM
디스크
warnings.warn(
pytorch_model.bin: 100% 990M/990M [00:10<00:00, 200MB/s]
model.safetensors: 100% 990M/990M [00:09<00:00, 301MB/s]
tokenizer_config.json: 100% 506/506 [00:00<00:00, 9.04kB/s]
vocab.txt: 232k/? [00:00<00:00, 2.24MB/s]
tokenizer.json: 711k/? [00:00<00:00, 8.92MB/s]
special_tokens_map.json: 100% 125/125 [00:00<00:00, 2.78kB/s]
preprocessor_config.json: 100% 287/287 [00:00<00:00, 2.93kB/s]
Using a slow image processor as `use_fast` is unset and a slow processor was saved with this model. `use_fast=Tru
Device set to use cpu
이미지 설명: a beach with rocks and water at sunset
변수 터미널
오전 11:07 Python 3

“

모델을 직접 이용하여 그림을 설명하는
코드를 작성해봐.

```
from transformers import BlipProcessor, BlipForConditionalGeneration
from PIL import Image
import requests

# 모델과 프로세서를 로드합니다
processor = BlipProcessor.from_pretrained("Salesforce/blip-image-captioning-base")
model = BlipForConditionalGeneration.from_pretrained("Salesforce/blip-image-captioning-base")

# 예시 이미지 URL에서 이미지를 가져옵니다
url = "https://raw.githubusercontent.com/yungbyun/ai2/refs/heads/main/a.jpg.jfif"  # 여기에 이미지 URL을 넣으세요
image = Image.open(requests.get(url, stream=True).raw)

# 입력을 모델 입력에 맞게 처리합니다
inputs = processor(image, return_tensors="pt")

# 모델을 통해 이미지 설명을 생성합니다
out = model.generate(**inputs)
description = processor.decode(out[0], skip_special_tokens=True)

# 결과를 출력합니다
print("이미지 설명:", description)
```

https://raw.githubusercontent.com/yungbyun/ai2/refs/heads/main/dog-puppy-on-garden-royalty.avif

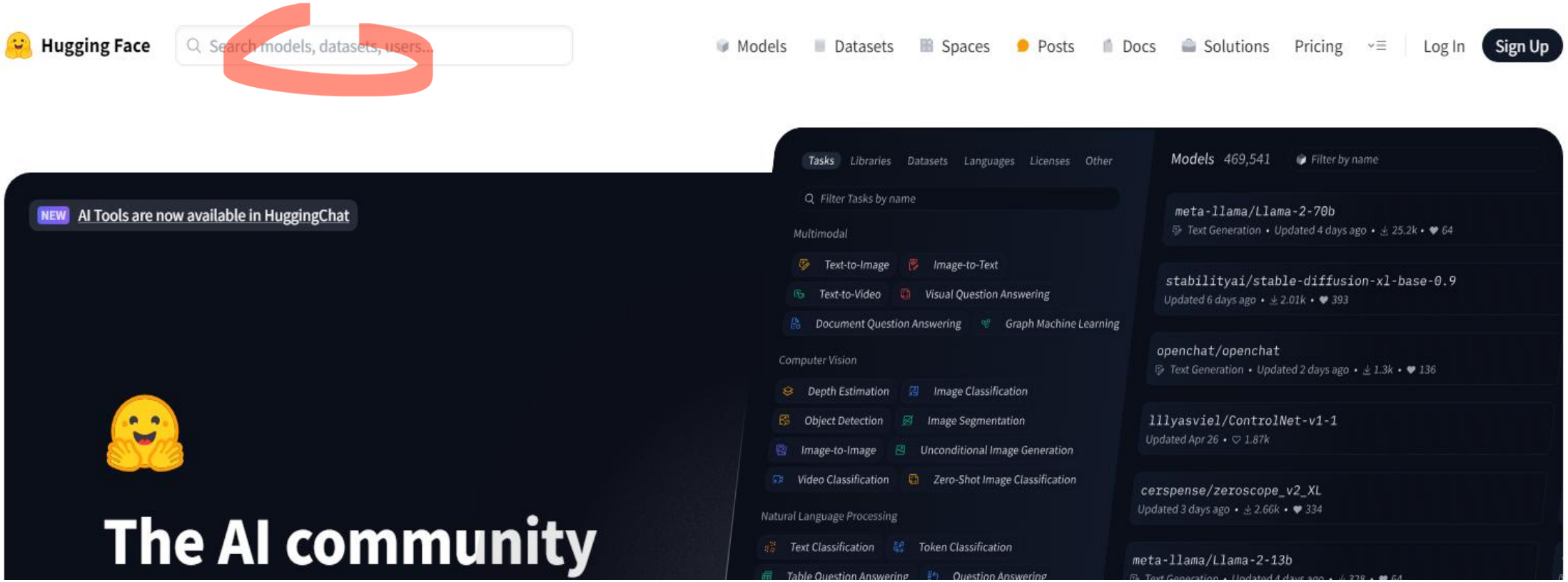
아이디어?

모델 직접 이용 vs. 파이프라인

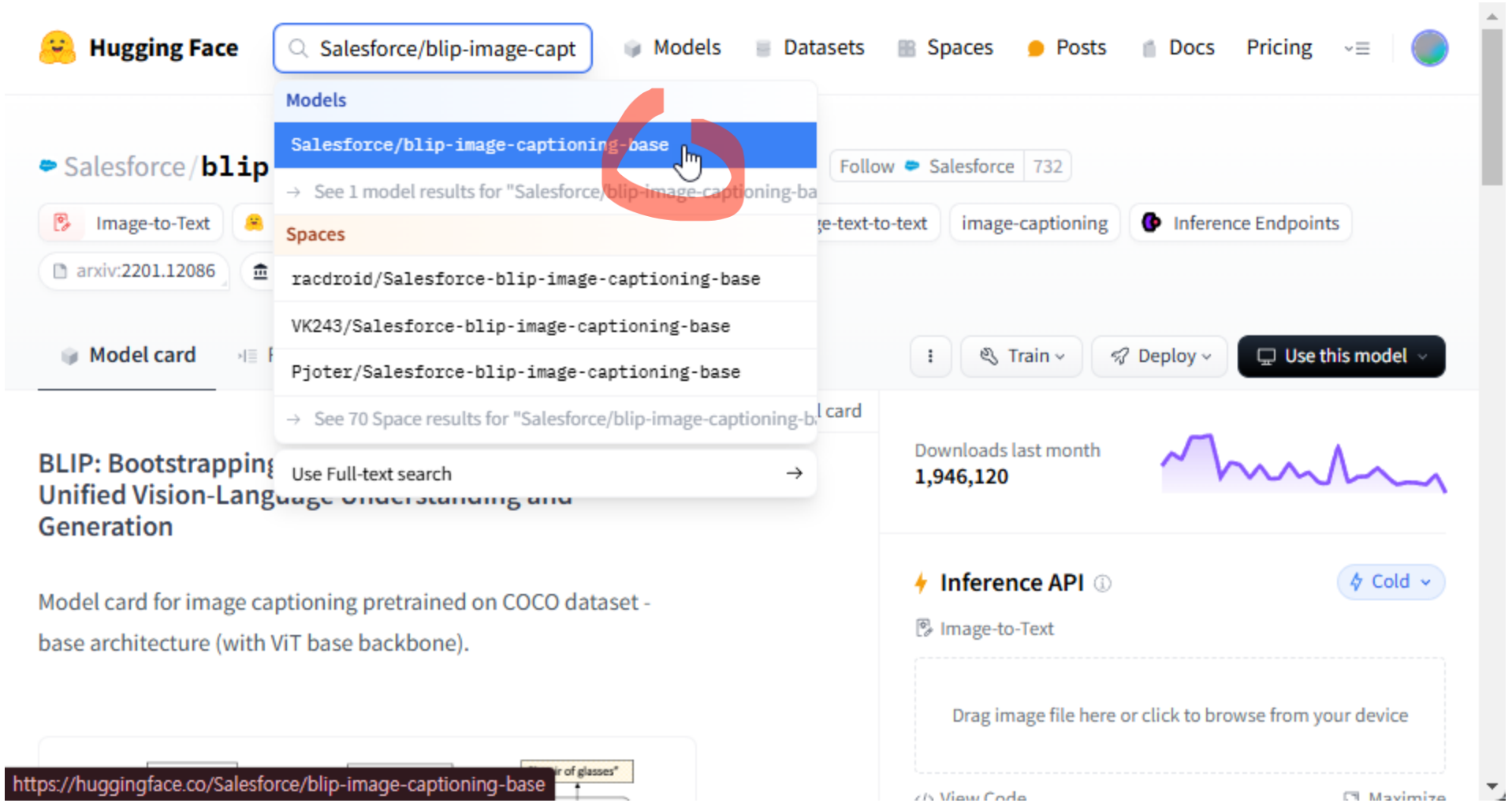
Salesforce/blip-image-captioning-base

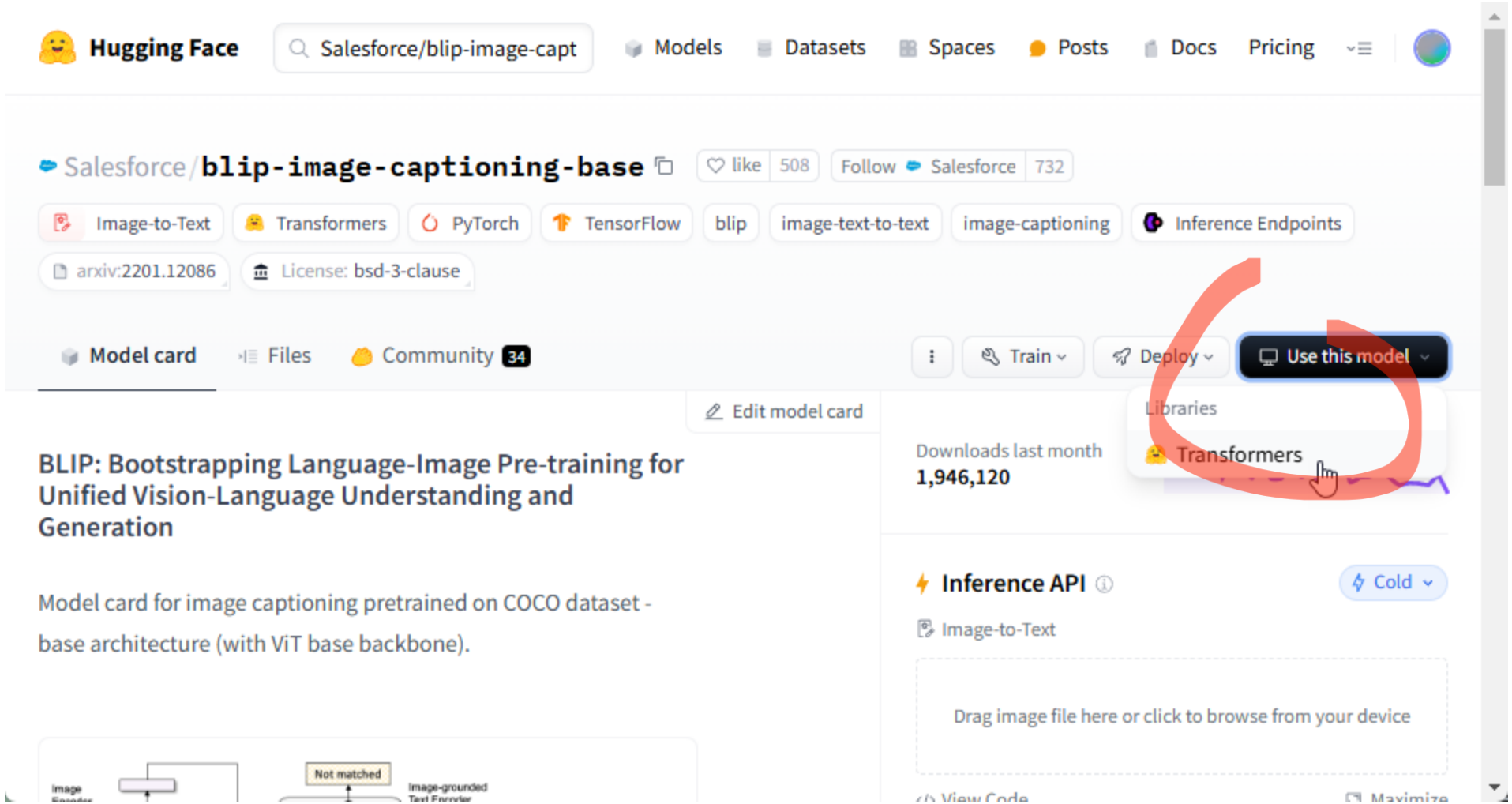
허깅페이스(HuggingFace)

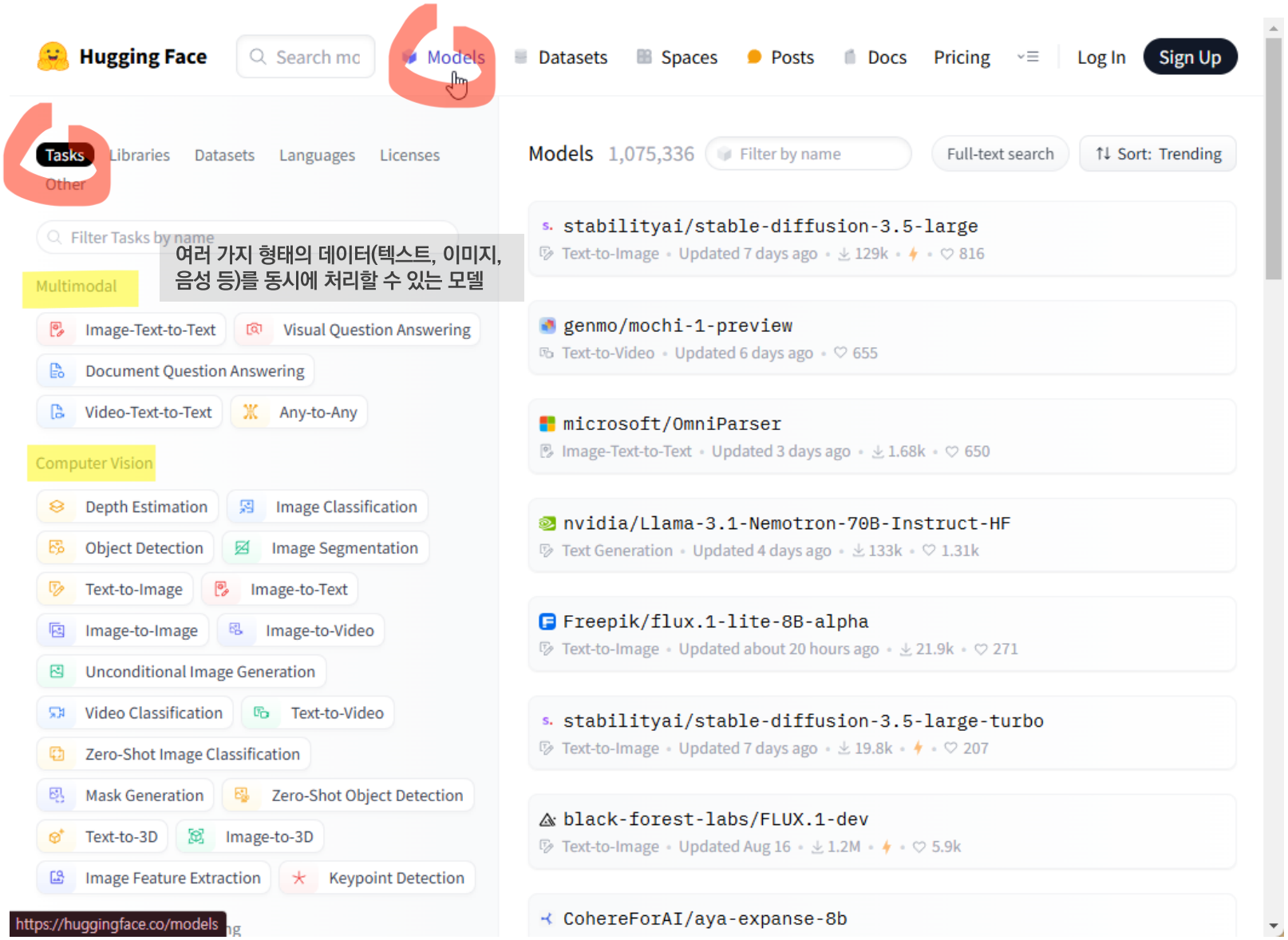
- https://huggingface.co/ • 인공지능(AI)과 자연어 처리(NLP) 모델을 제공하는 플랫폼이자 커뮤니티



찾기: Salesforce/blip-image-captioning-base

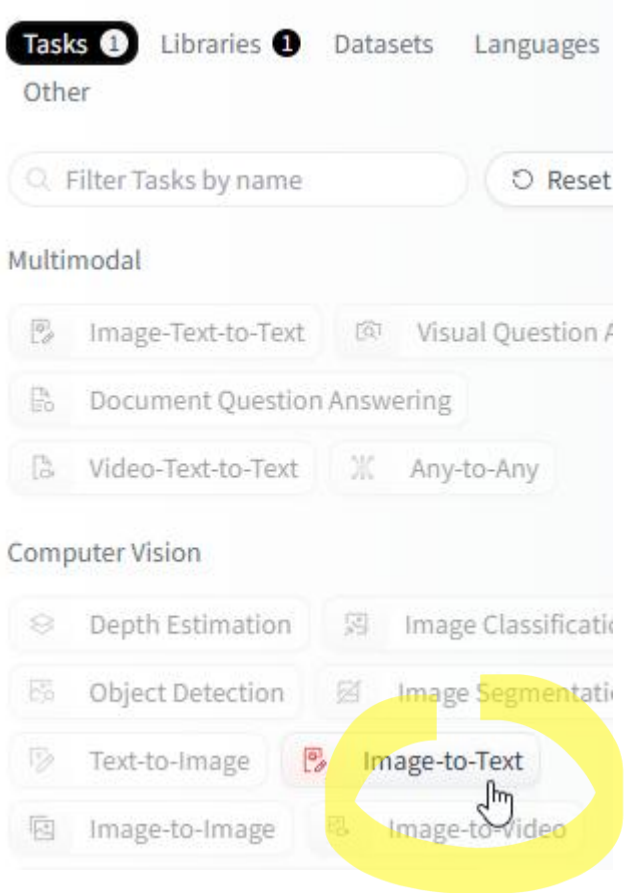


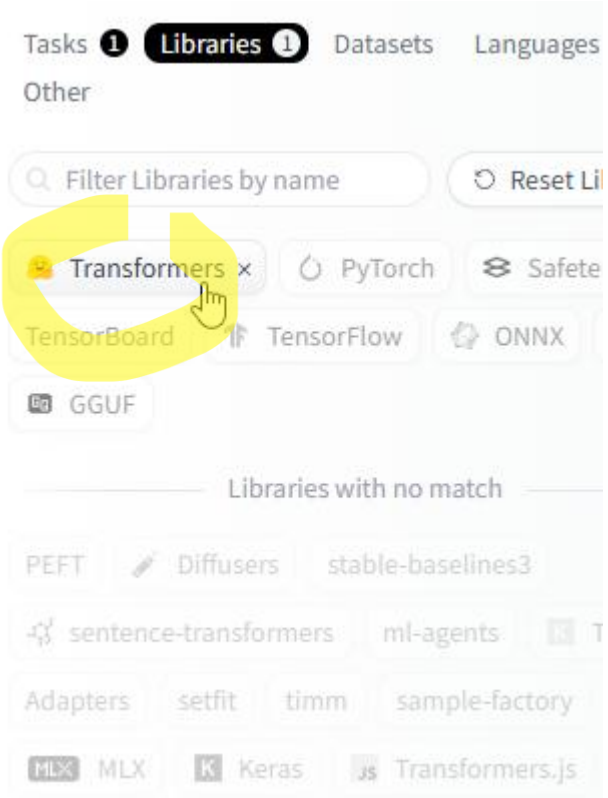

Hugging Face
Salesforce/blip-image-capt
Models
Datasets
Spaces
Posts
Docs
Pricing
Salesforce / blip-image-captioning-base
like 508
Follow Salesforce 732
Image-to-Text
Transformers
PyTorch
TensorFlow
blip
image-text-to-text
image-captioning
Inference Endpoints
arxiv:2201.12086
License: bsd-3-clause
Model card
Files
Community 34
Train
Deploy
Use this model
Edit model card
Libraries
Transformers
Downloads last month
1,946,120
BLIP: Bootstrapping Language-Image Pre-training for Unified Vision-Language Understanding and Generation
Model card for image captioning pretrained on COCO dataset - base architecture (with ViT base backbone).
Inference API
Cold
Image-to-Text
Drag image file here or click to browse from your device
Not matched
Image-grounded

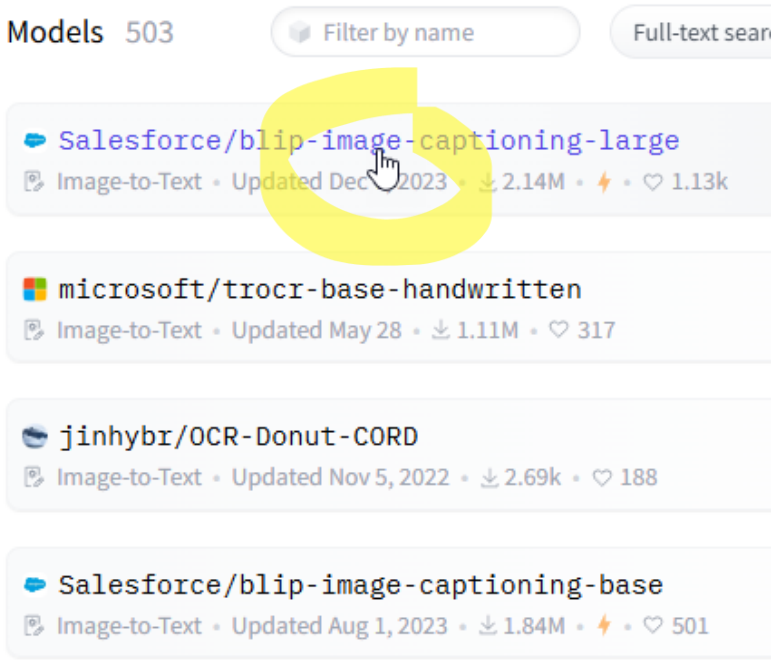


“

다양한 AI 모델(예: 챗봇, 번역기, 텍스트 요약기, 이미지 생성 모델 등)을 찾고 사용할 수 있는 저장소


Tasks 1
Libraries 1
Datasets
Languages
Other
Filter Tasks by name
Reset
Multimodal
Image-Text-to-Text
Visual Question A
Document Question Answering
Video-Text-to-Text
Any-to-Any
Computer Vision
Depth Estimation
Image Classificati
Object Detection
Image Segmentati
Text-to-Image
Image-to-Text
Image-to-Image
Image-to-Video


Tasks 1
Libraries 1
Datasets
Languages
Other
Filter Libraries by name
Reset Li
Transformers ×
PyTorch
Safete
TensorBoard
TensorFlow
ONNX
GGUF
Libraries with no match
PEFT
Diffusers
stable-baselines3
sentence-transformers
ml-agents
Adapters
setfit
timm
sample-factory
MLX
Keras
Transformers.js


Models 503
Filter by name
Full-text sear
Salesforce/blip-image-captioning-large
Image-to-Text • Updated Dec 2023 • 2.14M • 1.13k
microsoft/trocr-base-handwritten
Image-to-Text • Updated May 28 • 1.11M • 317
jinhybr/OCR-Donut-CORD
Image-to-Text • Updated Nov 5, 2022 • 2.69k • 188
Salesforce/blip-image-captioning-base
Image-to-Text • Updated Aug 1, 2023 • 1.84M • 501

Salesforce / **blip-image-captioning-large**

like 1.13k | Follow Salesforce 346

Image-to-Text | Transformers | PyTorch | TensorFlow | Safetensors | blip | text2text-generation | image-captioning

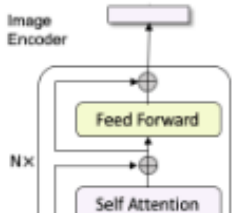
Inference Endpoints | arxiv:2201.12086 | License: bsd-3-clause

Model card | Files | Community 37 | Train | Deploy | Use this model

Edit model card

BLIP: Bootstrapping Language-Image Pre-training for Unified Vision-Language Understanding and Generation

Model card for image captioning pretrained on COCO dataset - base architecture (with ViT large backbone).



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Safetensors

or type | I64 · F32

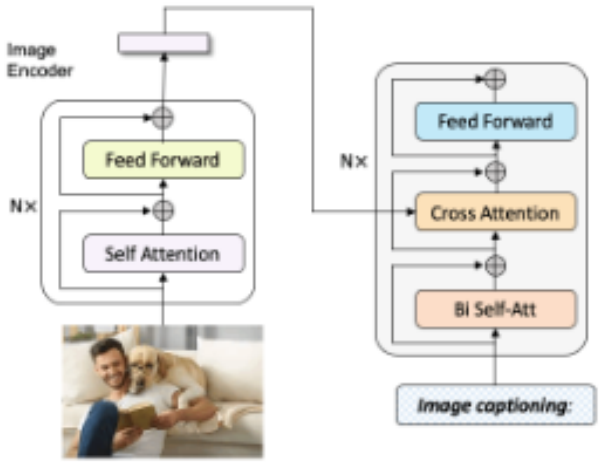
Please login with your Hugging Face account to run the widgets.

Log In or Create a free account

Warm

Drag image file here or click to browse from your device

Model card for image captioning pretrained on COCO dataset - base architecture (with ViT large backbone).



Pull figure from BLIP official repo

TL;DR

Safetensors

Model size | 470M params | Tensor type | I64 · F32

Inference API Warm

Image-to-Text

arafed view of a beach with rocks and a mountain in the background

View Code | 16.7s | 2.4s of compute | Maximize

Hugging Face | Search models, datasets, u: | Models | Datasets | Spaces | Posts | Docs | Pricing

Salesforce / **blip-image-captioning-large** | like 1.13k | Follow Salesforce 346

Image-to-Text | Transformers | PyTorch | TensorFlow | Safetensors | blip | text2text-generation | image-captioning

Inference Endpoints | arxiv:2201.12086 | License: bsd-3-clause

Model card | Files | Community 37 | Train | Deploy | Use this model

Edit model card

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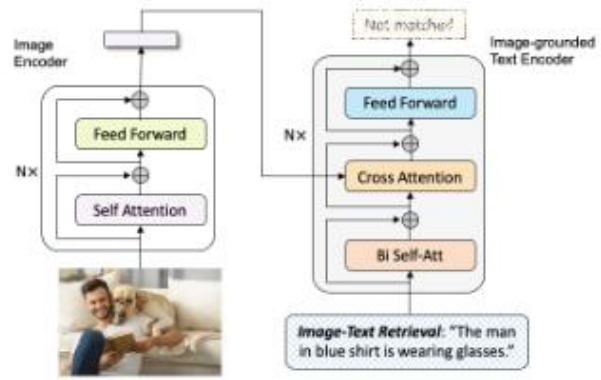
Model card for image captioning pretrained on COCO dataset - base architecture (with ViT large backbone).



Libraries

Downloads last month
2,140,287

Transformers

Safetensors

Model size 470M params | Tensor type I64 · F32

Inference API | Warm

Image-to-Text

Drag image file here or click to browse from your device

View Code | Maximize

Model tree for Salesforce/blip-image-captioni…

How to use from the • Transformers library

```python
# Use a pipeline as a high-level helper
from transformers import pipeline

pipe = pipeline("image-to-text", model="Salesforce/blip-image-captioning-large")
```

Copy

```python
# Load model directly
from transformers import AutoProcessor, AutoModelForSeq2SeqLM

processor = AutoProcessor.from_pretrained("Salesforce/blip-image-captioning-large")
model = AutoModelForSeq2SeqLM.from_pretrained("Salesforce/blip-image-captioning-large")
```

Copy

Quick Links

- Read model documentation
- Read docs on high-level-pipeline
- Read our learning resources

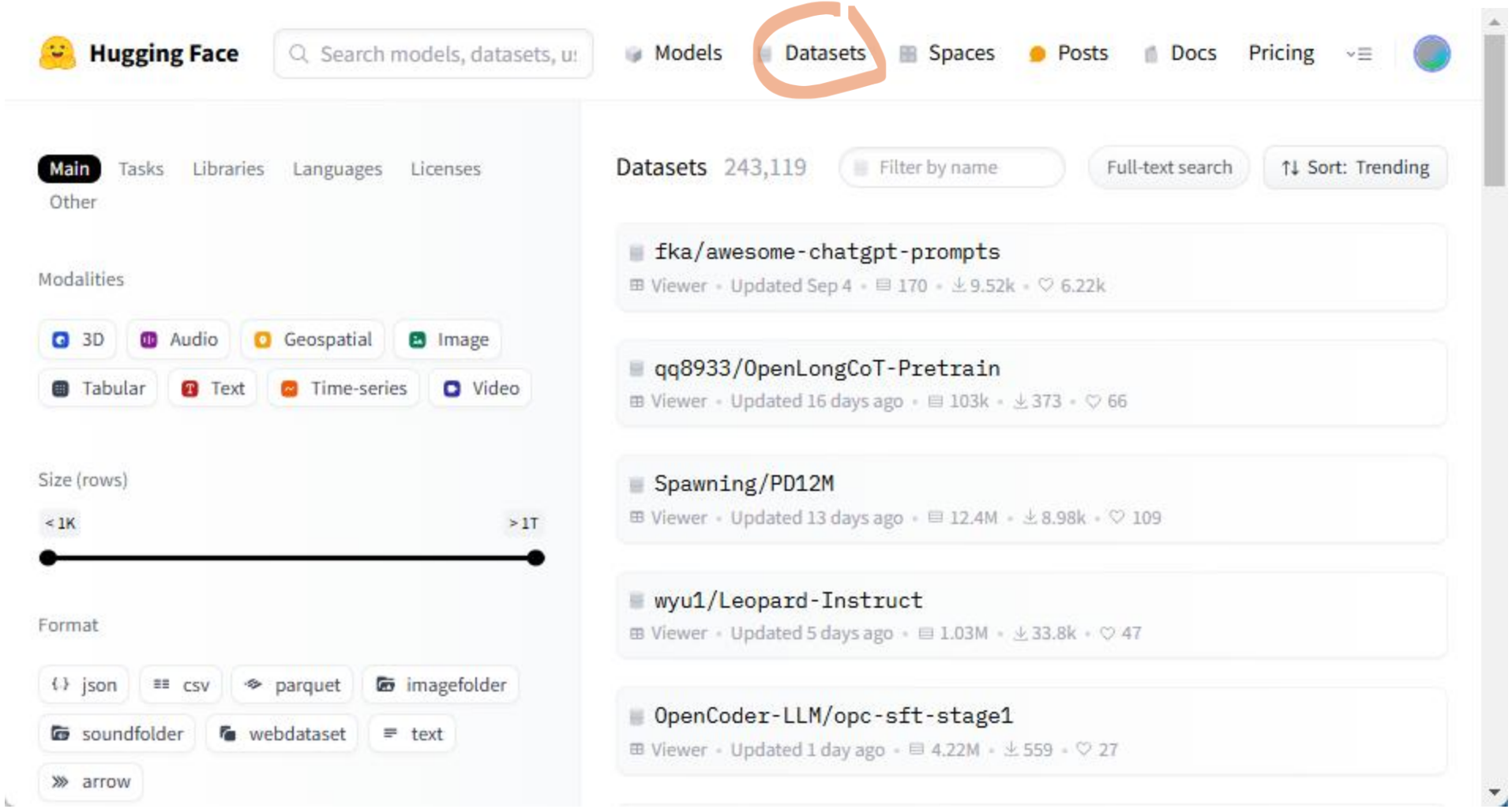
Untitled19.ipynb

파일 수정 보기 삽입 런타임 도구 도움말

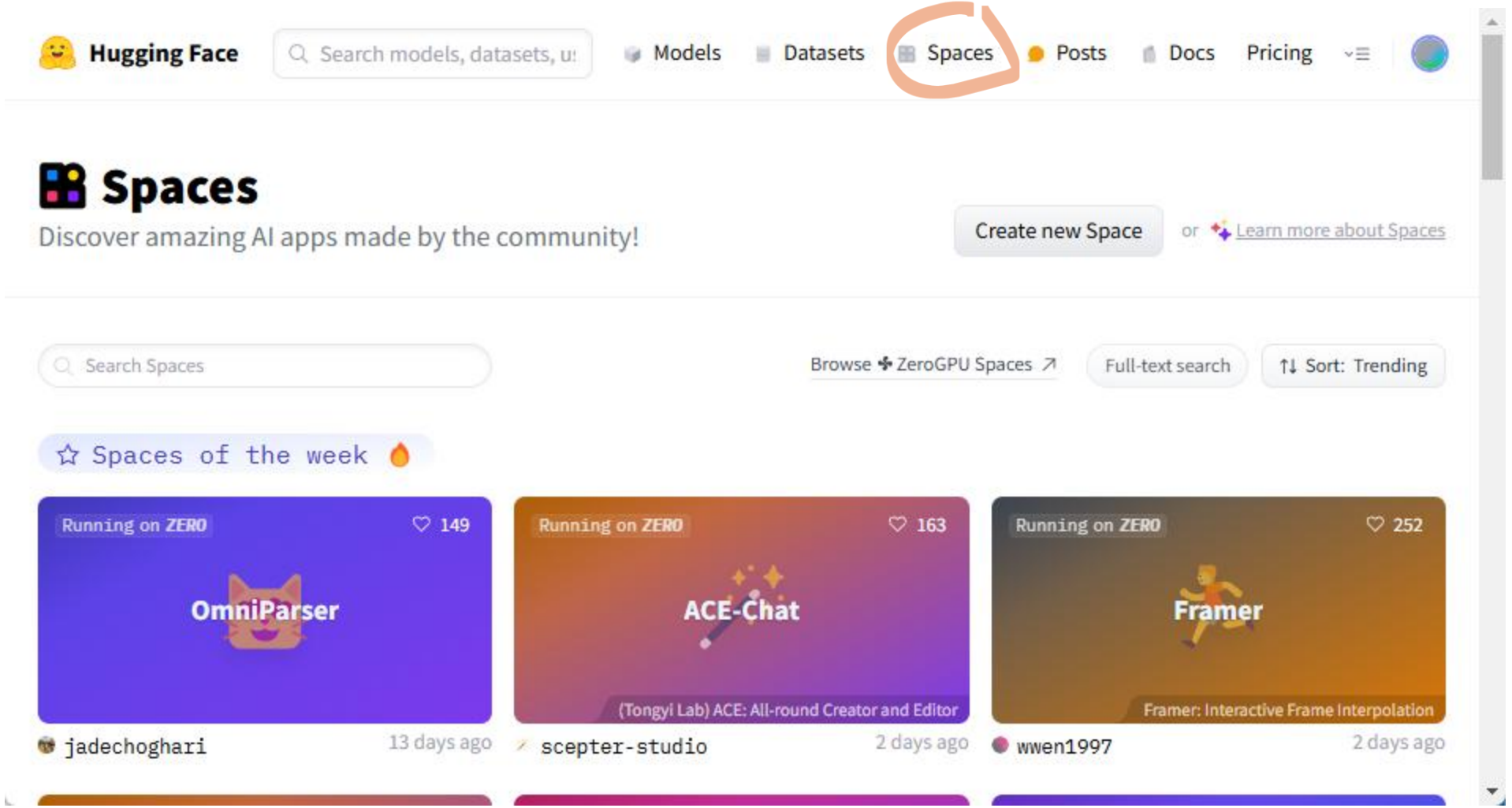
댓글 공유

+ 코드 + 텍스트 연결 Gemini

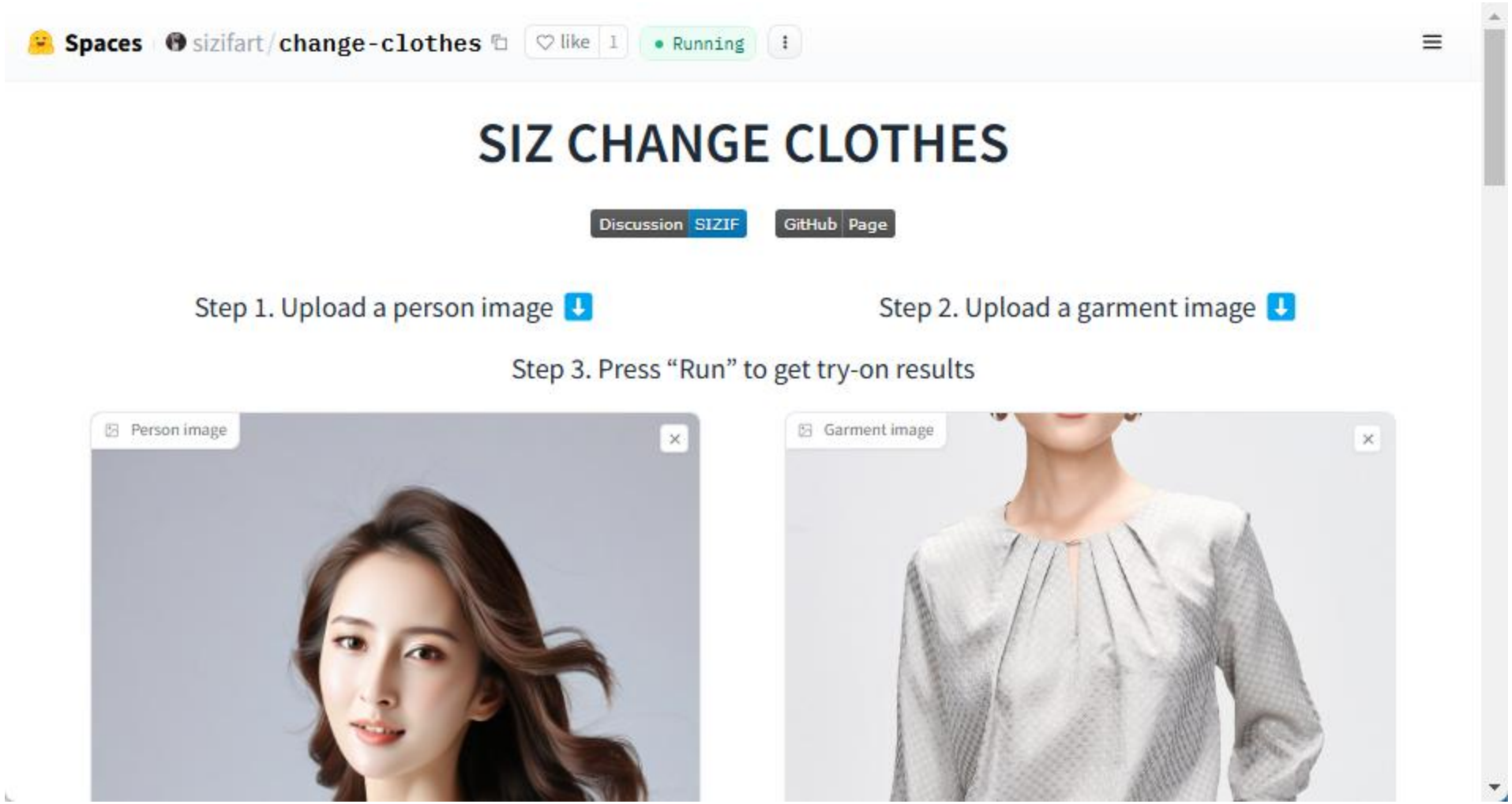
```
# Use a pipeline as a high-level helper
from transformers import pipeline

pipe = pipeline("image-to-text", model="Salesforce/blip-image-captioning-large")
```

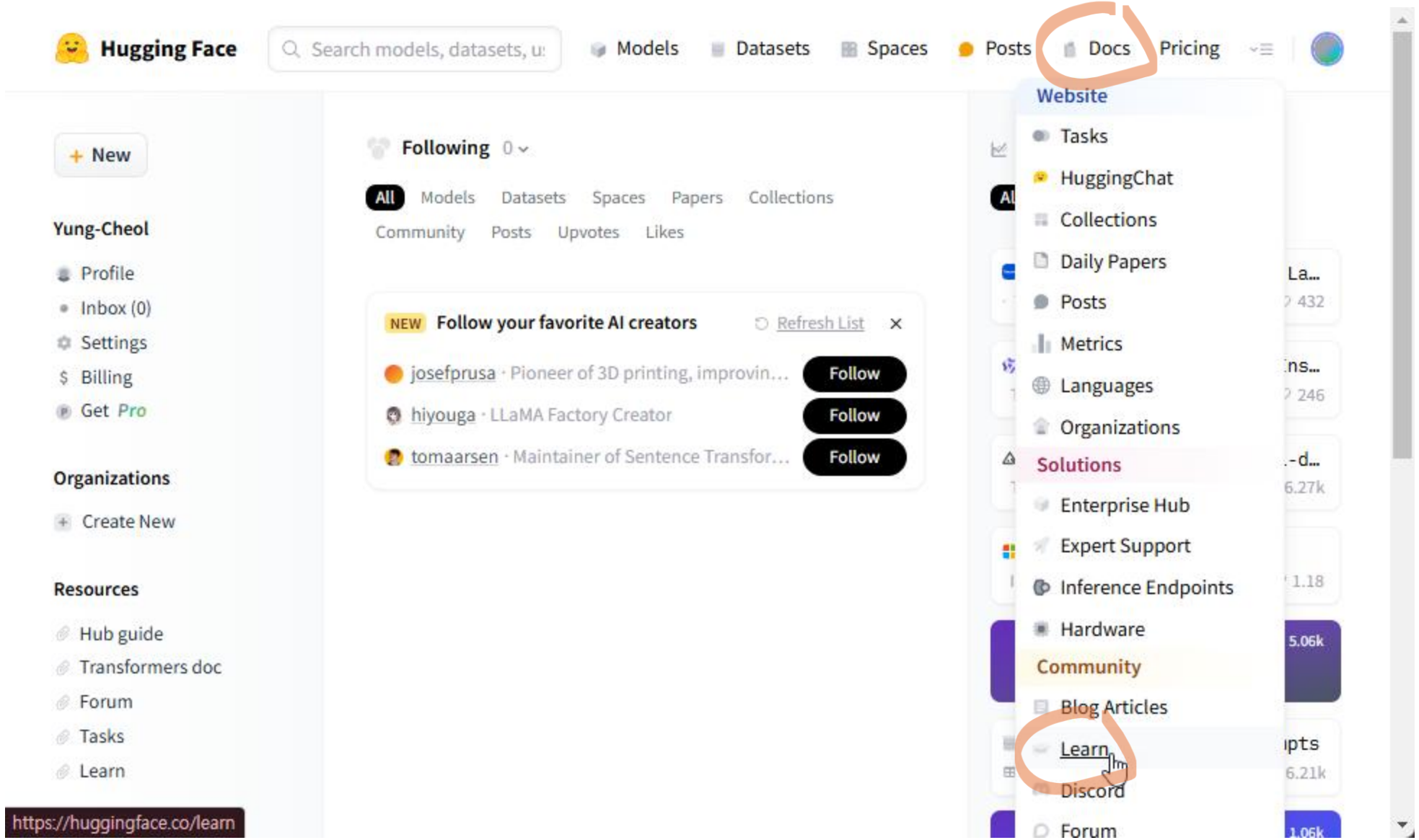

Hugging Face
Search models, datasets, u
Models
Datasets
Spaces
Posts
Docs
Pricing
Main
Tasks
Libraries
Languages
Licenses
Other
Modalities
3D
Audio
Geospatial
Image
Tabular
Text
Time-series
Video
Size (rows)
< 1K
> 1T
Format
json
csv
parquet
imagefolder
soundfolder
webdataset
text
arrow
Datasets 243,119
Filter by name
Full-text search
Sort: Trending
fka/awesome-chatgpt-prompts
Viewer • Updated Sep 4 • 170 • 9.52k • 6.22k
qq8933/OpenLongCoT-Pretrain
Viewer • Updated 16 days ago • 103k • 373 • 66
Spawning/PD12M
Viewer • Updated 13 days ago • 12.4M • 8.98k • 109
wyu1/Leopard-Instruct
Viewer • Updated 5 days ago • 1.03M • 33.8k • 47
OpenCoder-LLM/opc-sft-stage1
Viewer • Updated 1 day ago • 4.22M • 559 • 27

AI 모델과 애플리케이션을 쉽게 배포할 수 있는 곳



https://huggingface.co/spaces/sizifart/**change-clothes**




Hugging Face
Search models, datasets, u
Models
Datasets
Spaces
Posts
Docs
Pricing
+ New
Yung-Cheol
Profile
Inbox (0)
Settings
$ Billing
Get Pro
Organizations
Create New
Resources
Hub guide
Transformers doc
Forum
Tasks
Learn
https://huggingface.co/learn
Following 0
All
Models
Datasets
Spaces
Papers
Collections
Community
Posts
Upvotes
Likes
NEW
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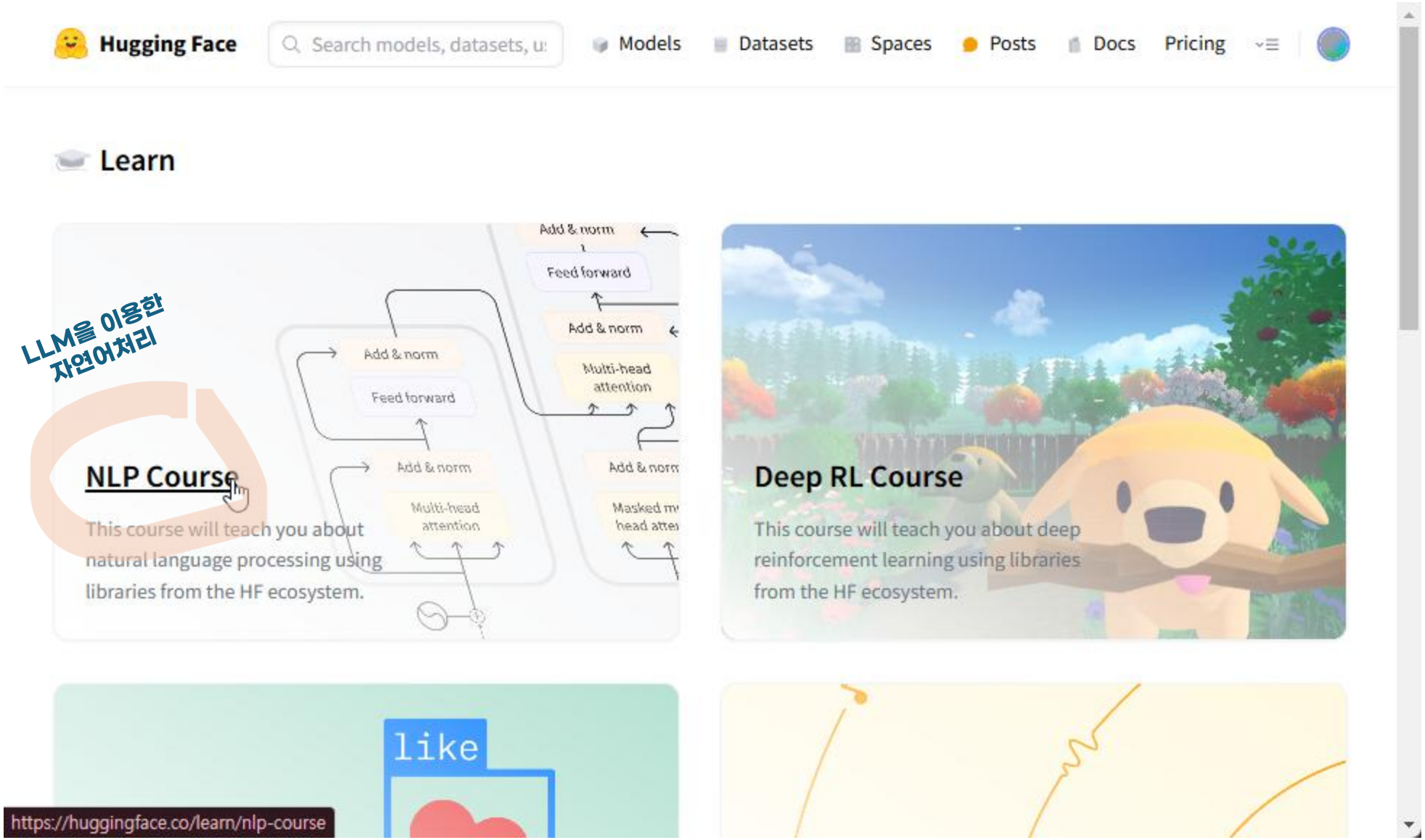
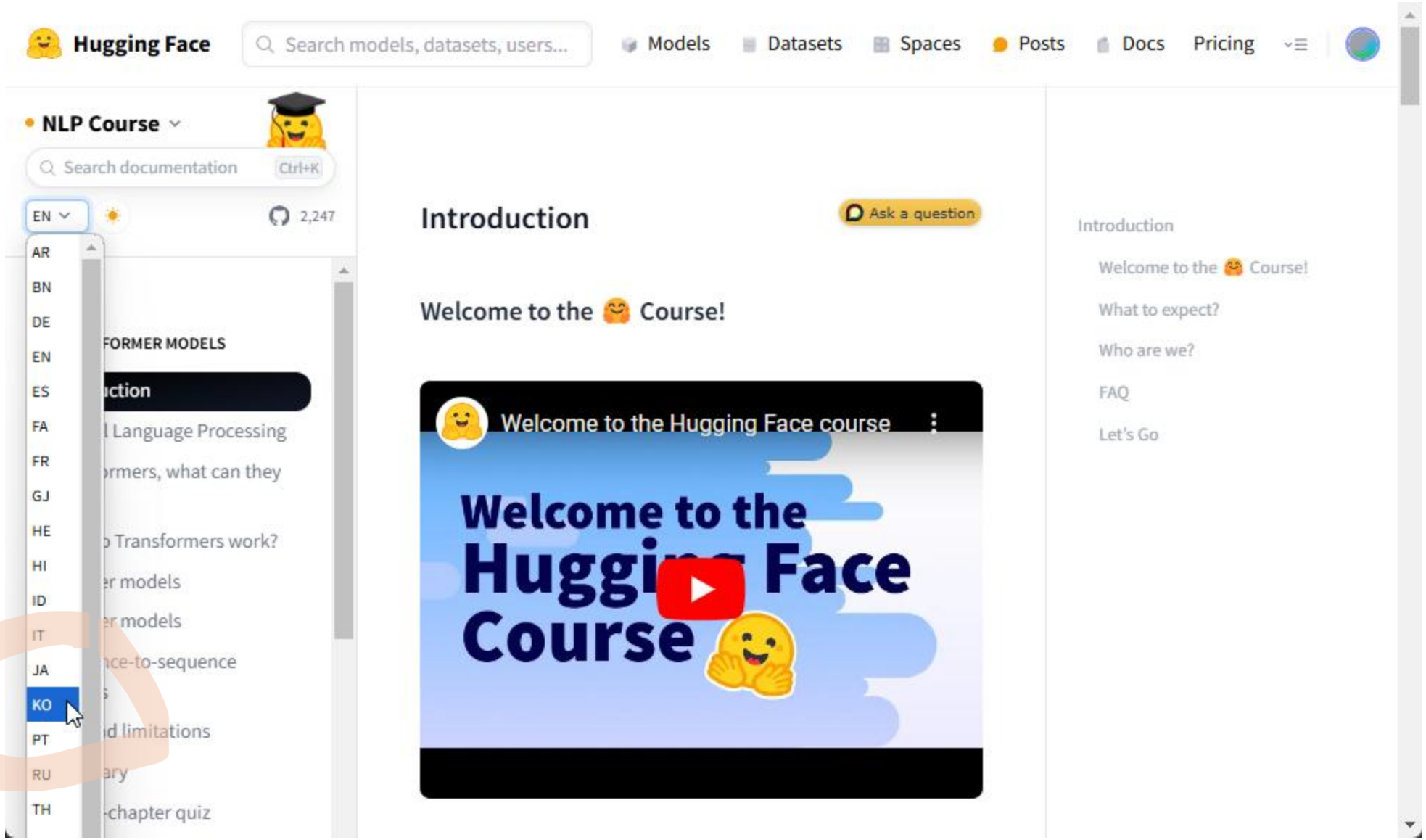
Hugging face NLP Course 구를 검색

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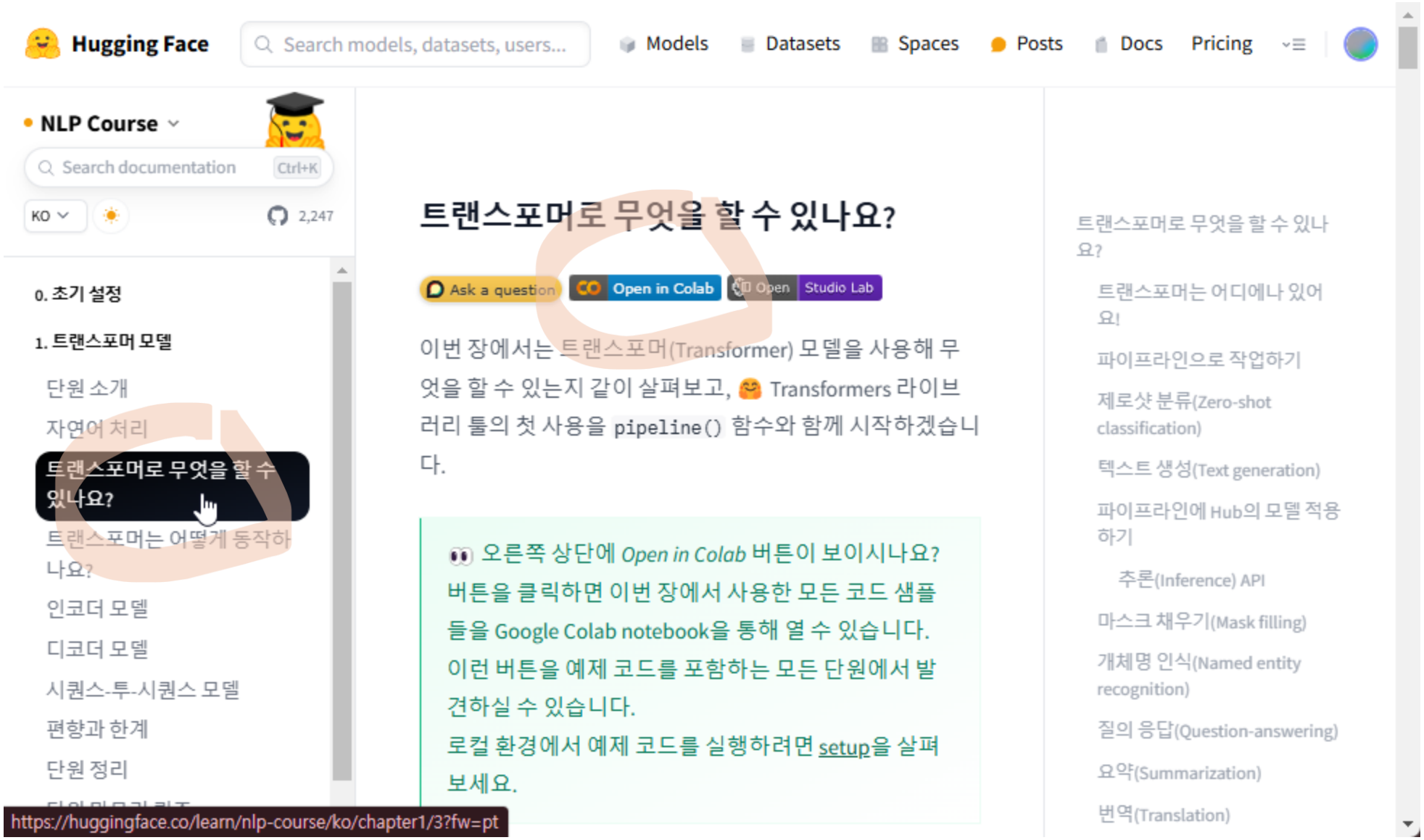
FORMER MODELS
Introduction
Ask a question
Welcome to the 🤗 Course!
Welcome to the Hugging Face course
Welcome to the
Hugging Face
Course
Introduction
Welcome to the 🤗 Course!
What to expect?
Who are we?
FAQ
Let's Go

트랜스포머(Transformer)

자연어 처리(NLP)와 컴퓨터 비전(CV) 분야의 인공지능(AI) 모델을 쉽게 사용하고 실험할 수 있도록 도와주는 툴



sentiment-analysis : 감정 분석

text-generation : 텍스트 생성

fill-mask : 마스크 채우기

NER : 개체명 인식 (named entity recognition)

feature-extraction : 특징 추출 (텍스트에 대한 벡터 표현 추출)

question-answering : 질의 응답

summarization : 요약

translation : 번역

zero-shot-classification : 제로샷 분류

문장의 감정인식

I've been waiting for a HuggingFace course my whole life.

```
from transformers import pipeline

classifier = pipeline("sentiment-analysis")
classifier("I've been waiting for a HuggingFace course my whole life.")
```

```
classifier(
    ["I've been waiting for a HuggingFace course my whole life.", "I hate this so much!"]
)
```

이어서 문장 생성

“

In this course, we will teach you how to ...

```
from transformers import pipeline

generator = pipeline("text-generation", model="distilgpt2")
generator(
    "In this course, we will teach you how to",
    max_length=30,
    num_return_sequences=2,
)
```

빈 곳〈mask〉 채우기

“

This course will teach you all about <mask> models.

```
from transformers import pipeline


unmasker = pipeline("fill-mask")
unmasker("This course will teach you all about <mask> models.", top_k=2)
```

엔티티 인식

“

My name is Sylvain and I work at Hugging Face in Brooklyn.

```
from transformers import pipeline


ner = pipeline("ner", grouped_entities=True)
ner("My name is Sylvain and I work at Hugging Face in Brooklyn.")
```

질문에 대답하기

“

My name is Sylvain and I work at Hugging Face in Brooklyn. Where do I work?

```
from transformers import pipeline


question_answerer = pipeline("question-answering")
question_answerer(
    question="Where do I work?",
    context="My name is Sylvain and I work at Hugging Face in Brooklyn",
)
```

요약하기

```
from transformers import pipeline

summarizer = pipeline("summarization")
summarizer(
    """
    America has changed dramatically during recent years. Not only has the number of
    graduates in traditional engineering disciplines such as mechanical, civil,
    electrical, chemical, and aeronautical engineering declined, but in most of
    the premier American universities engineering curricula now concentrate on
    and encourage largely the study of engineering science. As a result, there
    are declining offerings in engineering subjects dealing with infrastructure,
    the environment, and related issues, and greater concentration on high
    technology subjects, largely supporting increasingly complex scientific
    developments. While the latter is important, it should not be at the expense
    of more traditional engineering.

    Rapidly developing economies such as China and India, as well as other
    industrial countries in Europe and Asia, continue to encourage and advance
    the teaching of engineering. Both China and India, respectively, graduate
    six and eight times as many traditional engineers as does the United States.
    Other industrial countries at minimum maintain their output, while America
    suffers an increasingly serious decline in the number of engineering graduates
    and a lack of well-educated engineers.
"""
)
```

제로샷 분류(Zero-shot classification)

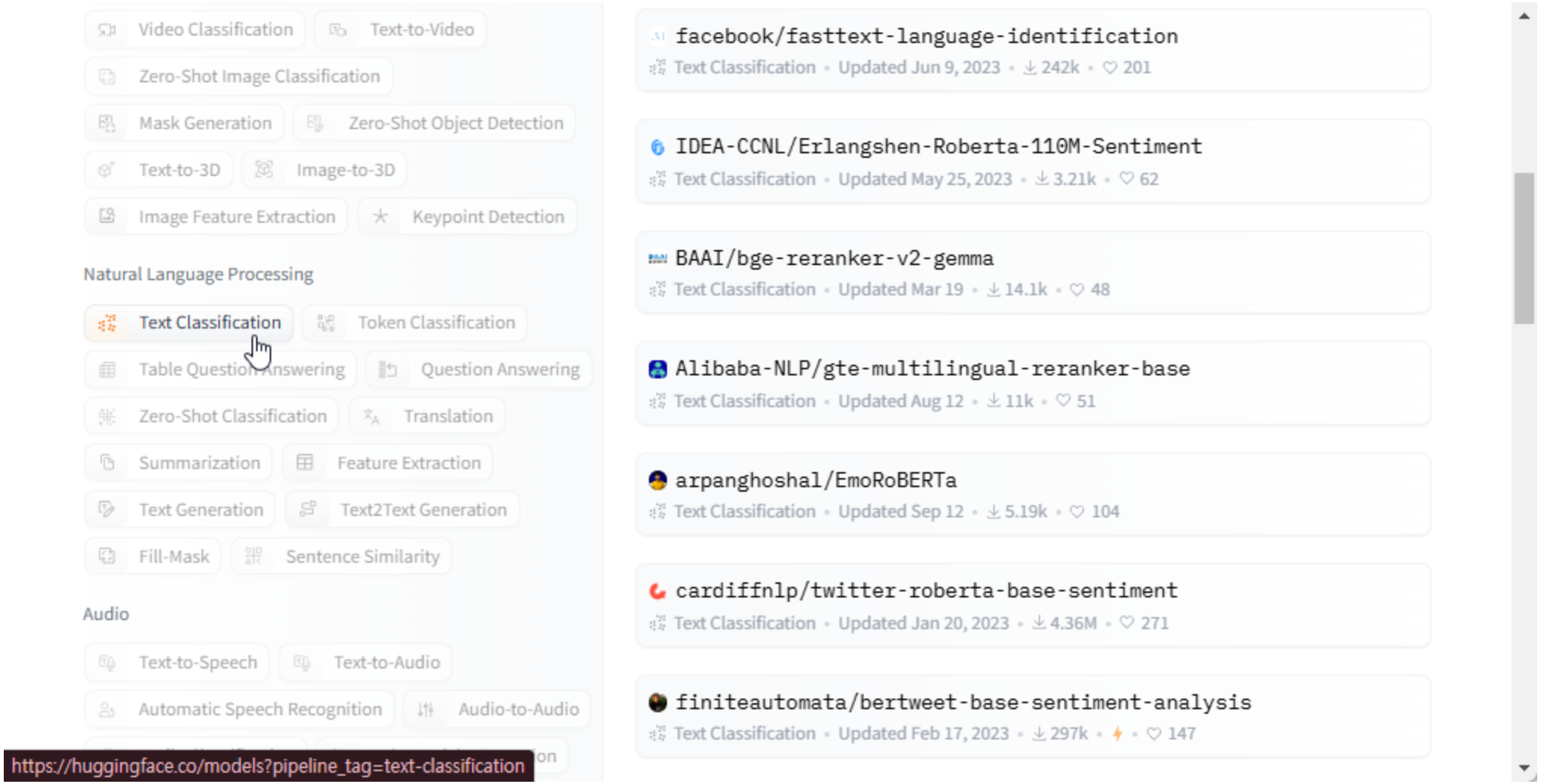
주어진 문장이 어떤 내용인지 분류

```
from transformers import pipeline


classifier = pipeline("zero-shot-classification")
classifier(
    "This is a course about the Transformers library",
    candidate_labels=["education", "politics", "business"],
)
```

파이프라인에 Hub의 모델 적용

- Hub는 Hugging Face Hub를 의미하며, 딥러닝 모델, 데이터셋, 데모 앱 등을 공유할 수 있는 플랫폼
- Hub은 수많은 미리 학습된(pre-trained) 모델들이 있으며, pipeline 함수에서 model= " distilgpt2 " 와 같이 모델 이름을 지정하면, Hub에서 해당 모델 파일을 자동으로 다운로드하여 로드/사용할 수 있음.

```
from transformers import pipeline


generator = pipeline("text-generation", model="distilgpt2")
generator(
    "In this course, we will teach you how to",
    max_length=30,
    num_return_sequences=2,
)
```


Video Classification
Text-to-Video
Zero-Shot Image Classification
Mask Generation
Zero-Shot Object Detection
Text-to-3D
Image-to-3D
Image Feature Extraction
Keypoint Detection
Natural Language Processing
Text Classification
Token Classification
Table Question Answering
Question Answering
Zero-Shot Classification
Translation
Summarization
Feature Extraction
Text Generation
Text2Text Generation
Fill-Mask
Sentence Similarity
Audio
Text-to-Speech
Text-to-Audio
Automatic Speech Recognition
Audio-to-Audio
https://huggingface.co/models?pipeline_tag=text-classification
facebook/fasttext-language-identification
Text Classification • Updated Jun 9, 2023 • 242k • 201
IDEA-CCNL/Erlangshen-Roberta-110M-Sentiment
Text Classification • Updated May 25, 2023 • 3.21k • 62
BAAI/bge-reranker-v2-gemma
Text Classification • Updated Mar 19 • 14.1k • 48
Alibaba-NLP/gte-multilingual-reranker-base
Text Classification • Updated Aug 12 • 11k • 51
arpanghoshal/EmoRoBERTa
Text Classification • Updated Sep 12 • 5.19k • 104
cardiffnlp/twitter-roberta-base-sentiment
Text Classification • Updated Jan 20, 2023 • 4.36M • 271
finiteautomata/bertweet-base-sentiment-analysis
Text Classification • Updated Feb 17, 2023 • 297k • 147

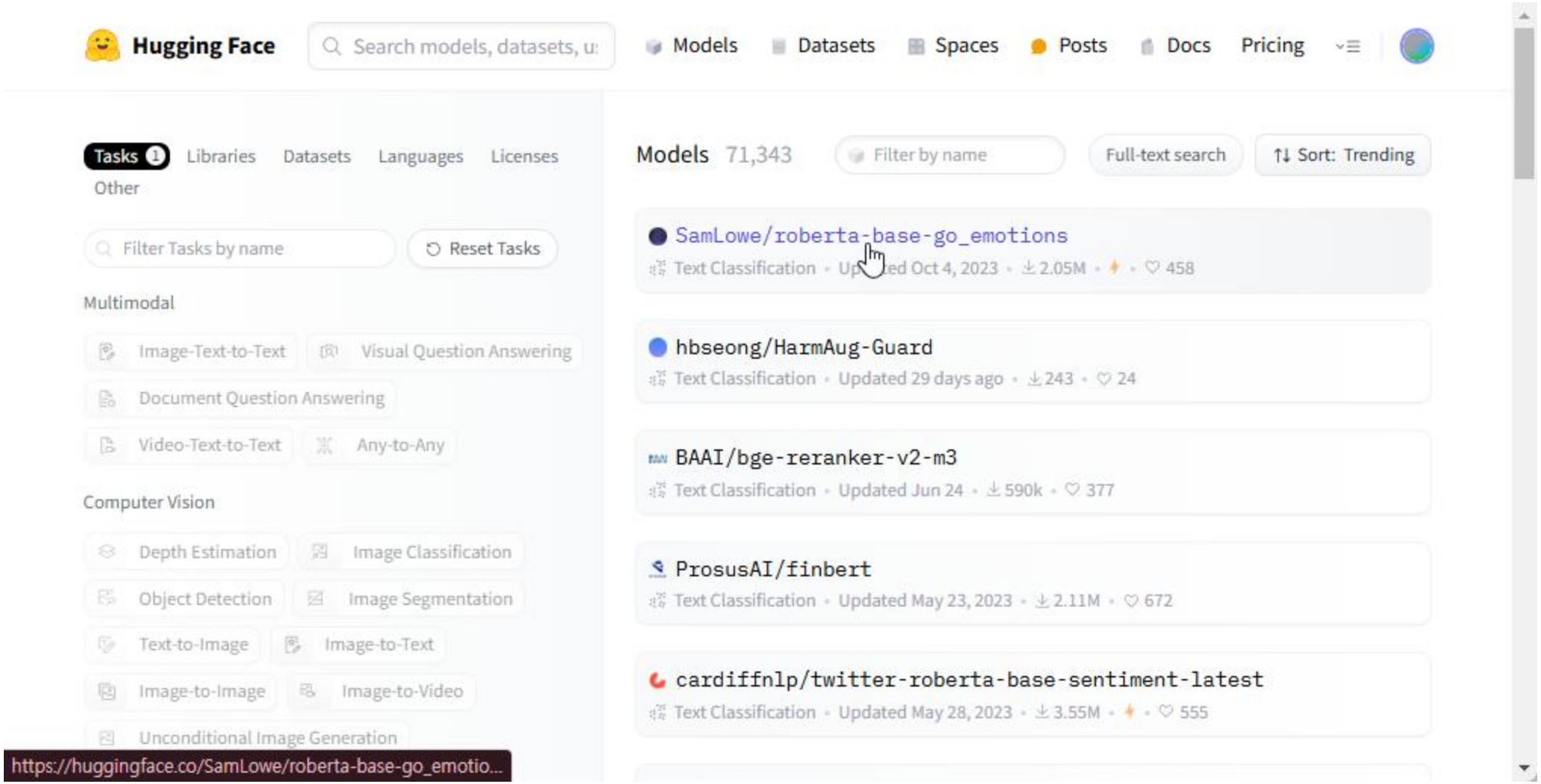

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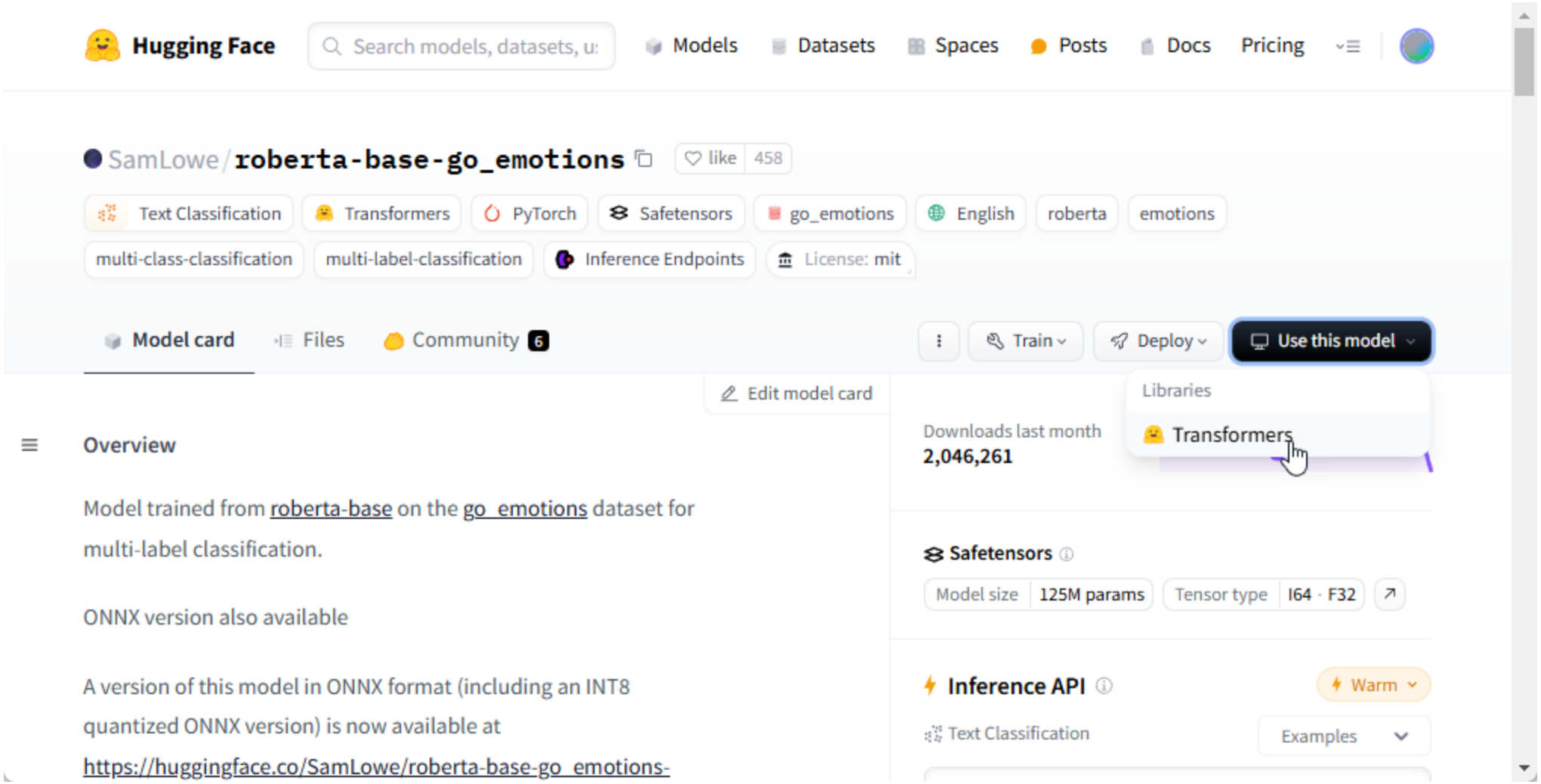
Image-Text-to-Text
Visual Question Answering
Document Question Answering
Video-Text-to-Text
Any-to-Any
Computer Vision
Depth Estimation
Image Classification
Object Detection
Image Segmentation
Text-to-Image
Image-to-Text
Image-to-Image
Image-to-Video
Unconditional Image Generation
https://huggingface.co/SamLowe/roberta-base-go_emotio...
Models 71,343
Filter by name
Full-text search
Sort: Trending
SamLowe/roberta-base-go_emotions
Text Classification • Updated Oct 4, 2023 • 2.05M • 458
hbseong/HarmAug-Guard
Text Classification • Updated 29 days ago • 243 • 24
BAAI/bge-reranker-v2-m3
Text Classification • Updated Jun 24 • 590k • 377
ProsusAI/finbert
Text Classification • Updated May 23, 2023 • 2.11M • 672
cardiffnlp/twitter-roberta-base-sentiment-latest
Text Classification • Updated May 28, 2023 • 3.55M • 555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Safetensors
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emotions
multi-class-classification
multi-label-classification
Inference Endpoints
License: mit
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Files
Community 6
Train
Deploy
Use this model
Edit model card
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Transformers
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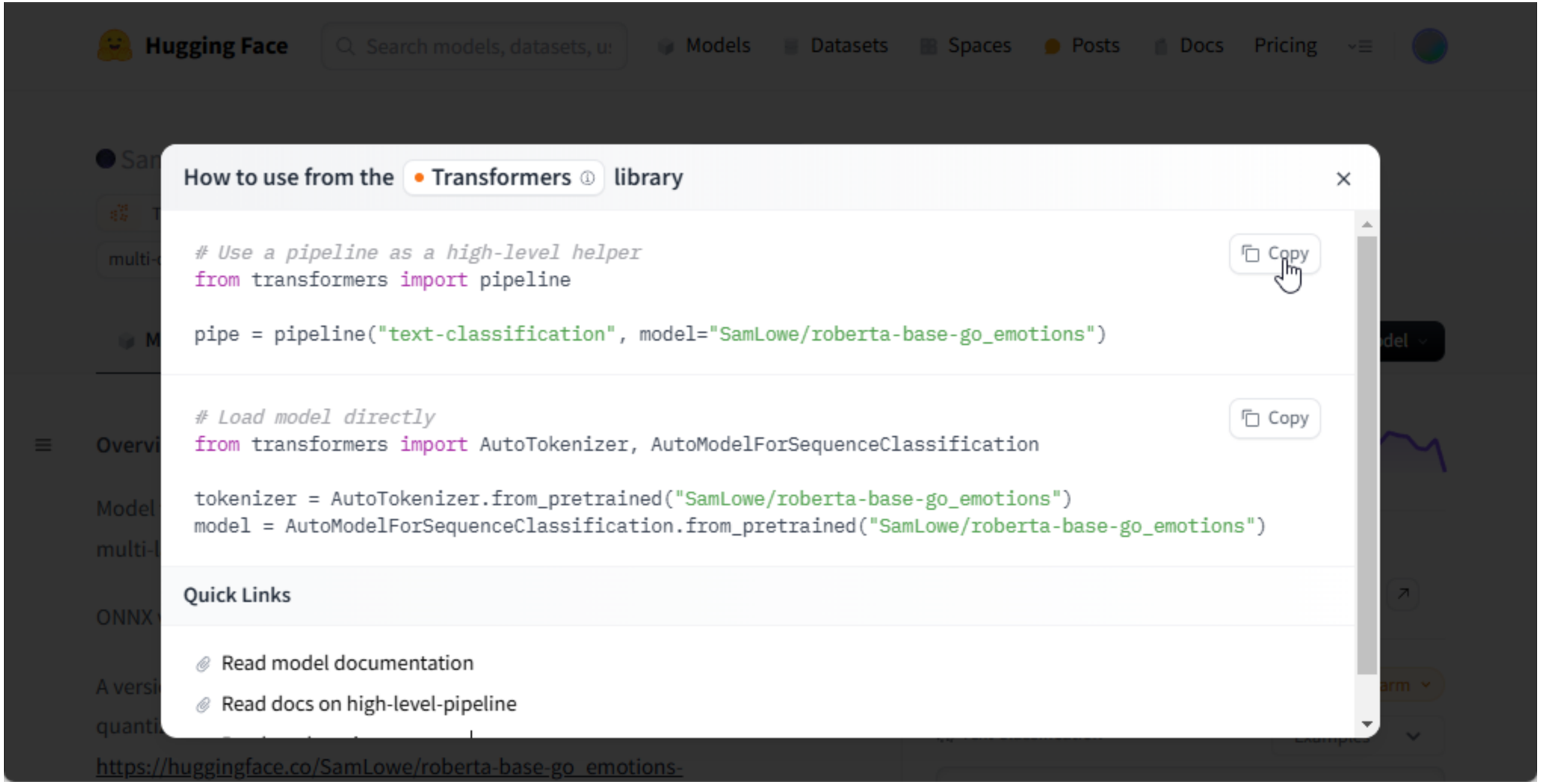
Overview
Model trained from roberta-base on the go_emotions dataset for multi-label classification.
ONNX version also available
A version of this model in ONNX format (including an INT8 quantized ONNX version) is now available at https://huggingface.co/SamLowe/roberta-base-go_emotions-
Safetensors
Model size 125M params
Tensor type I64 · F32
Inference API
Warm
Text Classification
Examples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Models
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How to use from the Transformers library
# Use a pipeline as a high-level helper
from transformers import pipeline
pipe = pipeline("text-classification", model="SamLowe/roberta-base-go_emotions")
Copy
# Load model directly
from transformers import AutoTokenizer, AutoModelForSequenceClassification
tokenizer = AutoTokenizer.from_pretrained("SamLowe/roberta-base-go_emotions")
model = AutoModelForSequenceClassification.from_pretrained("SamLowe/roberta-base-go_emotions")
Copy
Quick Links
Read model documentation
Read docs on high-level-pipeline
https://huggingface.co/SamLowe/roberta-base-go_emotions-

번역(Translation)

```
from transformers import pipeline


translator = pipeline("translation", model="Helsinki-NLP/opus-mt-fr-en")
translator("Ce cours est produit par Hugging Face.")
```

어려운 것? 아니 **생소한** 것.

말과 경쟁하려
하지 말고 말 위에
올라타라

패러다임 파괴자,
희생될 것인가, 올라탈 것인가?