



+ Code + Text

RAM Disk

[1] !nvidia-smi

```
Thu Mar 2 22:54:46 2023
+-----+
| NVIDIA-SMI 525.85.12    Driver Version: 525.85.12    CUDA Version: 12.0 |
+-----+
| GPU Name      Persistence-M| Bus-Id     Disp.A  Volatile Uncorr. ECC | | |
| Fan  Temp  Perf  Pwr:Usage/Cap| Memory-Usage | GPU-Util  Compute M. |
|                               |             |            | MIG M. |
+-----+
|   0  Tesla T4           Off  00000000:00:04.0 Off        0 |
| N/A   42C   P0    26W /  70W |      0MiB / 15360MiB |     0%      Default |
|                               |                  |            | N/A |
+-----+
+-----+
| Processes:
| GPU  GI  CI      PID  Type  Process name          GPU Memory |
| ID   ID
+-----+
| No running processes found
+-----+
```

[2] !pip -q install --upgrade --no-cache-dir gdown
!pip -q install transformers
!pip -q install multilingual-clip
!pip -q install ftfy regex tqdm
!pip -q install git+https://github.com/openai/CLIP.git
!pip -q install pandas -U
!pip -q install arabic-reshaper
!pip -q install python-bidi

```
6.3/6.3 MB 66.6 MB/s eta 0:00:00
190.3/190.3 KB 23.7 MB/s eta 0:00:00
7.6/7.6 MB 89.6 MB/s eta 0:00:00
53.1/53.1 KB 4.3 MB/s eta 0:00:00
Preparing metadata (setup.py) ... done
Building wheel for clip (setup.py) ... done
12.2/12.2 MB 97.9 MB/s eta 0:00:00
```

[3] !git clone https://github.com/ammarnasr/Multi-Lingual-Image-Captioning.git
!gdown --id 1sHQMEEOFoJ10TrJW0eE5diYWNM4x00xRN
!unzip -qq /content/data.zip -d /content/Multi-Lingual-Image-Captioning
!rm /content/data.zip

```
Cloning into 'Multi-Lingual-Image-Captioning'...
remote: Enumerating objects: 186, done.
remote: Counting objects: 100% (186/186), done.
remote: Compressing objects: 100% (142/142), done.
remote: Total 186 (delta 103), reused 123 (delta 44), pack-reused 0
Receiving objects: 100% (186/186), 26.05 MiB | 15.59 MiB/s, done.
Resolving deltas: 100% (103/103), done.
/usr/local/lib/python3.8/dist-packages/gdown/cli.py:121: FutureWarning: Option `--id` was deprecated in version 4.3.1 and will be removed in 5.0.
  warnings.warn(
Downloading...
From: https://drive.google.com/uc?id=1sHQMEEOFoJ10TrJW0eE5diYWNM4x00xRN
To: /content/data.zip
100% 1.14G/1.14G [00:21<00:00, 52.3MB/s]
```

[4] from os import listdir
from os.path import isfile, join
import shutil
import os
os.chdir('/content/Multi-Lingual-Image-Captioning')
os.getcwd()

```
def copy_ckpts():
    '''Copy Saved Checkpoints from Colab to drive/MyDrive/Multi-Lingual-Image-Captioning/checkpoints'''
    checkpoints_dir = './checkpoints'
    checkpoints_dir_drive = '/content/drive/MyDrive/Multi-Lingual-Image-Captioning/checkpoints'
    ckpt_files = [f for f in listdir(checkpoints_dir) if isfile(join(checkpoints_dir, f))]
    for ckpt_file in ckpt_files :
        src = join(checkpoints_dir, ckpt_file)
        dst = join(checkpoints_dir_drive, ckpt_file)
        shutil.copyfile(src, dst)
```

```
##### Edit The Parameters and run the code to start expriment #####
exp_args = ''

#create a class called demo args to store the arguments
class DemoArgs:
    def __init__(self):
        self.data = './data/embeddings/arabic_CLIP-ViT-B-32_embeddings.pkl'
        self.lang = 'arabic'
        self.out_dir = './checkpoints'
        self.output_prefix = 'arabic_exp_1'
        self.epochs = 30
        self.save_every = 3
        self.prefix_length = 10
        self.prefix_length_clip = 10
        self.bs = 40
        self.only_prefix = True
        self.mapping_type = 'transformer'
        self.num_layers = 8
        self.is_rn = False
        self.normalize_prefix = False

    ...
    with open('args.py', 'w') as f:
        f.write(exp_args)

!python train_gpt.py
copy_ckpts()

...
2023-03-02 22:58:19.210843: I tensorflow/core/platform/cpu_feature_guard.cc:193] This TensorFlow binary is optimized with oneAPI Deep Neural Network primitives. To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
2023-03-02 22:58:20.058110: W tensorflow/compiler/xla/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libnvinfer.so.1'. If you have a GPU, please try explicitly setting the environment variable 'TF_FORCE_GPU_ALLOW_GROWTH' to 'true'.
2023-03-02 22:58:20.058228: W tensorflow/compiler/xla/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libnvinfer_plugin.so.1'. If you have a GPU, please try explicitly setting the environment variable 'TF_FORCE_GPU_ALLOW_GROWTH' to 'true'.
2023-03-02 22:58:20.058246: W tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Cannot dlopen some TensorRT libraries. If you are using a GPU, please try explicitly setting the environment variable 'TF_FORCE_GPU_ALLOW_GROWTH' to 'true'.
Downloading (...)okenizer_config.json: 100% 30.0/30.0 [00:00<00:00, 4.84kB/s]
Downloading (...)lve/main/config.json: 100% 666/666 [00:00<00:00, 36.4kB/s]
Downloading (...)olve/main/vocab.json: 100% 1.55M/1.55M [00:01<00:00, 1.16MB/s]
Downloading (...)olve/main/merges.txt: 100% 1.21M/1.21M [00:01<00:00, 1.09MB/s]
Downloading (...)cial_tokens_map.json: 100% 120/120 [00:00<00:00, 37.6kB/s]
Data size is 24273
/usr/local/lib/python3.8/dist-packages/transformers/models/auto/modeling_auto.py:1248: FutureWarning: The class `AutoModelWithLMHead` is deprecated.
  warnings.warn(
Downloading (...)pytorch_model.bin";: 100% 510M/510M [00:28<00:00, 17.7MB/s]
/usr/local/lib/python3.8/dist-packages/transformers/optimization.py:306: FutureWarning: This implementation of AdamW is deprecated and will be removed in v4.0.0.
  warnings.warn(
>>> Training epoch 0
arabic_exp_1: 100% 606/606 [05:46<00:00,  1.75it/s, loss=5.12]
>>> Training epoch 1
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=4.34]
>>> Training epoch 2
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=4.52]
>>> Training epoch 3
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=4.85]
>>> Training epoch 4
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=4.02]
>>> Training epoch 5
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=3.79]
>>> Training epoch 6
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=4.07]
>>> Training epoch 7
arabic_exp_1: 100% 606/606 [05:51<00:00,  1.72it/s, loss=4.02]
>>> Training epoch 8
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=3.79]
>>> Training epoch 9
arabic_exp_1: 100% 606/606 [05:53<00:00,  1.72it/s, loss=4.08]
>>> Training epoch 10
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=3.65]
>>> Training epoch 11
arabic_exp_1: 100% 606/606 [05:51<00:00,  1.72it/s, loss=3.7]
>>> Training epoch 12
arabic_exp_1: 100% 606/606 [05:51<00:00,  1.72it/s, loss=3.5]
>>> Training epoch 13
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=3.5]
>>> Training epoch 14
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=3.43]
>>> Training epoch 15
arabic_exp_1: 100% 606/606 [05:51<00:00,  1.72it/s, loss=3.37]
>>> Training epoch 16
arabic_exp_1: 100% 606/606 [05:51<00:00,  1.73it/s, loss=3.38]
>>> Training epoch 17
arabic_exp_1: 100% 606/606 [05:52<00:00,  1.72it/s, loss=3.18]
```

```
>>> Training epoch 18
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.88]
>>> Training epoch 19
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.65]
>>> Training epoch 20
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.98]
>>> Training epoch 21
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.84]
>>> Training epoch 22
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.73it/s, loss=2.51]
>>> Training epoch 23
arabic_exp_1: 100% 606/606 [05:52<00:00, 1.72it/s, loss=2.65]
>>> Training epoch 24
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.53]
>>> Training epoch 25
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.52]
>>> Training epoch 26
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.39]
>>> Training epoch 27
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.56]
>>> Training epoch 28
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.3]
>>> Training epoch 29
arabic_exp_1: 100% 606/606 [05:51<00:00, 1.72it/s, loss=2.53]
...
...
```

```
57s [6] import inference_gpt
ckpt_path = '/content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-029.pt'
inference_gpt.main(ckpt_path)
```



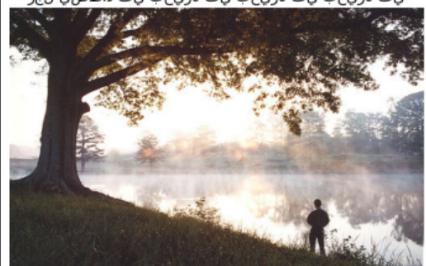
بعض الناس في بركة في بركة السمك في بركة

كلب يف كمسلى ها كلب يف كلب سانلى ضع



رجل يصطاد في بحيرة في بحيرة في بحيرة

يف فريج بيف فريج بيف فريج بيف فريج



شخص في قارب في المحيط الأطلسي

يسأل طالب طالب طالب طالب طالب طالب طالب



```
!zip -r /content/arabic/arabic_exp_1.zip /content/Multi-Lingual-Image-Captioning/checkpoints/
!cp /content/arabic/arabic_exp_1.zip /content/drive/MyDrive/Multi-Lingual-Image-Captioning/checkpoints
```

```
!cp ./content/arabic/arabic_exp_1.zip ./content/drive/MyDrive/Multi-Lingual-Image-Captioning/checkpoints
```

```
adding: content/Multi-Lingual-Image-Captioning/checkpoints/ (stored 0%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-027.pt (deflated 34%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-006.pt (deflated 34%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-024.pt (deflated 34%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-012_args.pkl (deflated 26%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-018.pt (deflated 34%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-018_args.pkl (deflated 26%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-029_args.pkl (deflated 26%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-009.pt (deflated 34%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-009_args.pkl (deflated 26%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-029.pt (deflated 34%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-003_args.pkl (deflated 26%)  
adding: content/Multi-Lingual-Image-Captioning/checkpoints/arabic_exp_1-015.pt
```

```
[ ]
```

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Executing (2s) Cell > system() > _system_compat() > _run_command() > _monitor_process() > _poll_process()

...

X