咕泡科技
GUPAO TECH

预训练模型和训练

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下载ngc

wget "https://ngc.nvidia.com/downloads/ngccli_cat_linux.zip -P /home/ljy/cv_samples_v1.4.0/ngccli"

unzip -u "/home/ljy/cv_samples_v1.4.0/ngccli/ngccli_cat_linux.zip" -d /home/ljy/cv_samples_v1.4.0/ngccli/

把ngc命令加入路径

export PATH=$PATH:/home/ljy/cv_samples_v1.4.0/ngccli/

查询预训练模型

ngc registry model list nvstaging/tao/pretrained_object_detection:*
官方给的查询命令是错的

正确的是：
ngc registry model list nvidia/tao/pretrained_object_detection:*

查询预训练模型

```
(launcher) ljy@server-desktop:~$ ngc registry model list nvidia/tao/pretrained_object_detection:*
```

Version	Accuracy	Epochs	Batch Size	GPU Model	Memory Footprint	File Size	Status	Created Date
vgg19	77.56	80	1	V100	153.7	153.72 MB	UPLOAD_COMPLETE	Aug 18, 2021
vgg16	77.17	80	1	V100	113.2	113.16 MB	UPLOAD_COMPLETE	Aug 18, 2021
squeezenet	65.13	80	1	V100	6.5	6.46 MB	UPLOAD_COMPLETE	Aug 18, 2021
resnet50	77.91	80	1	V100	294.2	294.2 MB	UPLOAD_COM	Aug 18

下载预训练模型

```
# Pull pretrained model from NGC
官方给的错误:
ngc registry model download-version nvstaging/tao/pretrained_object_
                    --dest /home/ljy/cv_samples_v1.4.0/yolo_v4_tiny/pretraine

正确的如下:
ngc registry model download-version nvidia/tao/pretrained_object_dete
                    --dest /home/ljy/cv_samples_v1.4.0/yolo_v4_tiny/pretraine
```

修改配置文件

yolo_v4_tiny_train_kitti.txt文件 改为

```
target_class_mapping {
    key: "car"
    value: "car"
}
target_class_mapping {
    key: "pedestrian"
    value: "pedestrian"
}
target_class_mapping {
    key: "cyclist"
    value: "cyclist"
}
target_class_mapping {
    key: "van"
    value: "car"
}
target_class_mapping {
    key: "person_sitting"
    value: "pedestrian"
}
validation_data_sources: {
    tfrecords_path: "/workspace/tao-experiments/data/val/tfrecords/val*"
    image_directory_path: "/workspace/tao-experiments/data/val"
}
```

```
target_class_mapping {
    key: "pingpang"
    value: "pingpang"
}
```

修改配置文件

yolo_v4_tiny_train_kitti.txt文件 改为

```
  output_height: 384
  output_channel: 3
  randomize_input_shape_period: 10
  mosaic_prob: 0.5
  mosaic_min_ratio:0.2
}
dataset_config {
  data_sources: {
        tfrecords_path: "/workspace/tao-experiments/data/training/tfrecords/train*"
        image_directory_path: "/workspace/tao-experiments/data/pingpang.v2i.coco/"
  }
  include_difficult_in_training: true
  image_extension: "jpg"
  target_class_mapping {
        key: "pingpang"
        value: "pingpang"
  }
  validation_data_sources: {
        tfrecords_path: "/workspace/tao-experiments/data/val/tfrecords/val*"
        image_directory_path: "/workspace/tao-experiments/data/pingpang.v2i.coco/"
  }
}
```

修改配置文件

yolo_v4_tiny_train_kitti.txt文件
改为： 我3060 12G显存只能1

```
}
training_config {
  visualizer {
        enabled: False
        num_images: 3
  }
  batch_size_per_gpu: 1
  num_epochs: 80
  enable_qat: true
  checkpoint_interval: 10
  learning_rate {
     soft_start_cosine_annealing_schedule {
        min_learning_rate: 1e-7
        max_learning_rate: 1e-4
        soft_start: 0.3
     }
  }
  regularizer {
     type: L1
     weight: 3e-5
  }
  optimizer {
     adam {
        epsilon: 1e-7
        beta1: 0.9
        beta2: 0.999
        amsgrad: false
     }
  }
  pretrain_model_path: "/workspace/tao-
experiments/yolo_v4_tiny/pretrained_cspdarknet_tiny/pretrained_object_detection_vcspdar
}
eval_config {
  average_precision_mode: SAMPLE
  batch_size: 1
  matching_iou_threshold: 0.5
}
nms_config {
  confidence_threshold: 0.001
  clustering_iou_threshold: 0.5
```

TAO 训练模型

```
!mkdir -p $LOCAL_EXPERIMENT_DIR/experiment_dir_unpruned

tao yolo_v4_tiny train -e $SPECS_DIR/yolo_v4_tiny_train_kitti.txt \
                       -r $USER_EXPERIMENT_DIR/experiment_dir_unpruned \
                       -k $KEY \
                       --gpus 1
```

训练过程　模型信息

```
In [14]: print("To run with multigpu, please change --gpus based on the number of available GPUs in your machine.")
         !tao yolo_v4_tiny train -e $SPECS_DIR/yolo_v4_tiny_train_kitti.txt \
                                 -r $USER_EXPERIMENT_DIR/experiment_dir_unpruned \
                                 -k $KEY \
                                 --gpus 1
```

```
rror: could not get source code
/usr/local/lib/python3.6/dist-packages/keras/engine/saving.py:292: UserWarning: No training configuration found in save fil
e: the model was *not* compiled. Compile it manually.
  warnings.warn('No training configuration found in save file: '
INFO: Log file already exists at /workspace/tao-experiments/yolo_v4_tiny/experiment_dir_unpruned/status.json
_____________________________________________________________________________________________________
Layer (type)                 Output Shape              Param #     Connected to
=====================================================================================================
Input (InputLayer)           (None, 3, None, None 0
_____________________________________________________________________________________________________
Input_qdq (QDQ)              (None, 3, None, None 1              Input[0][0]
_____________________________________________________________________________________________________
conv_0 (QuantizedConv2D)     (None, 32, None, Non 864            Input_qdq[0][0]
_____________________________________________________________________________________________________
conv_0_bn (BatchNormalization) (None, 32, None, Non 128          conv_0[0][0]
_____________________________________________________________________________________________________
conv_0_mish (ReLU)           (None, 32, None, Non 0              conv_0_bn[0][0]
_____________________________________________________________________________________________________
conv_0_mish_qdq (QDQ)        (None, 32, None, Non 1              conv_0_mish[0][0]
```

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谢谢观赏

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替换小标题文字，或简要说明

我们的愿景
推动每一次人才升级

我们的使命
让每个人的职业生涯不留遗憾

请在此处输入文字

请在此处插入二维码