咕泡科技
GUPAO TECH

NVIDIA TAO 数据转换

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把coco数据集按TAO的要求用起来

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

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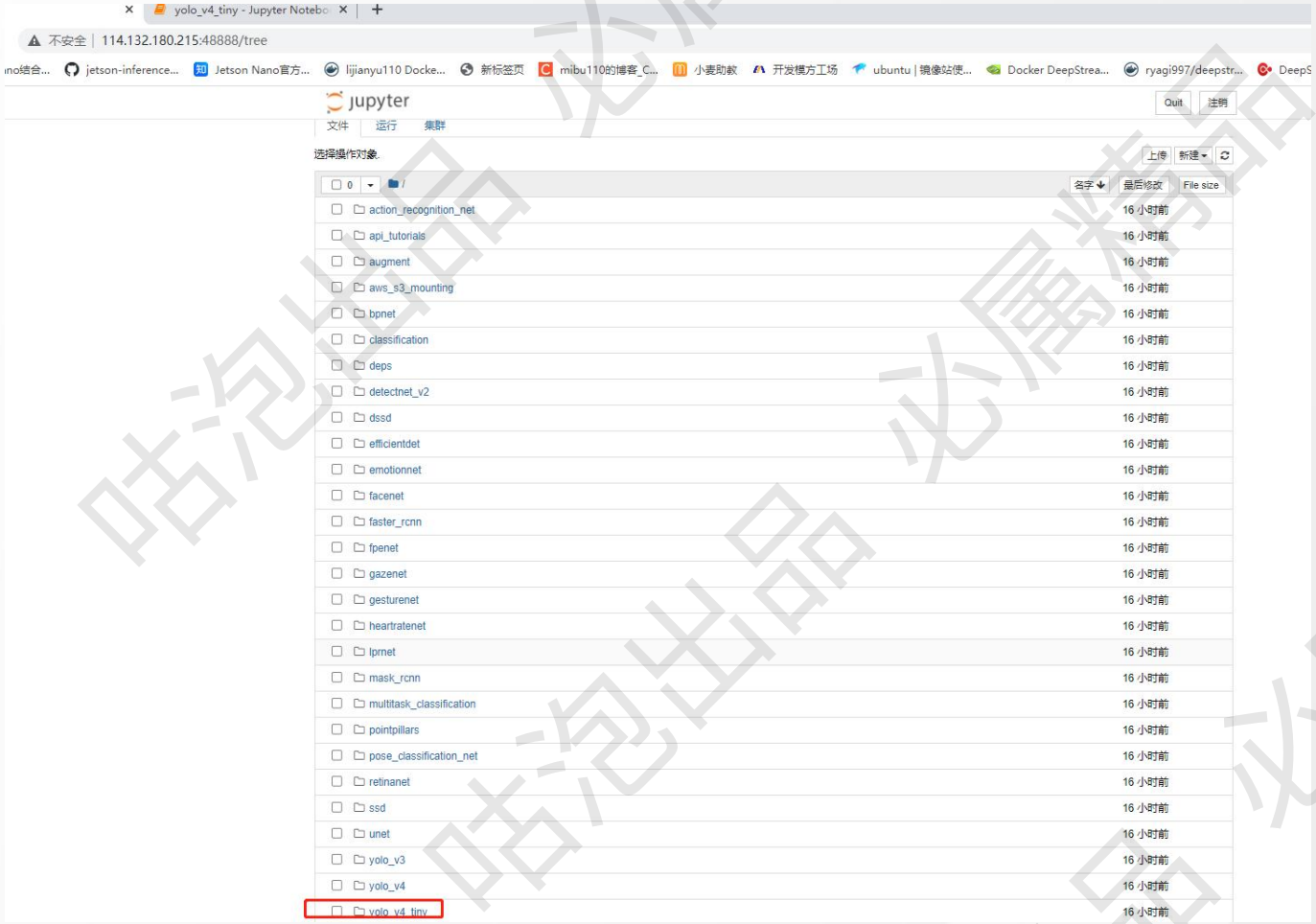
进入TAO环境

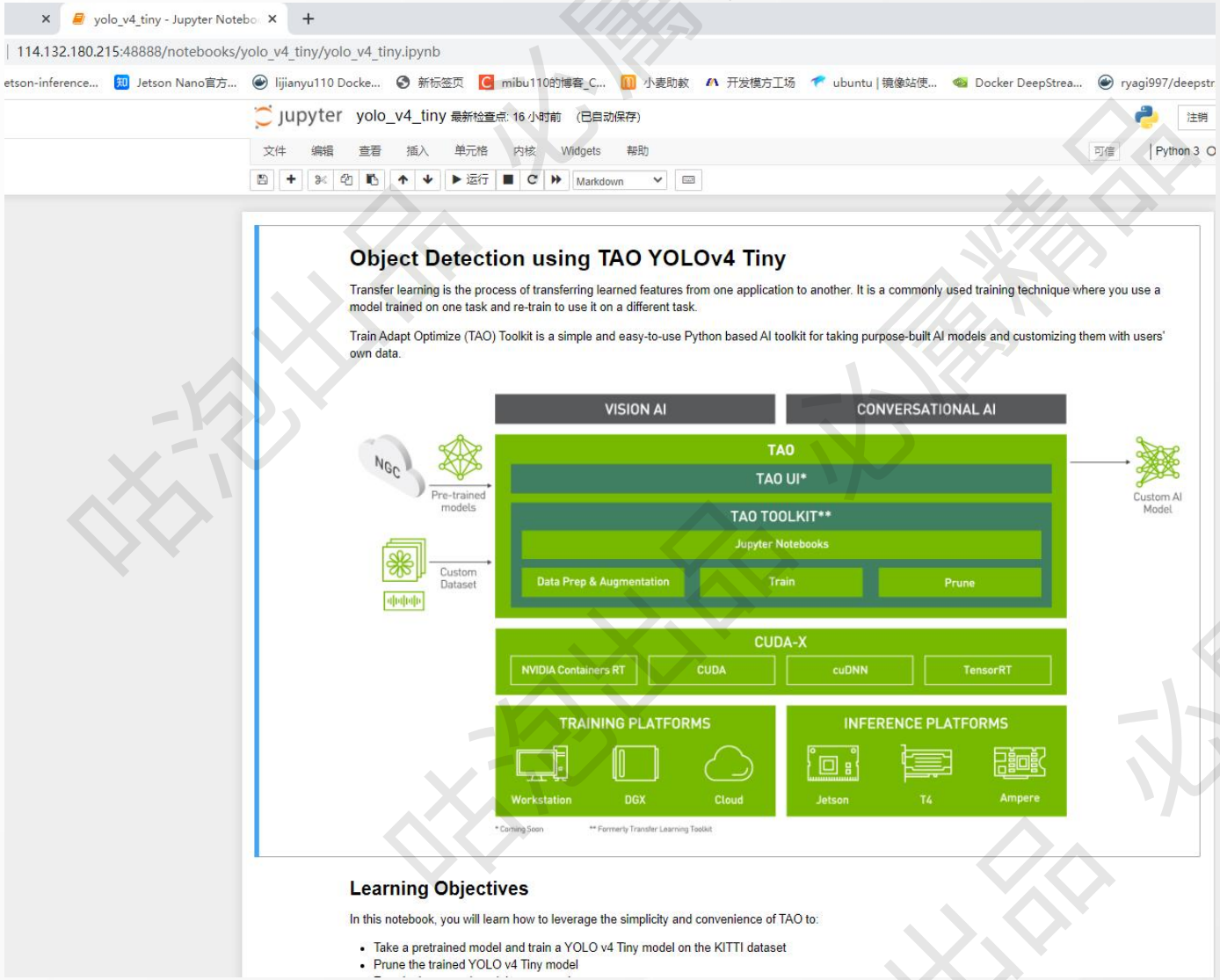
conda env list
进入tao运行环境
conda activate launcher

进入 cv_samples_v1.4.0目录
cd ~/cv_samples_v1.4.0

启动jupyter

```
jupyter notebook --ip 0.0.0.0 --port 8888 --allow-root
```


yolo_v4_tiny - Jupyter Notebook
不安全 | 114.132.180.215:48888/tree
jupyter
Quit
注销
文件
运行
集群
选择操作对象.
上传
新建
名字
最后修改
File size
action_recognition_net
api_tutorials
augment
aws_s3_mounting
bpnet
classification
deps
detectnet_v2
dssd
efficientdet
emotionnet
facenet
faster_rcnn
fpenet
gazenet
gesturenet
heartratenet
lprnet
mask_rcnn
multitask_classification
pointpillars
pose_classification_net
retinanet
ssd
unet
yolo_v3
yolo_v4
yolo_v4_tiny
16 小时前


yolo_v4_tiny - Jupyter Notebo
114.132.180.215:48888/notebooks/yolo_v4_tiny/yolo_v4_tiny.ipynb
jupyter yolo_v4_tiny 最新检查点: 16 小时前 (已自动保存)
文件 编辑 查看 插入 单元格 内核 Widgets 帮助
Python 3
Markdown
Object Detection using TAO YOLOv4 Tiny
Transfer learning is the process of transferring learned features from one application to another. It is a commonly used training technique where you use a model trained on one task and re-train to use it on a different task.
Train Adapt Optimize (TAO) Toolkit is a simple and easy-to-use Python based AI toolkit for taking purpose-built AI models and customizing them with users' own data.
VISION AI
CONVERSATIONAL AI
NGC
Pre-trained models
Custom Dataset
TAO
TAO UI*
TAO TOOLKIT**
Jupyter Notebooks
Data Prep & Augmentation
Train
Prune
Custom AI Model
CUDA-X
NVIDIA Containers RT
CUDA
cuDNN
TensorRT
TRAINING PLATFORMS
Workstation
DGX
Cloud
INFERENCE PLATFORMS
Jetson
T4
Ampere
* Coming Soon
** Formerly Transfer Learning Toolkit
Learning Objectives
In this notebook, you will learn how to leverage the simplicity and convenience of TAO to:
Take a pretrained model and train a YOLO v4 Tiny model on the KITTI dataset
Prune the trained YOLO v4 Tiny model

TAO 目录规划

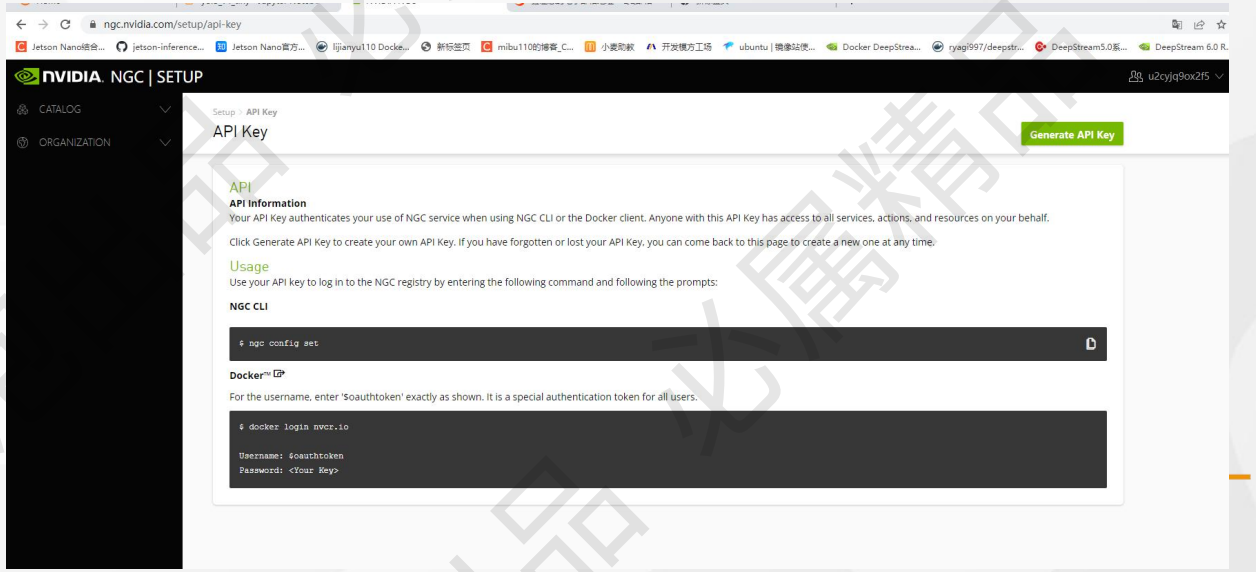
LOCAL_PROJECT_DIR=~/cv_samples_v1.4.0
LOCAL_DATA_DIR=~/cv_samples_v1.4.0/data
LOCAL_EXPERIMENT_DIR=~/cv_samples_v1.4.0/yolo_v4_tiny

容器目录对应
DATA_DOWNLOAD_DIR=/workspace/tao-experiments/data
USER_EXPERIMENT_DIR=/workspace/tao-experiments/yolo_v4_tiny
SPECS_DIR=/workspace/tao-experiments/yolo_v4_tiny/specs

TAO KEY

https://ngc.nvidia.com/signin

账号密码登陆
查看 KEY



TAO 格式转换

```
tao yolo_v4_tiny dataset_convert [-h] -d <dataset_spec>
                                 -o <output_tfrecords_file>
                                 [--gpu_index <gpu_index>]
```

实例：

```
tao yolo_v4_tiny dataset_convert -d /workspace/tao-experiments/data/
```

dataset_spec配置文件

coco_config

Here are descriptions of the configurable parameters for the `coco_config` field:

Parameter	Datatype	Default	Description	Supported Values
root_directory_path	string	–	The path to the dataset root directory	–
image_dir_names	string (repated)	–	The relative path to the directory containing images from the path in *root_directory_path* for each partition.	–
annotation_files	string (repated)	–	The relative path to the directory containing JSON file from the path in *root_directory_path* for each partition.	–
num_partitions	int	*2*	The number of partitions in the data. The number of partition must match the length of the list for *image_dir_names* and *annotation_files*. By default, two partitions are generated: *val* and *train*.	*n==len(annotation_files)*
num_shards	int (repeated)	[10]	The number of shards per partitions. If only one value is provided, same number of shards is applied in all partitions	

TAO格式转换配置文件 dataset_spec

实例：spec-train.txt

```
coco_config {
  root_directory_path: "/workspace/tao-
experiments/data/pingpang.v2i.coco/"
  img_dir_names: ["train"]
  annotation_files: ["train/_annotations.coco.json"]
  num_partitions: 1
  num_shards: [10]
}
image_directory_path: "/workspace/tao-
experiments/data/pingpang.v2i.coco/train"
```

验证数据格式转换 配置文件 spec-val.txt

```
coco_config {
  root_directory_path: "/workspace/tao-
experiments/data/pingpang.v2i.coco/"
  img_dir_names: ["valid"]
  annotation_files: ["valid/_annotations.coco.json"]
  num_partitions: 1
  num_shards: [2]
}
image_directory_path: "/workspace/tao-
experiments/data/pingpang.v2i.coco/valid"
```

TAO 验证数据集 coco格式转换tfrecord

```
tao yolo_v4_tiny dataset_convert [-h] -d dataset_spec>
      -o <output_tfrecords_file>  [--gpu_index <gpu_index>]

tao yolo_v4_tiny dataset_convert -d /workspace/tao-
experiments/data/spec-val.txt -o /workspace/tao-
experiments/data/val/tfrecords/val   --gpu_index 0
```

使用TAO

进入jupyter 按照案例来

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谢谢观赏

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