Title: README Tiny Yolo v4 GPU Ubuntu

Document Number: 105-1b

CTI One Corporation

Table 1a. Document History

2022-10-6	Establish this document, document archive: (base) harry@workstation:~/yolo-2022-10-19$	YY

Table 1b. Testing and Release Approval Form

2022-10-6	Tested by YY and approved for release.	YY/HL
2022-10-10	Release for education use.	HL

Table 2. References

Number	Name and URL	Note
1.	YOLOv4 https://github.com/pythonlessons/TensorFlow-2.x-YOLOv3	
2.	Tiny YOLOv4 on Jetson Nano 105-1a-README-Tiny-YOLOv4-JetsonNano4GB-v4-YY-HL-2022-10-5.odt	Cross reference

Table 3. Prerequisite

Software Prerequisite No.	Description and Version	Note
1.	Ubuntu 18.04	
2.	Anaconda version 4.7.12 or later	
3.	git version 2.17.1 or later	
Hardware Prerequisite No.	Description and Version	
1.	Intel CPU	Tested with Core i7
2.	NVIDIA GPU	Tested with RTX 2070

1. Setup YOLO v4 environment

1.1. Clone the GitHub folder;

$ git clone https://github.com/pythonlessons/TensorFlow-2.x-YOLOv3.git

1.2. Create YAML file for building the YOLO v4 Anaconda environment;

Create TensorFlow-2.x-YOLOv3/conda-gpu.yml as the following;

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```
name: yolov4-gpu


dependencies:
  - python==3.7.13
  - pip
  - cudnn
  - cudatoolkit==10.1.243
  - pip:
    - tensorflow-gpu==2.3.1
    - opencv-python==4.1.1.26
    - seaborn>=0.10.0
    - tqdm==4.60.0
    - pandas
    - awscli
    - urllib3
    - mss
```

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```

1.3. Create a Anaconda environment;

Open a terminal at TensorFlow-2.x-YOLOv3 folder and perform the below command;

$ conda env create -f conda-gpu.yml

1.4. Activate the Anaconda environment;

$ conda activate yolo4-gpu

1.5. Download Tiny YOLO v4 model files;

$ wget -P model_data
https://github.com/AlexeyAB/darknet/releases/download/darknet_yolo_v4_pre/yolov4-tiny.weights

1.6. Modify the configuration file, TensorFlow-2.x-YOLOv3/yolov3/configs.py;

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 13 YOLO_TYPE                = "yolov4" # yolov4 or yolov3


 37 TRAIN_YOLO_TINY          = True

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```

2. Execute YOLO v4 demo program with a image

2.1. Activate the Anaconda environment

conda activate yolo4-gpu

2.2. Execute the demo program;

$ python detection_demo.py

Figure 1. Tiny YOLO v4 result

3. Execute Tiny YOLO v4 with a video file

3.1. Modify TensorFlow-2.x-YOLOv3/detection_demo.py

Comment out line 23 and modify line 24

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23 #detect_image(yolo, image_path, "./IMAGES/kite_pred.jpg", input_size=YOLO_IN PUT_SIZE, show=True, rectangle_colors=(255,0,0))

24 detect_video(yolo, video_path, "", input_size=YOLO_INPUT_SIZE, show=True, re ctangle_colors=(255,0,0))

==========

3.2.Execute YOLO v4 for a image file

$ python detection_demo.py

FPS is around 35 on RTX 2070.

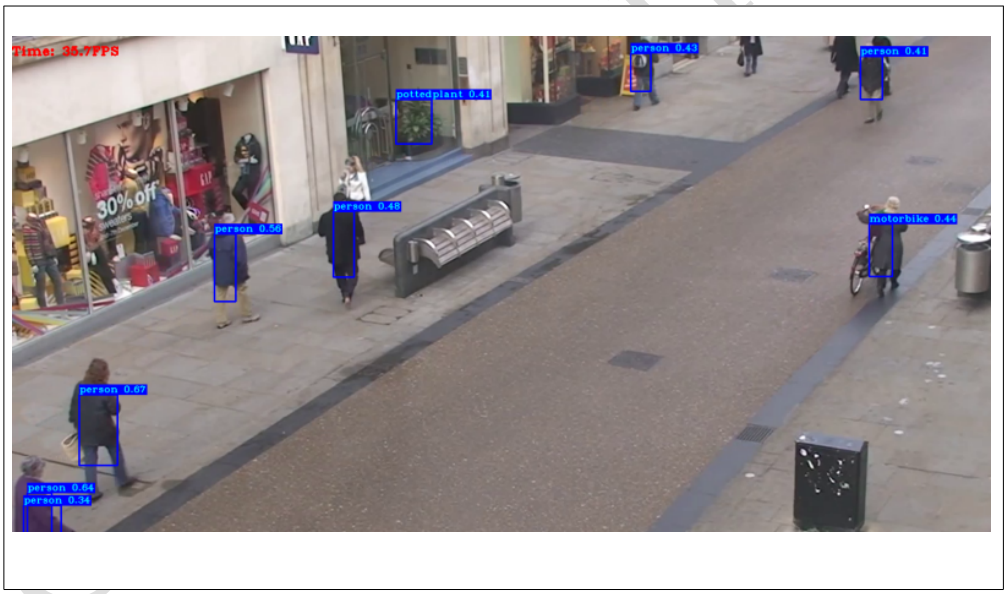

Figure 2. The result video of Tiny YOLO v4

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