

8.Using DetectNet to locate object coordinates

We mainly learn how to find the location of the target object in the video (extract its bounding box).

The [detectNet](#) object accepts the 2D image as input and outputs a list of coordinates of the detected bounding box.

First,we need to use a pre-trained ImageNet recognition model (such as Googlenet).

This tutorial contains the following pre-trained DetectNet models:

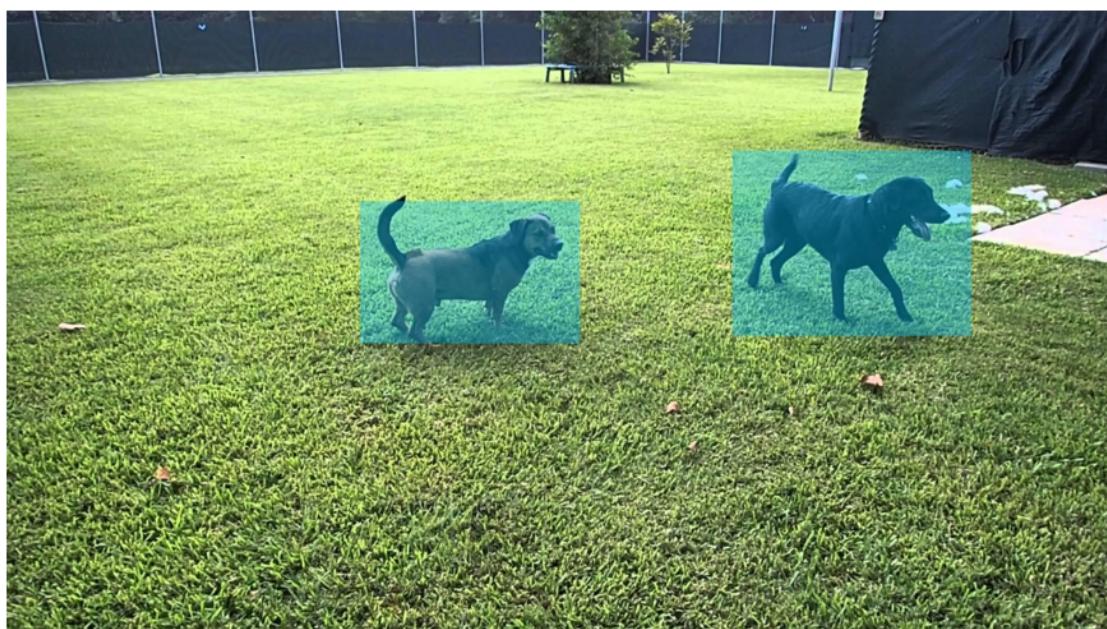
1. **ped-100 (single-class pedestrian detector)**
2. **multiped-500 (multi-class pedestrian + baggage detector)**
3. **facenet-120 (single-class facial recognition detector)**
4. **coco-airplane (MS COCO airplane class)**
5. **coco-bottle (MS COCO bottle class)**
6. **coco-chair (MS COCO chair class)**
7. **coco-dog (MS COCO dog class)**

Detect objects from the command line

The [detectnet-console](#) program can be used to find objects in an image. To load one of the pre-trained object detection models attached to the repo, you can specify the pre-trained model name as the third parameter, detectnet-console:

```
$ ./detectnet-console dog_1.jpg output_2.jpg coco-dog
```

The above command will process dog_1.jpg and save it to output_1.jpg using the pre-trained DetectNet-COCO-Dog model.



Providing pre-trained DetectNet model

The following is a pre-trained DetectNet snapshot table downloaded by repo (It is located in the directory after we run **cmake** in the data/networks directory.) and the relevant parameters of the detectnet-console for loading the pre-trained model:

DIGITS model	CLI argument	classes
DetectNet-COCO-Airplane	coco-airplane	airplanes
DetectNet-COCO-Bottle	coco-bottle	bottles
DetectNet-COCO-Chair	coco-chair	chairs
DetectNet-COCO-Dog	coco-dog	dogs
ped-100	pednet	pedestrians
multiped-500	multiped	pedestrians, luggage
facenet-120	facenet	faces

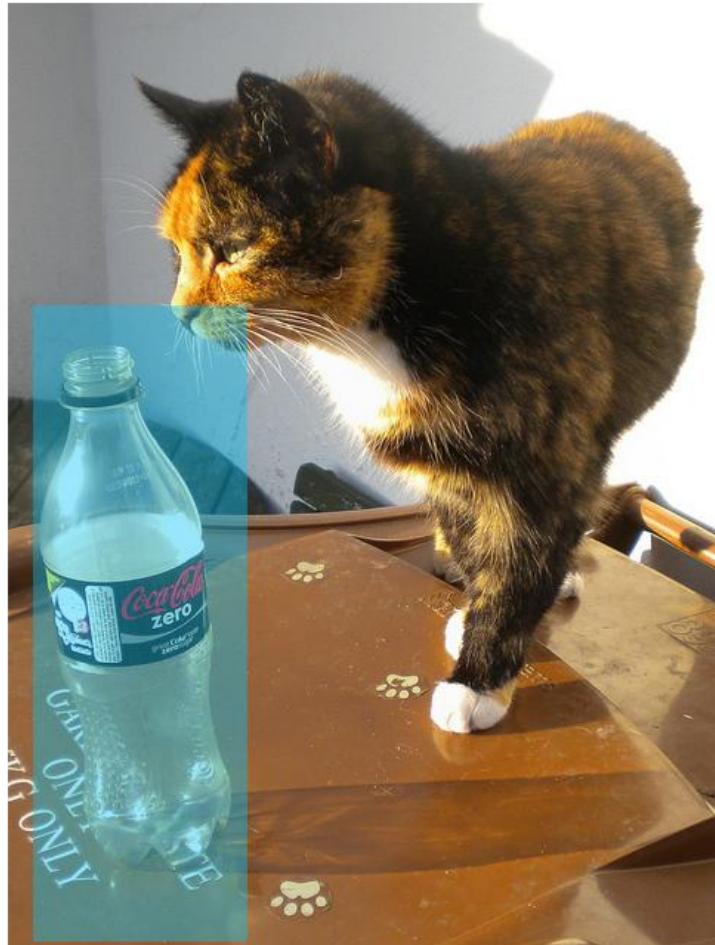
These have already applied the above python layer patch.

Running other MS-COCO models on Jetson

We can try to run some other COCO models. These training data are included in the data set downloaded above.

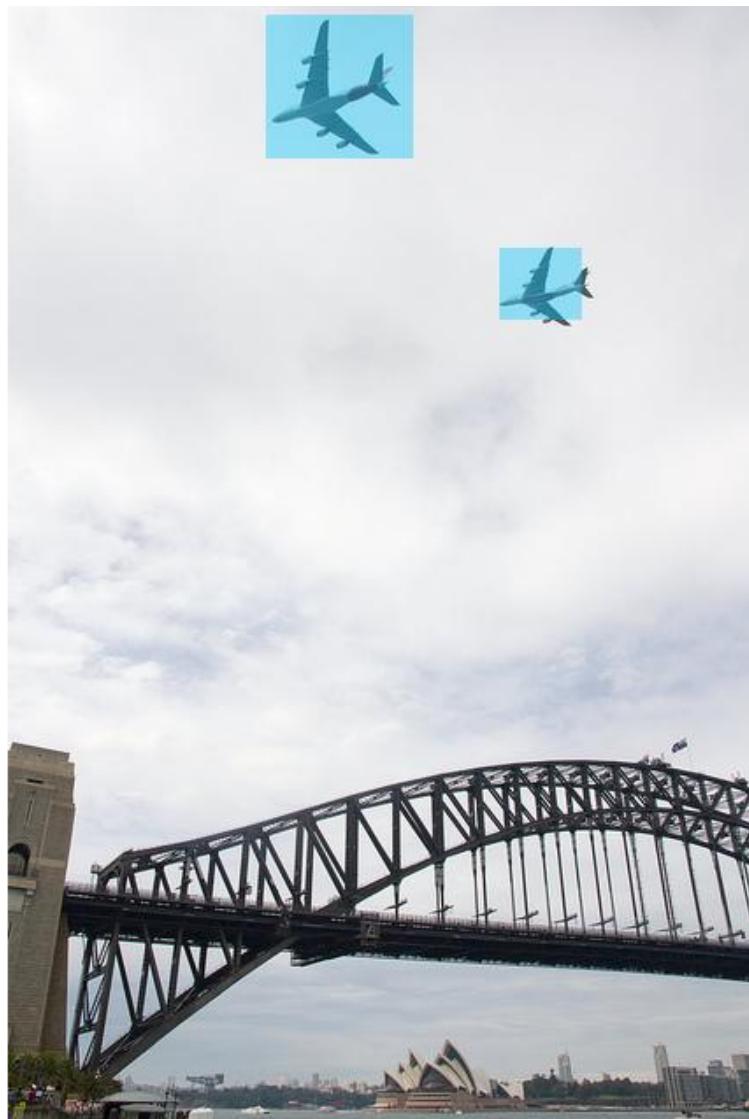
You can input the following command:

```
$ ./detectnet-console bottle_0.jpg output_3.jpg coco-bottle
```



You can input the following command:

```
$ ./detectnet-console airplane_0.jpg output_3.jpg coco-airplane
```



Running the pedestrian model on Jetson

A pre-trained **DetectNet** model is used to detect humans. These **pednet** and **multiped** models recognize pedestrians while **facenet** recognizes faces (from [FDDB](#)).

Here's an example of detecting multiple people simultaneously in a crowded space:

You can input the following command:

```
$ ./detectnet-console peds-004.jpg output-4.jpg multiped
```



Multi-class target detection model

We need to input the following command:

```
$ ./detectnet-console peds-003.jpg output-3.jpg multiped
```

When using the multi-model (**PEDNET_MULTI**), the second object class will be rendered with a green overlay.(For example:Some images containing baggage and pedestrians.)

As shown below.

