

There are two types of deep neural networks here. Base network and detection network. SSDs, RCNN, Faster RCNN, etc are examples of detection networks.

All YOLO networks are executed in the Darknet, which is an open-source ANN library written in C.

The key difference between the two architectures is that the YOLO architecture utilizes 2 fully connected layers, whereas the SSD network uses convolutional layers of varying sizes.

## **YOLO**

It works solely on appearance at the image once to sight multiple objects. Thus, it's referred to as YOLO, you merely Look Once. By simply gazing at the image once, the detection speed is in period (45 fps). Quick YOLOv1 achieves a hundred and fifty-five FPS. this is often another progressive deep learning object detection approach that has been printed in 2016 CVPR with quite 2000 citations. Yolo divides the image into a grid. For each grid, some values like class probabilities and the bounding box parameters are calculated.

YOLO struggles to localize objects properly compared with quick R-CNN. YOLO has fewer background errors. quick R-CNN has thirteen.6% that the highest detections square measure false positive.

As YOLO and quick R-CNN have their execs and cons, they'll be combined to own higher accuracy. Artwork and natural pictures square measure terribly completely different on a per-level however they're similar in terms of the dimensions and form of objects, so YOLO will still predict smart bounding boxes and detections.

## **SSD**

By victimization SSD, we tend to solely have to be compelled to take one single shot to sight multiple objects inside the image, whereas regional proposal network (RPN) primarily based approaches like R-CNN series want 2 shots, one for generating region proposals, one for police work the article of every proposal. Thus, SSD is way quicker compared with two-shot RPN-based approaches. SSD not only uses one grid, but a combination of different sizes to better detect objects at any size.

SSD, a single-shot detector for multiple classes that's quicker than the previous progressive for single-shot detectors (YOLO), and considerably a lot of correct, really as correct as slower techniques that perform express region proposals and pooling (including quicker R-CNN).

## SSD

## YOLO

Single Shot Detector

You Only Look Once

runs a convolutional network on input images at just one time and computes a feature map.

the open-source technique of object detection which will acknowledge objects in pictures and videos fleetly

SSD could be a higher choice as we have a tendency to square measure able to run it on a video and therefore the truth trade-off is extremely modest.

YOLO is a better option when exactness is not too much of disquiet but you want to go super quick

When the object size is tiny, the performance dips a touch

YOLO could be a higher choice even when the object size is small.

runs a convolutional network on input image just one time and computes a feature map

can be enforced for applications as well as artificial intelligence, self-driving cars, and cancer recognition approaches.