

**Paper Title:**

YOLO v3-Tiny: Object Detection and Recognition using one stage improved model

**Paper Link:**

<http://dx.doi.org/10.1109/ICACCS48705.2020.9074315>

**1 Summary****1.1 Motivation**

This paper focuses on one stage detector where YOLO is used for the object detection. The primary concern for using this detector is speed more than the accuracy. Also, This paper presents the comparison of various algorithms to identify and localize objects based on accuracy, time, and parameter values with varying sizes of the input image.

**1.2 Contribution**

The paper provided a better understanding on YOLO and comparison among different two stage detectors . Furthermore, the paper also provided comparisons of regular YOLO versions and tiny YOLO versions of these versions.

**1.3 Methodology**

In this paper they have introduced an improved YOLO version called YOLO v3-Tiny. This new modified version is YOLO v3, with the decreased depth of the convolutional layer. Therefore, the running speed is significantly increased which is approximately 442% faster than the former variants of YOLO versions. It uses a pooling layer and reduces the figure for convolution layer. Here, Prediction of bounding boxes occurs at two different feature map scales, which are  $13 \times 13$  and  $26 \times 26$  merged with an upsampled  $13 \times 13$  feature map.

**1.4 Conclusion**

This paper did not provided a straight decision on the best model as they made choices to create an model which trades of much accuracy for speed. Further, the paper partially provided the comparisons of different models.

**2 Limitations****2.1 First Limitation**

As the convolution layers of YOLO are reduced so that the accuracy of object detection decreased.

**2.2 Second Limitation**

This paper does not extend object localization and recognition from static pictures to a video containing the dynamic sequence of images.

**3 Synthesis**

YOLO is widely used model for object detection. In this paper the provided modified YOLO is performing faster rather than the accuracy. Thus, this model can be used where the speed is more important than accuracy. But without proper accuracy the speed of object detection can not be used in practical life.