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YOLO-V2
(You Only Look Once)

Ms. N P Mohod[1], Mr. Nikhil Patil[2], Mr. Ashutosh Shrungare[3], Mr. Om Labhasetwar[4], Mr. Abhijeet Ghadge[5], Mr. Sumit Bade[6]
Assistant Professor, Department of Computer Science of Engineering[1]
Students, Department of Computer Science of Engineering[2,3,4,5,6]
SIPNA College of Engineering, Amravati, India

Abstract: *The you-only-look-once (YOLO) v2 object detector uses a single stage object detection network. YOLO v2 is faster than other two-stage deep learning object detectors, such as regions with convolutional neural networks (Faster R-CNNs).The YOLO v2 model runs a deep learning CNN on an input image to produce network predictions. The object detector decodes the predictions and generates bounding boxes YOLO v2 uses anchor boxes to detect classes of objects in an image. For more details, see Anchor Boxes for Object Detection. The YOLO v2 predicts these three attributes for each anchor box:* ***Intersection over union (IoU)*** *— Predicts the objectness score of each anchor box.* ***Anchor box offsets*** *— Refine the anchor box position.* ***Class probability*** *— Predicts the class label assigned to each anchor box. The figure shows predefined anchor boxes (the dotted lines) at each location in a feature map and the refined location after offsets are applied. Matched boxes with a class are in color. You can design a custom YOLO v2 model layer by layer. The model starts with a feature extractor network, which can be initialized from a pretrained CNN or trained from scratch. The detection subnetwork contains a series of Conv, Batch norm, and ReLu layers, followed by the transform and output layers, yolov2TransformLayer and yolov2OutputLayer objects, respectively.yolov2TransformLayertransforms the raw CNN output into a form required to produce object detections.yolov2OutputLayerdefines the anchor box parameters and implements the loss function used to train the detect.*

Keywords: R-CNN, YOLOv2, Object classification, Object detection, F-CNN

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