Task: 08

PP YOLO

Paddle paddle YOU ONLY LOOK ONCE -- V1

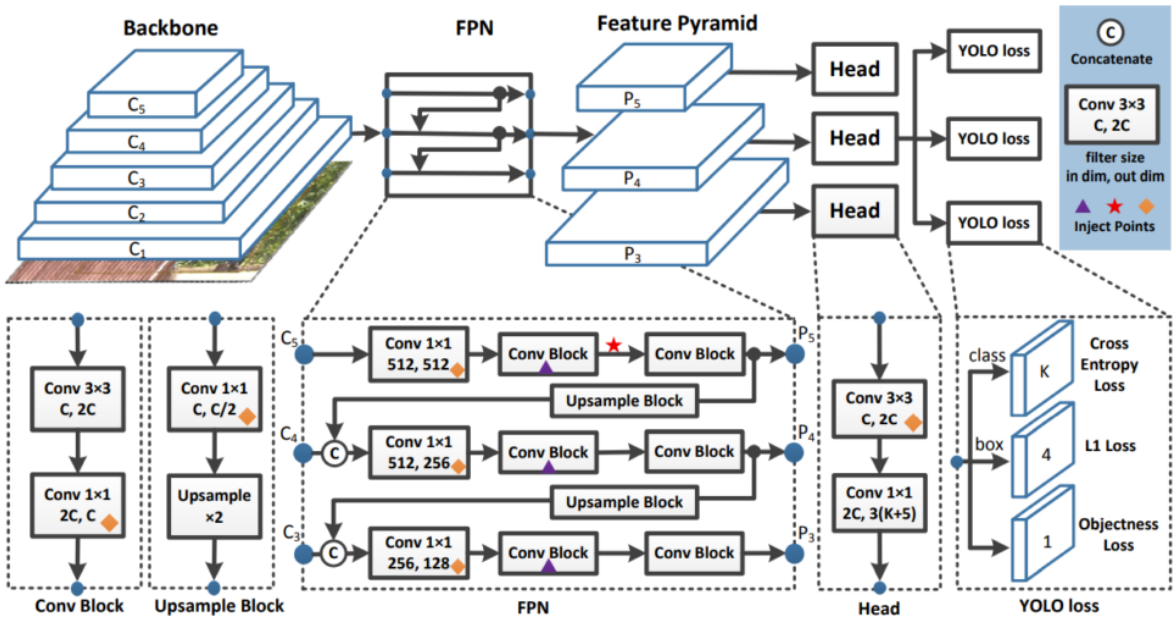
The purpose of this framework is to ease the process of object detection in construction, training, optimization and deployment of these models in a faster and better way. This framework provides many conventional algorithms to enhance modularity and also give data augmentation methods, loss function, etc. that helps in reducing the size of the platform and enables high-performance deployment. Key features are mentioned below :

1. PP-YOLO provides many pre-trained models such as object detection, instance segmentation, face detection, etc.
2. PP-YOLO uses modular designs which help developers to make different pipelines quickly.
3. PP-YOLO provides end-to-end methods for data augmentation, construction, training, optimization, compression and deployment.
4. PP-YOLO supports distributed training as well.

Architecture of PP-YOLO

The architecture of PP-YOLO is significantly based on yolov4. PaddleDetection's architecture is mainly divided into 3 categories:

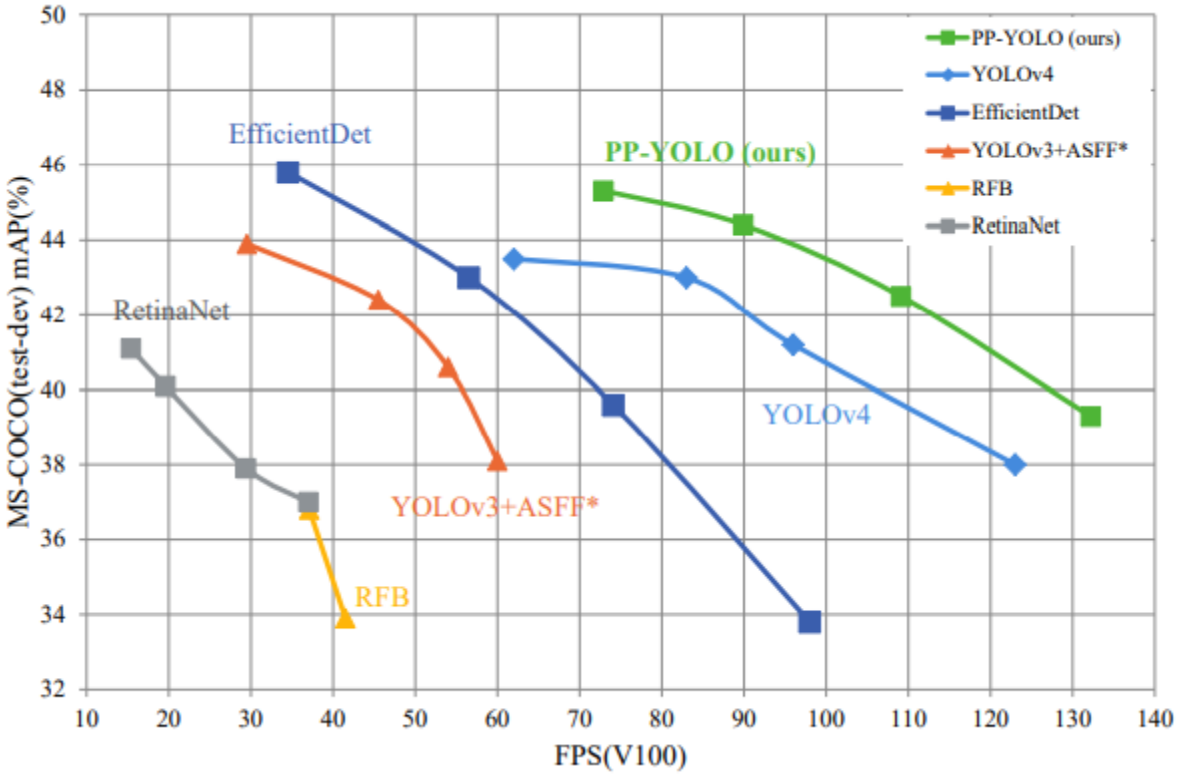
1. Backbone**:** This part contains the convolution neural network to generate features. It actually contains a pre-trained classification model. In this case, it is ResNet50-vd.
2. Detection Neck: Then the Feature Pyramid Network(FPN) is made to create a pyramid of features by combining and mixing the ConvNet representations.
3. Detection Head: This section makes the prediction and bounding box on the object.



Comparison of PP-YOLO with other state-of-the-art Algorithms:

PP-YOLO achieved a balance between effectiveness (45.2% mAP) and efficiency (72.9 FPS), in comparison with the existing state-of-the-art detectors such as EfficientDet and YOLOv4.

PP-YOLO framework which is much faster and accurate than other existing object detection frameworks.


PP-YOLO (ours)
YOLOv4
EfficientDet
YOLOv3+ASFF*
RFB
RetinaNet
EfficientDet
PP-YOLO (ours)
YOLOv4
YOLOv3+ASFF*
RFB
RetinaNet
MS-COCO(test-dev) mAP(%)
FPS(V100)
50
48
46
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