yolo

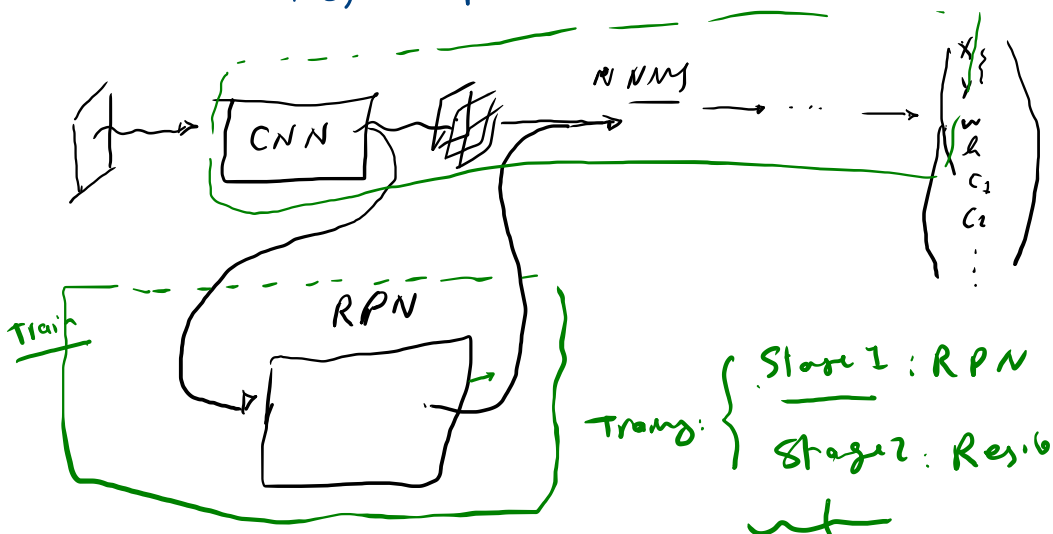
you only look once ⟿ high speed

اولویت این الگوریتم سرعت بالاست!

real time

Faster R CNN

RPN → Region proposal network!



(mAP) accuray → high

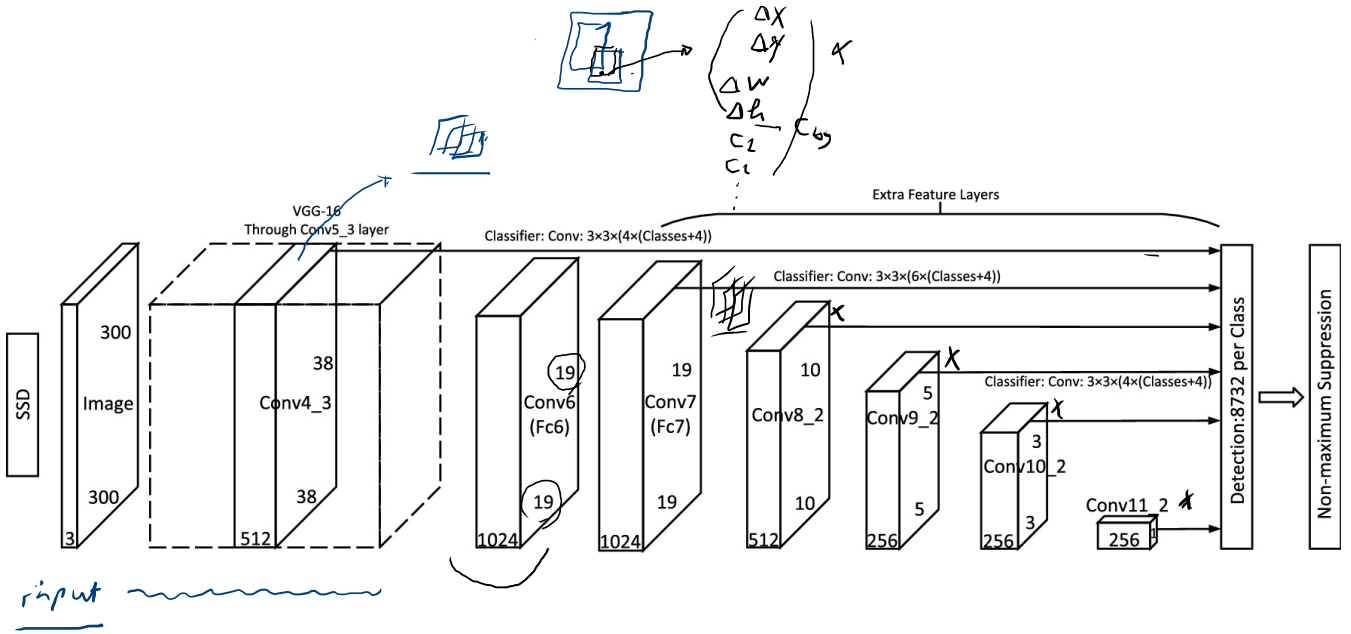
FPS → 7

Train: { Stage 1 : RPN training!
Stage 2 : Region based Convolutional network
R CNN

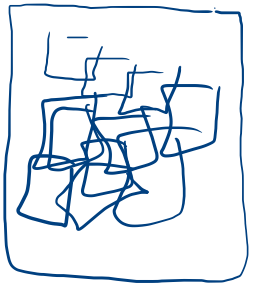
Train → lazy. Test : lazy.

two stage!

SSD



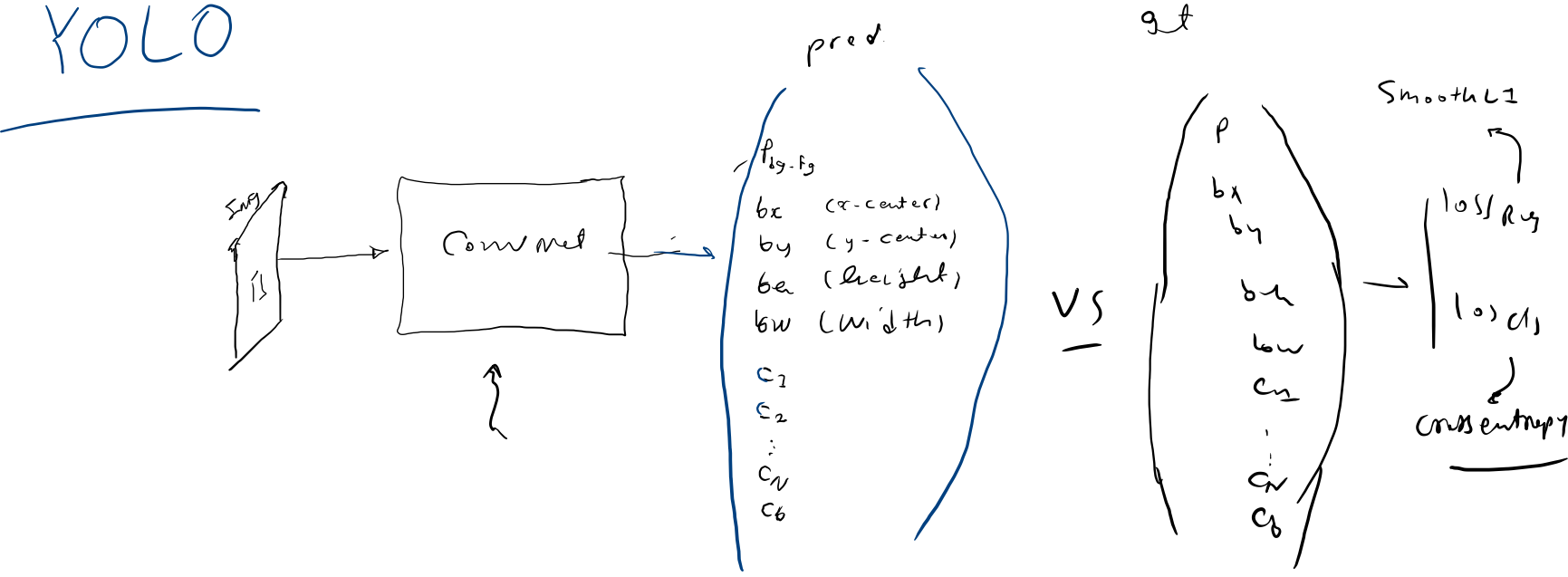
input



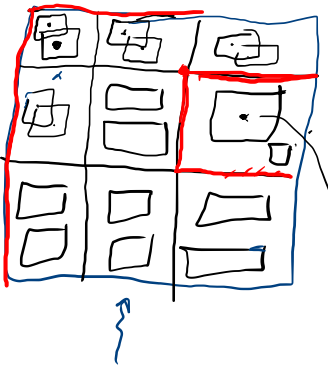
∝ confidence < threshold

∝ IOU < threshold

YOLO

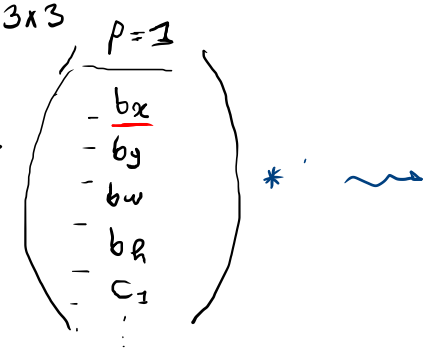

pred
gt
Smooth L1
Img
ConvNet
$p_{bg\text{-}fg}$
bx (x-center)
by (y-center)
bh (height)
bw (width)
c_1
c_2
c_N
c_0
VS
p
bx
by
bh
bw
c_1
c_N
c_0
loss Reg
loss cls
cross entropy

original d



B = 2

Cell = 3x3

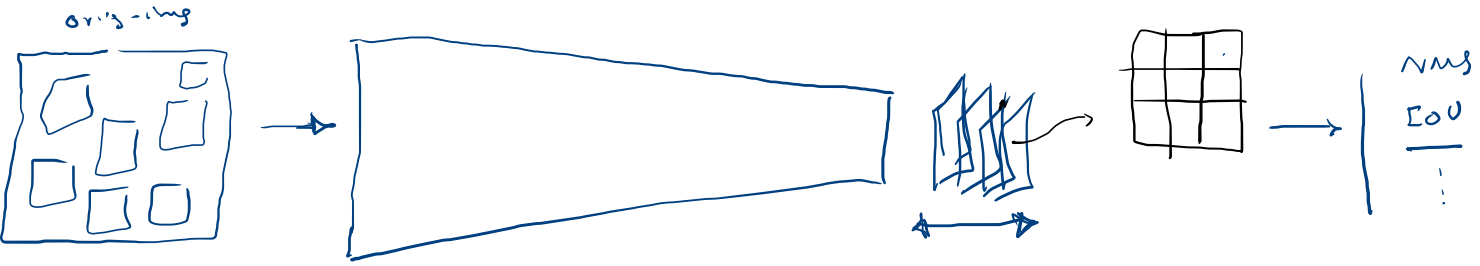


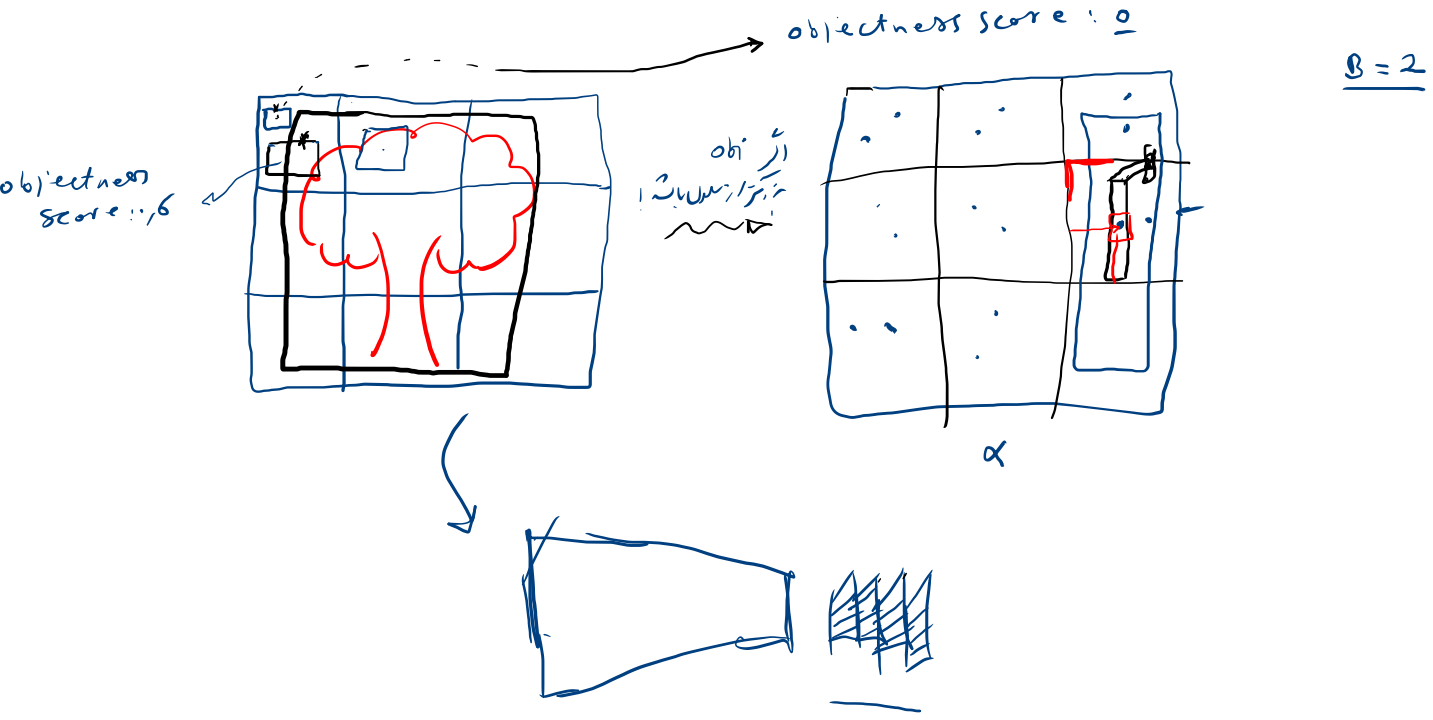
1.

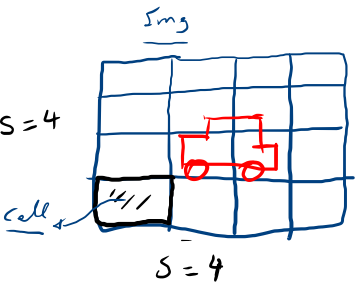
1. تقسيم الصورة ودخل كل cell على حدة

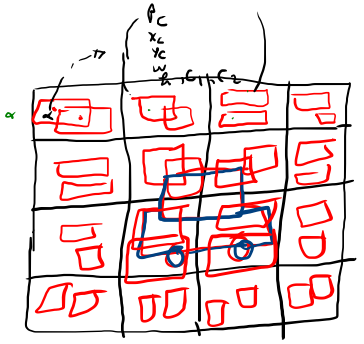
NMS

max - IOU

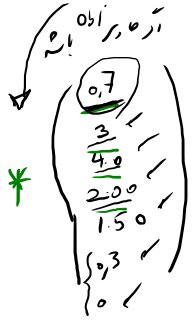

NMS
IoU

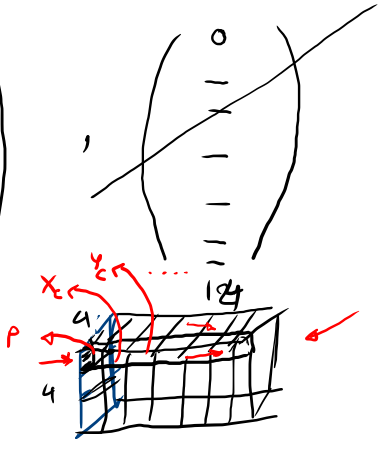

objectness score : 0
B = 2
objectness score : 0.6
obj
α





cell : $4 \times 4 \times 2(5+C)$



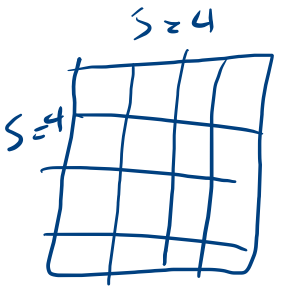


$$\left[S \times S \times B \left(5 + C \right) \right]$$

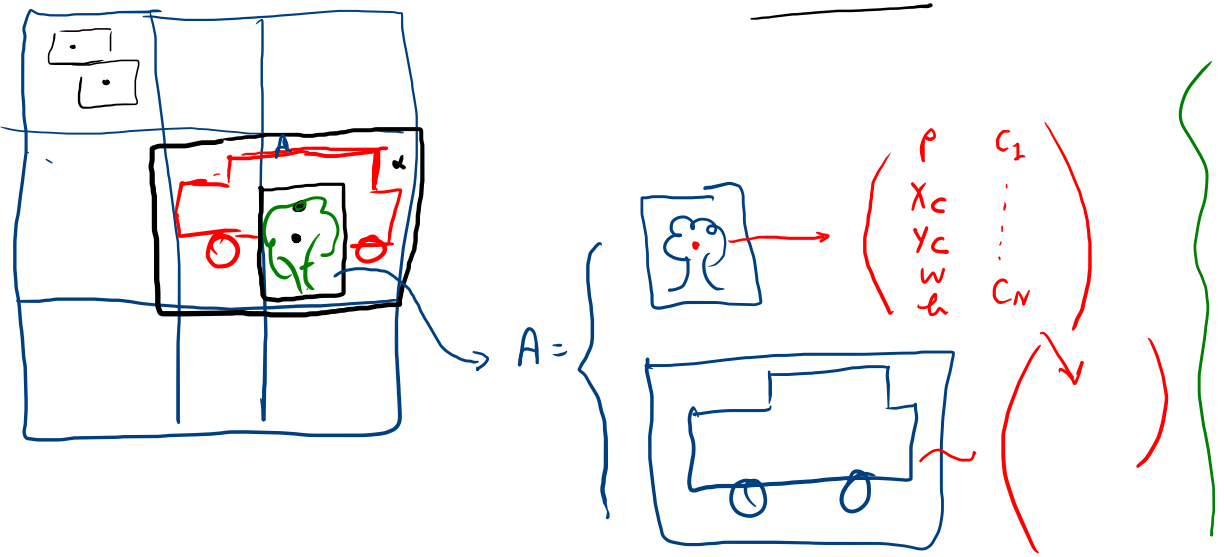
$$\left[4 \times 4 \times 2 \left(5 + 2 \right) \right] = 4 \times 4 \times 14$$

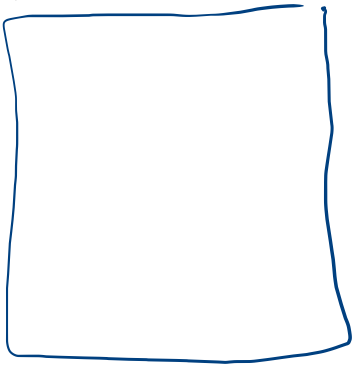
SSD → 

number of cell = Size of Kernel
(inputting)

YOLO → 

Threshold






End