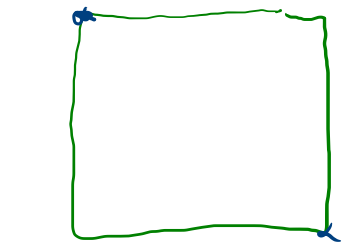
Faster-RCNN /-Coding



$x_{min}, y_{min}, x_{max}, y_{max}$

Zip

A : [A_1 , A_2 , A_3]

B : [B_1 , B_2 , B_3]

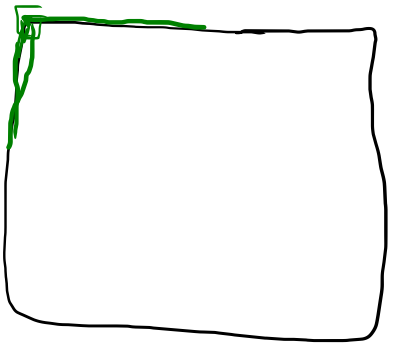
C : [C_1 , C_2 , C_3]

→ Zip(A, B, C) = [[A_1, B_1, C_1], [A_2, B_2, C_2], [A_3, B_3, C_3]]

↓

[[X_{1min}, Y_{1min}, X_{1max}, Y_{1max}], [—], [ ]

SmoothL1



x, y, w, h

(0, 0, 0, 0)

x = 0 ✓

y = 0 ✓

w = 0 ✓

h = 0 ✓

SmoothL1

→ huber.loss

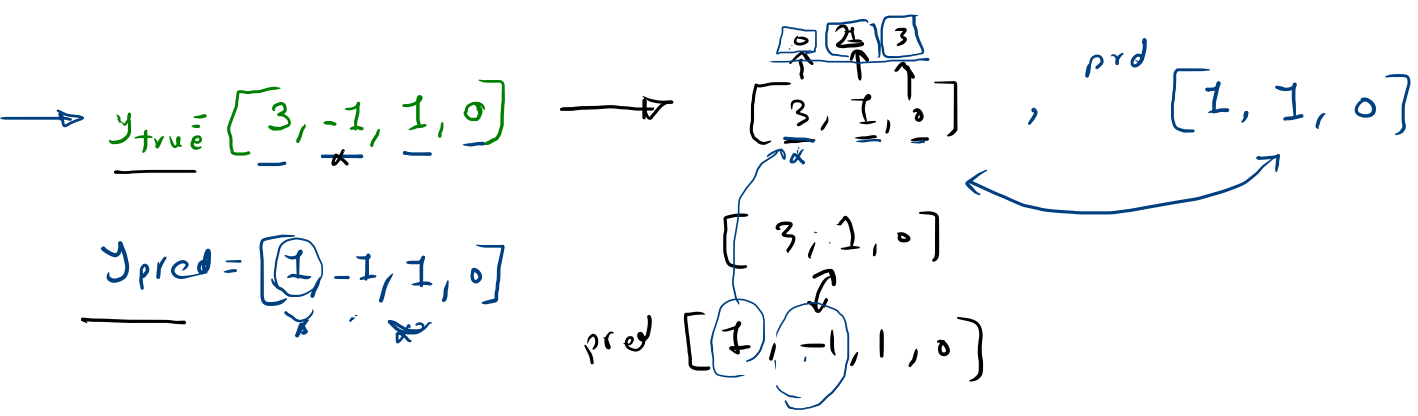
y_true = (x_1, y_1, w_1, h_1)

y_pred = (x_1', y_1', w_1', h_1')

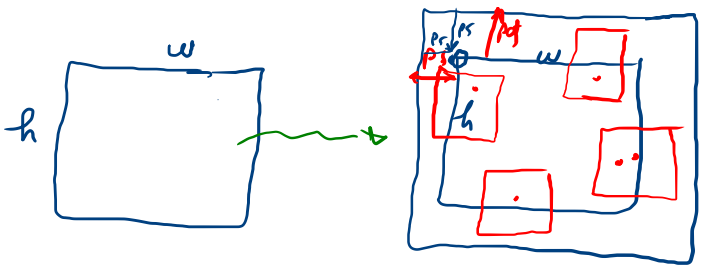
→ $d = |y_{true} - y_{pred}|$

$d = \sqrt{(x_1 - x_1')^2 + (y_1 - y_1')^2 + (w_1 - w_1')^2 + (h_1 - h_1')^2}$

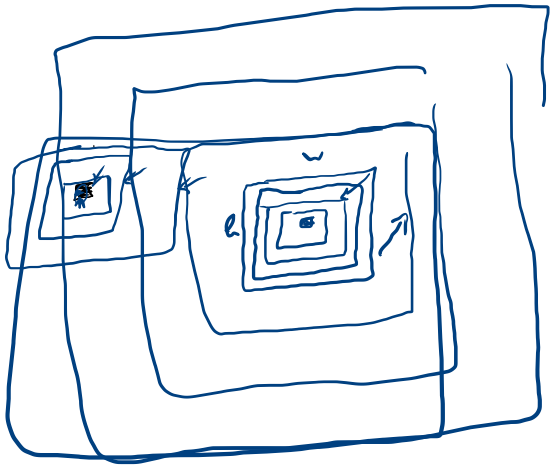
loss: $\begin{cases} 0.5 \times d^2 & |d| \leq 0.5 \\ 0.5x^2 + 0.5(|d| + 0.5) & |d| > 0.5 \end{cases}$


$y_{true} = [3, -1, 1, 0]$
$y_{pred} = [1, -1, 1, 0]$
0
2
3
[3, 1, 0]
[3, 1, 0]
pred [1, -1, 1, 0]
prd
[1, 1, 0]

draw_anchors



generate_anchors



$w_x : 3$

$h_x : 3$

$w_x : 5$

$h_x : 5$

whctrs

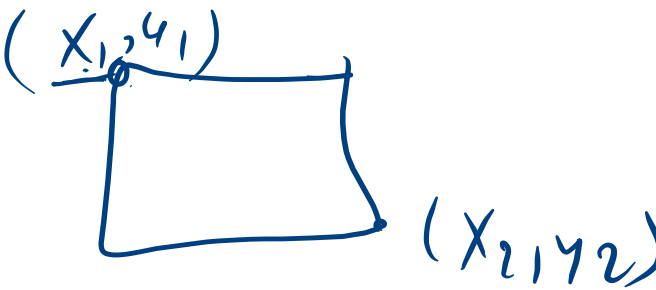
input → x, y, w, h

output → w, h, x_{ctr}, y_{ctr}

$$x_{ctr} = x + \frac{w}{2}$$

$$y_{ctr} = y + h/2$$

input (x_1, y_1, x_2, y_2)



$$x_{ctr} = (x_2 - x_1)/2$$

The End