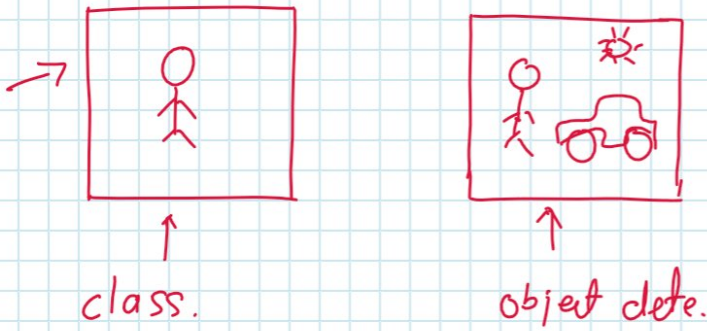
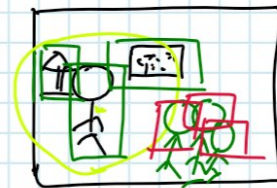
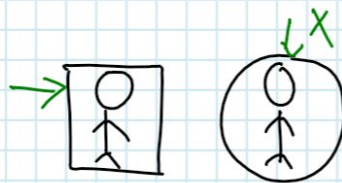
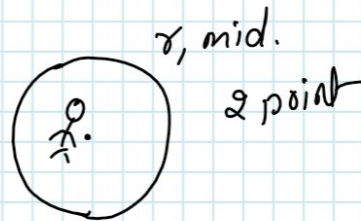
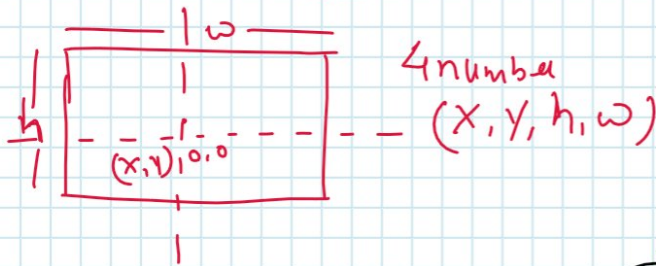
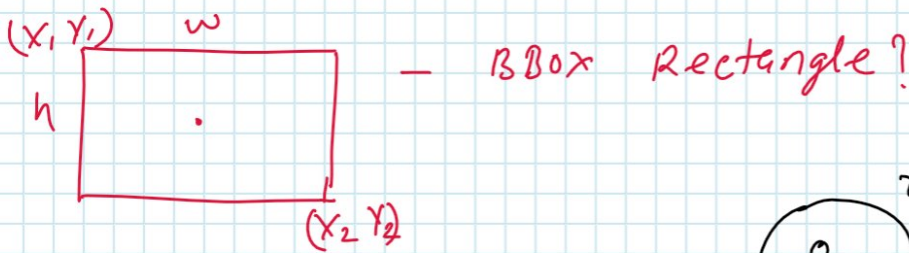
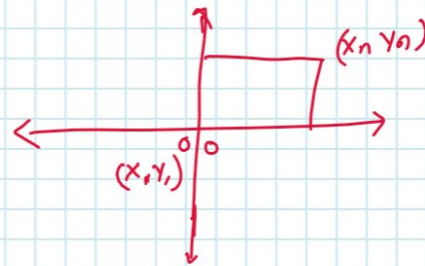
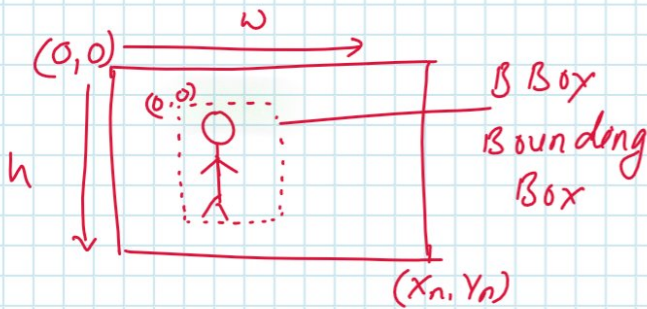


Object Detection

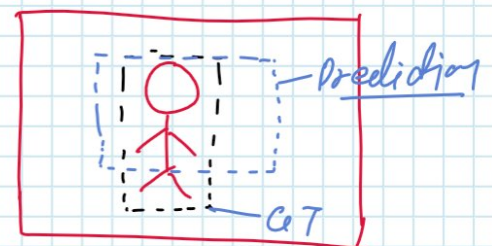


object detection



object detect
(class + Regression)

Actual value means
ground truth.



GT. - $(x_1, y_1) (x_2, y_2)$
Prediction - $(p_{x_1}, p_{y_1}) (p_{x_2}, p_{y_2})$

	X_1	Y_1	X_2	Y_2	L_2
GT.	200	250	600	400	$(250-100)^2 + (600-700)^2 = 32500$
Pred.	100	150	700	450	$(250-150)^2 + (600-450)^2 = 100 + 100 + 25 = 225$
Pred.	210	250	590	405	$(200-210)^2 + (600-590)^2 + (250-250)^2 + (400-405)^2 = 100 + 100 + 25 = 225$

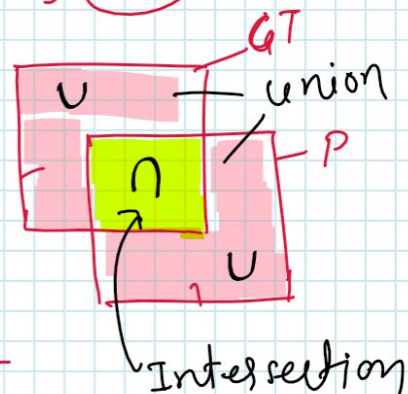
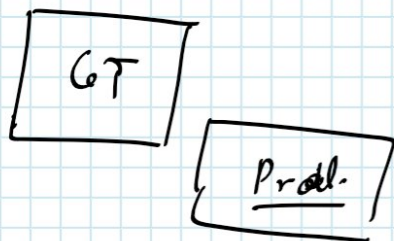
Metrics

- ✓ TP $IOU \geq \text{threshold}$
- ✓ FP $IOU < \text{threshold}$
- ✓ FN A gt not detected
- X TN

$$IOU = \frac{\text{area of overlap}}{\text{area of union}}$$

$$= \frac{\text{area}(B_p \cap B_{gt})}{\text{area}(B_p \cup B_{gt})}$$

$$= [50\%, 75\%, 95\%]$$



- ① Precision
- ② Recall

Sliding window

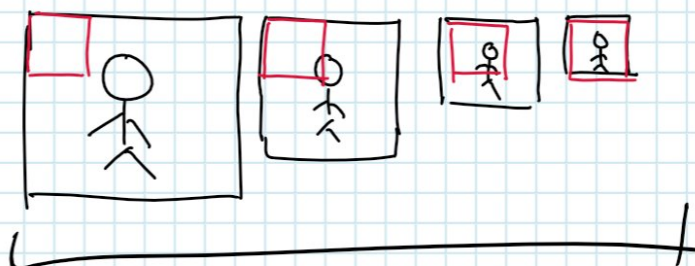
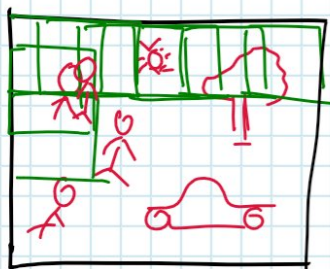


Image Pyramid

✓ ① Edge Detection

✓ ② selective search RGB

Subpixel stranding.

Region proposal

