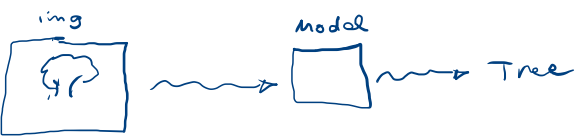
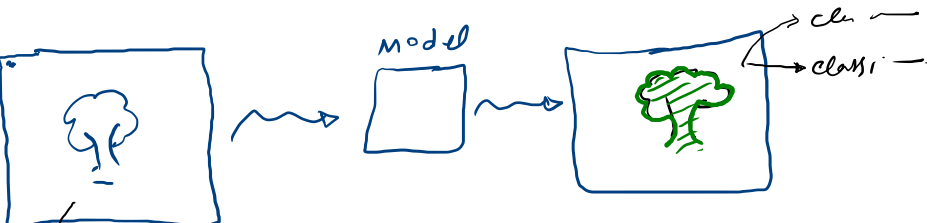


Segmentation



1. classification → 

2. object detection → 

3. Segmentation → 

→ { 1. classification.
pixel
2. classification → { 1. Tree
2. No Tree (background) ←

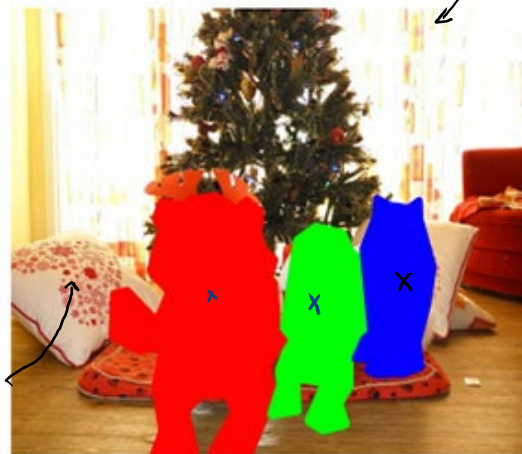


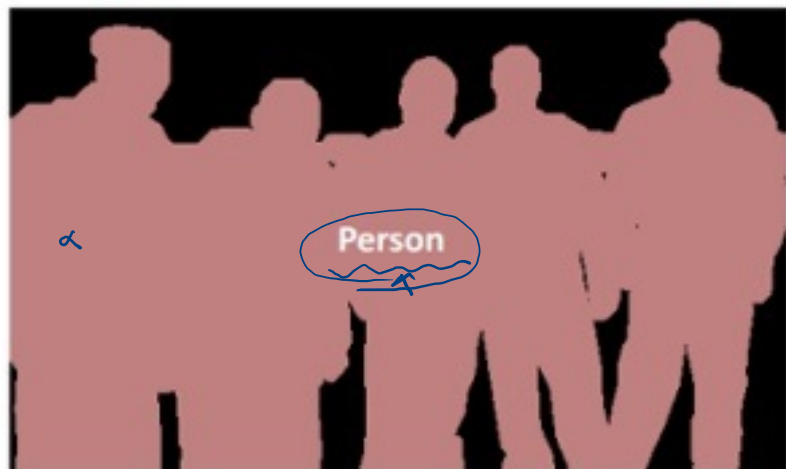
Fasterrcnn
α SSD
α yolo
α Unet

Object Detection



Instance Segmentation





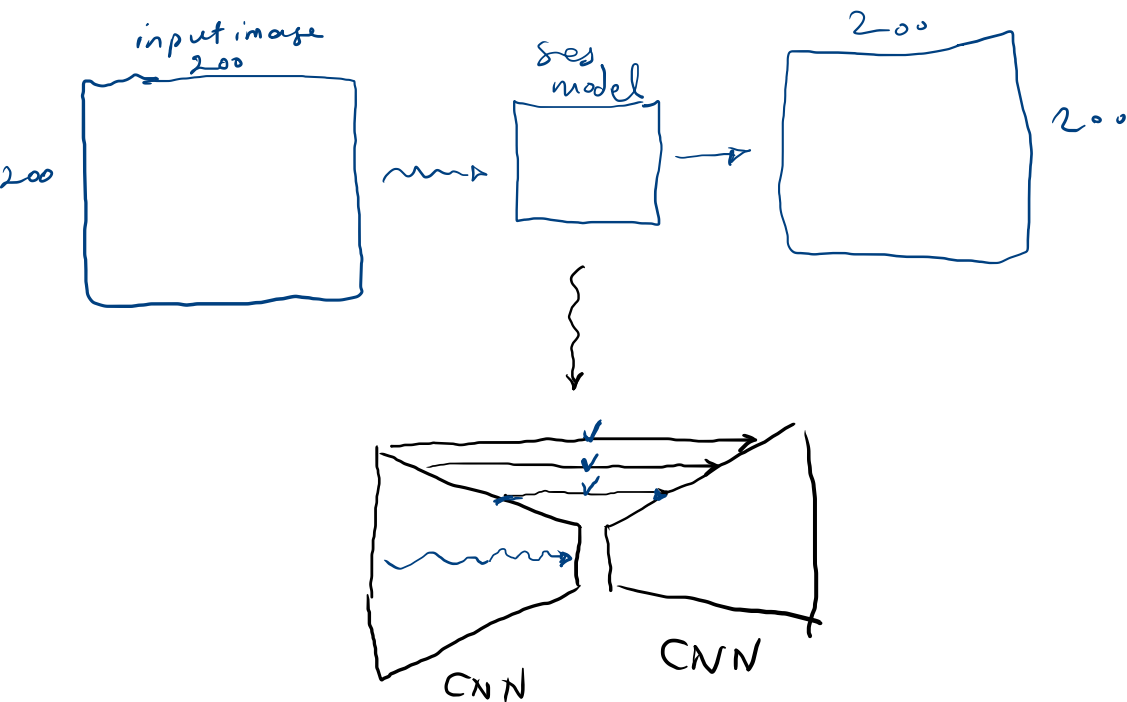
Semantic Segmentation



Instance Segmentation

*

PD \rightarrow pedestrian \rightarrow object
Detection



Segmentation -
architectures

1. Unet

2. segnet

3. DeepLab

4. Mask R-CNN

Seg.
performance
metrics

mIoU : mean IoU

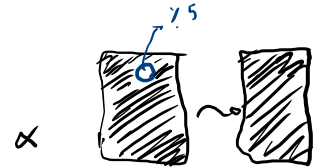
↓
Semantic

$$IoU = \frac{A \cap B}{A \cup B - A + B - A \cup B}$$



map ✓

pixel accuracy = $\frac{\text{تعداد پیکسل درست طبقه بندی شده}}{\text{تعداد کل پیکسل}}$

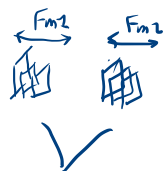
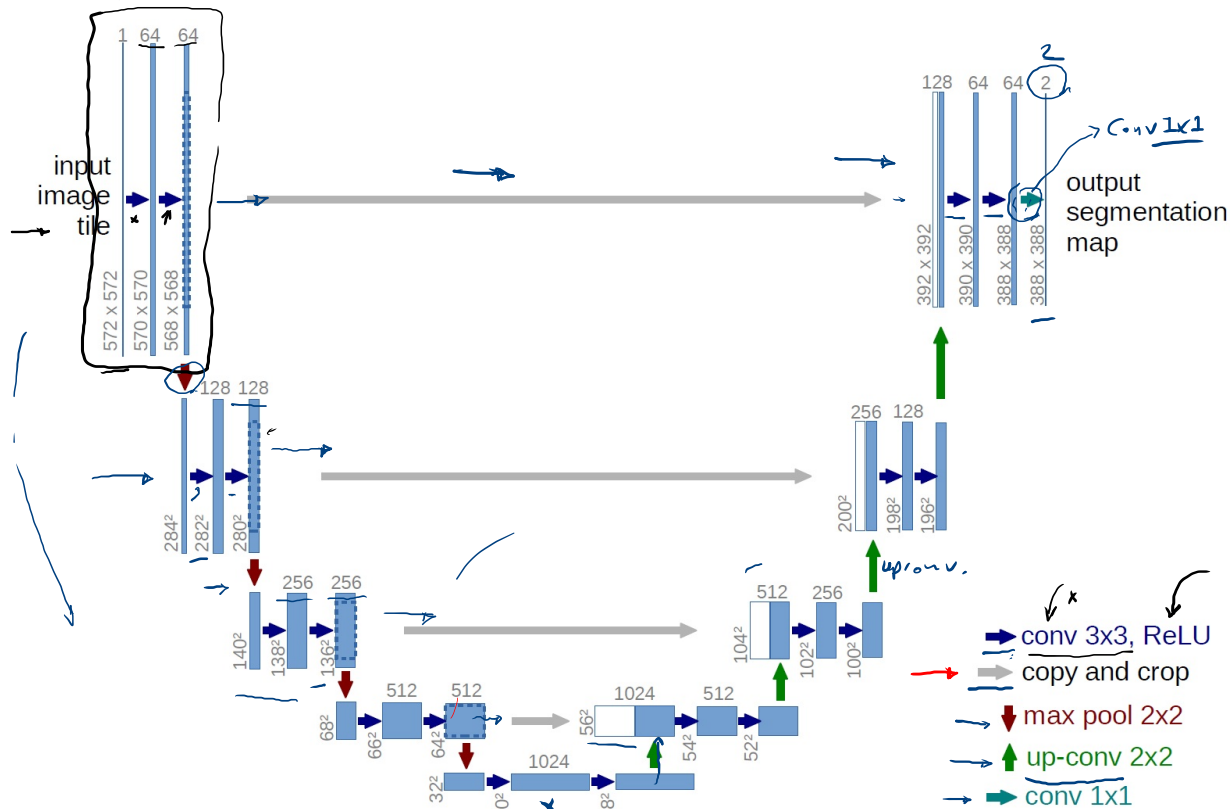


$$\frac{95}{100} = 95\%$$

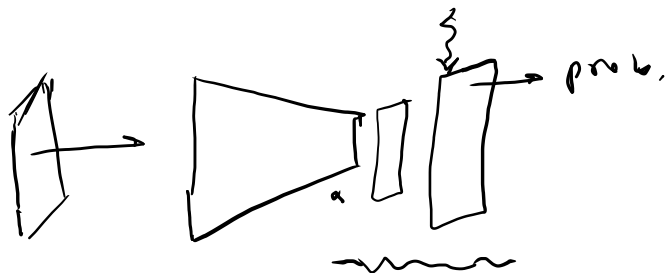
Dice $\sim \frac{2 \times A \cap B}{A + B}$

Unit

convBlock



Dense
 fully connected استفاده می شود
 segmentation از این



Conv 2x1 ~ classifier.

$U \rightarrow \text{Shape}$

Tran

Concatenation

l_1 -output



3 fm

l_2 -output



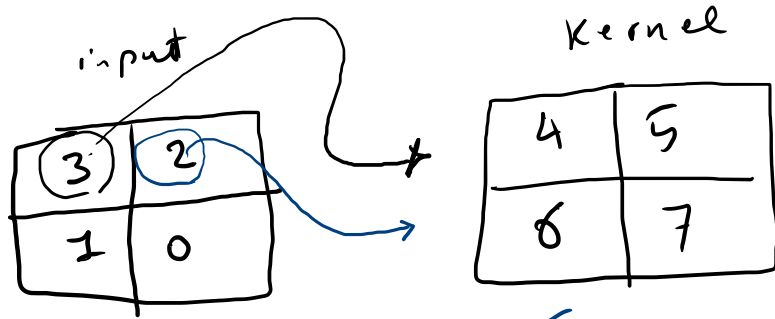
4 fm

Concat :



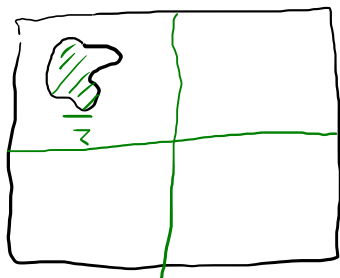
Transposed Conv.

stride = 2 \times

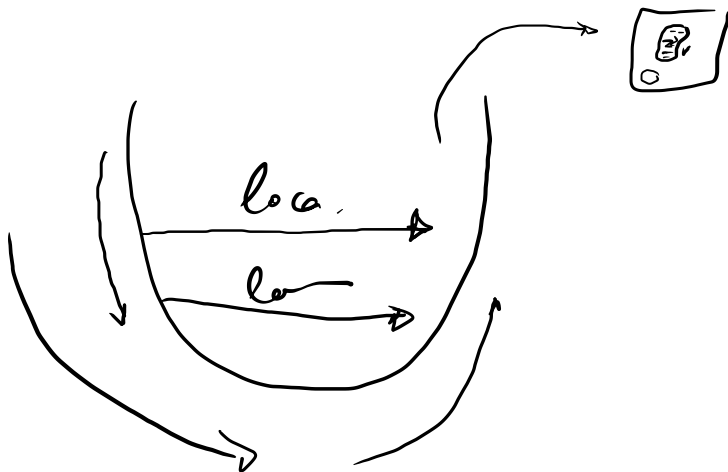
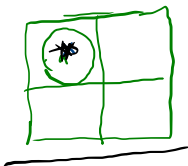


Transposed
Conv

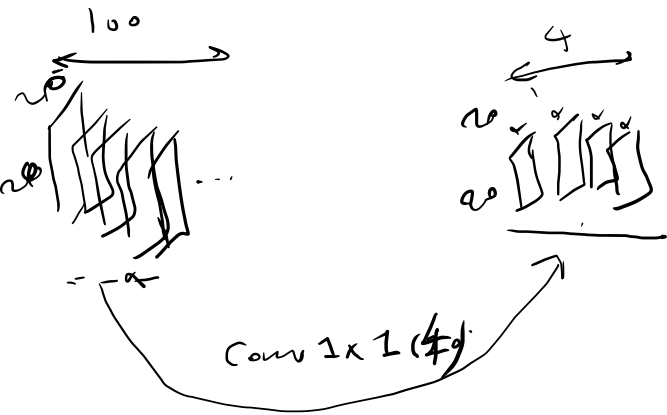
12	15	8	10
18	21	12	14
4	5	0	0
6	7	0	0



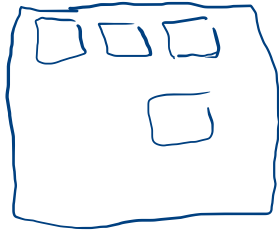
Conv



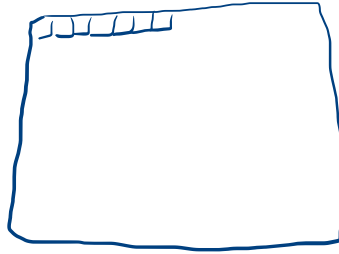
~~~~~



od



Seg



} computational }  
cost



End