

Resnet

Deeper Neural Networks

18, 34, 50, 101
151

Vanishing gradient

↓
Residual Block

Stride = 2

Resnet
= $\frac{n - f + 2p}{s} + 1$

Resnet $\rightarrow 100 \}$

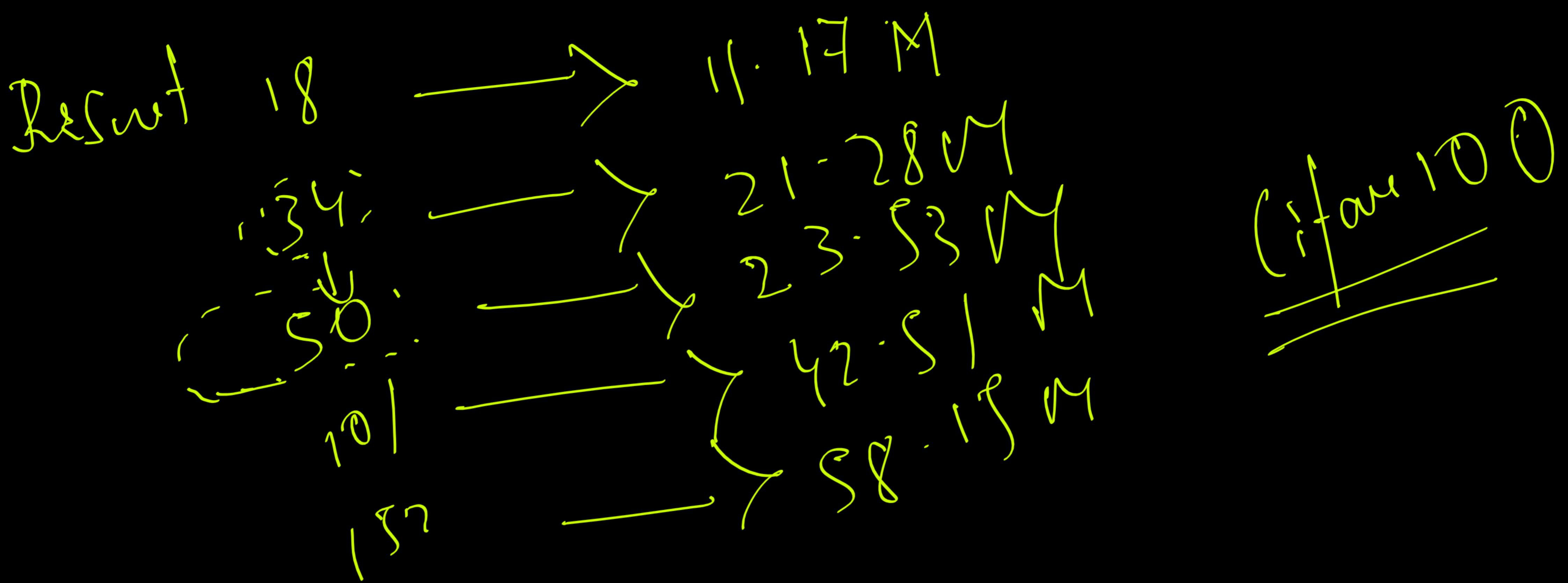
Max Pooling

) stride = 2

Replace
Max Pooling

Max Pool
If focuses on higher features
on stride = 2
If focus on both whether high small features -

2016
 $(22 \rightarrow 15)$ 60×70
Layout \rightarrow Trainable parameters.

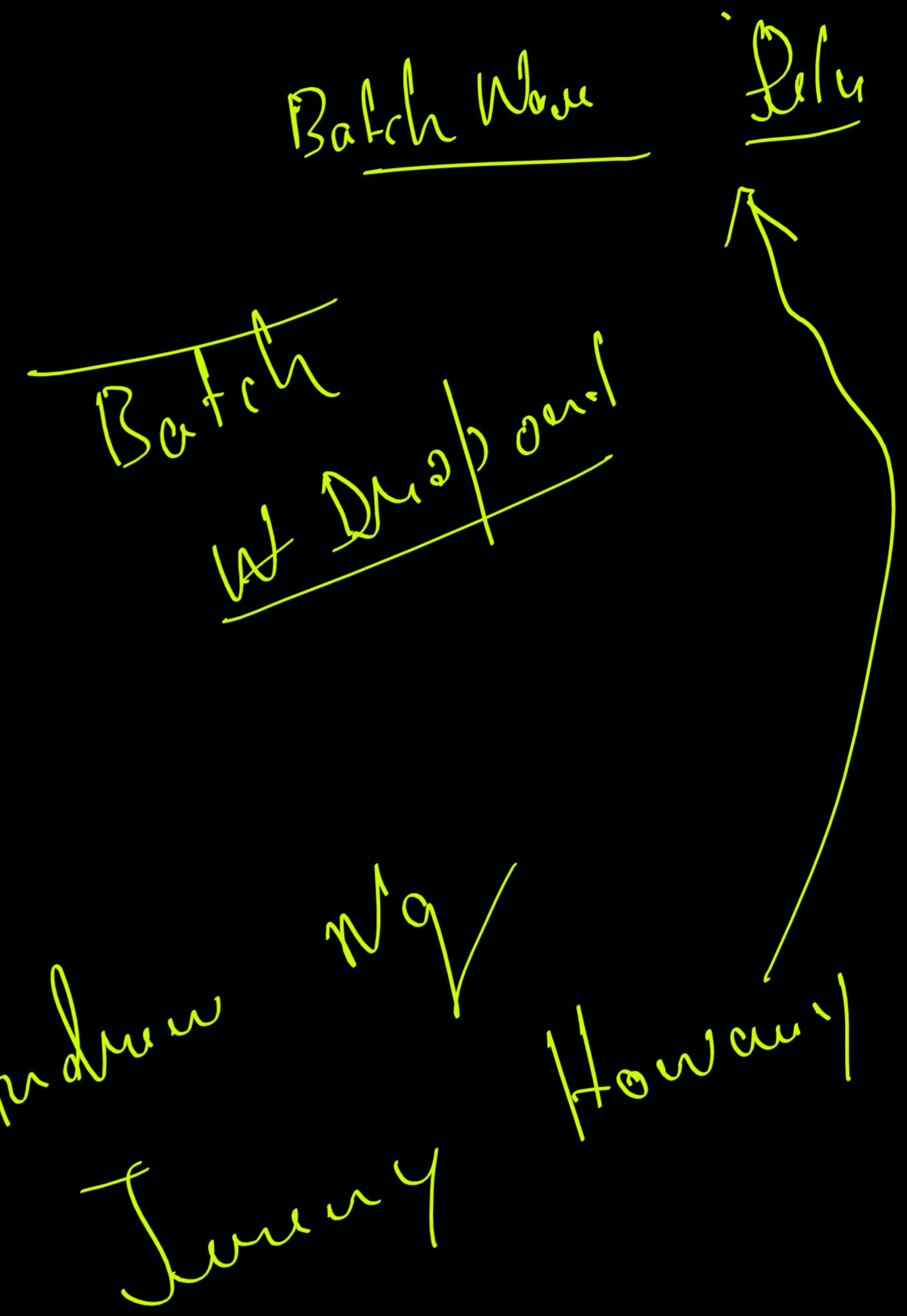
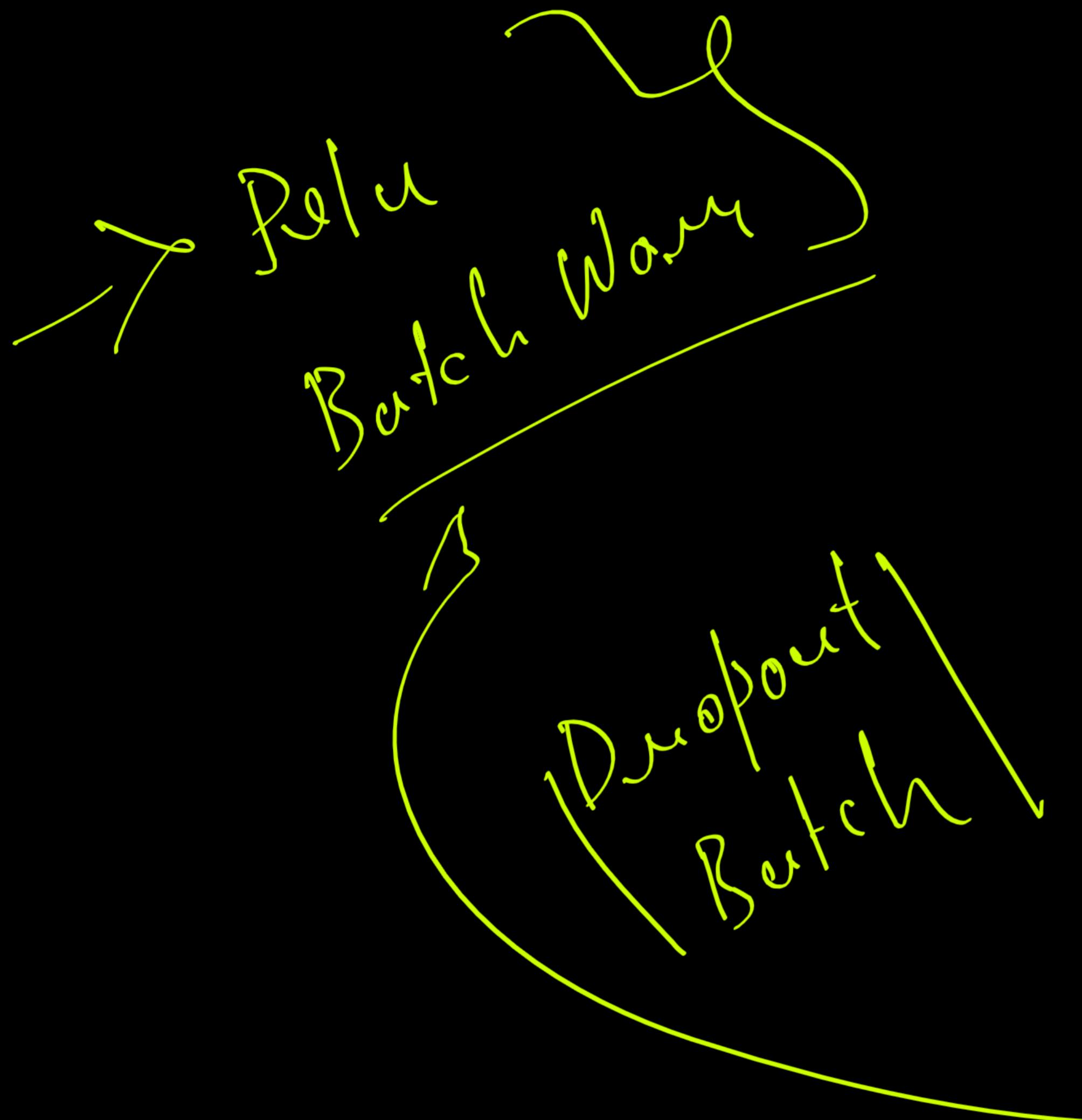


18 → 50

$\frac{230 - 7}{2} = \frac{223}{2} + 1$ Imaginary part

$= \frac{223}{2} + \frac{1}{12} - \frac{224 - 7 + 6}{2} + 1$ Real part

Validation loss



1) Pre-trained
Resnet 50

→ Cifar 100 → Epochs 25

2) Scratch work of any Resnet
Data -> Flowers Data set.

Machine Learning
Pakistani
Data mining
Deployment

Validation Acc 30%
5 25

3) * DenseNet Pretrained
Use $\frac{16^d}{\text{any}}$ data having more than
3 classes

4) * EfficientNet
Use any data having more than
3 layers
$$\begin{array}{c} 3 \times 3 \\ \hline (1 \times 3) \quad (3 \times 1) \end{array}$$

Hyper Parameter 1 haul Models

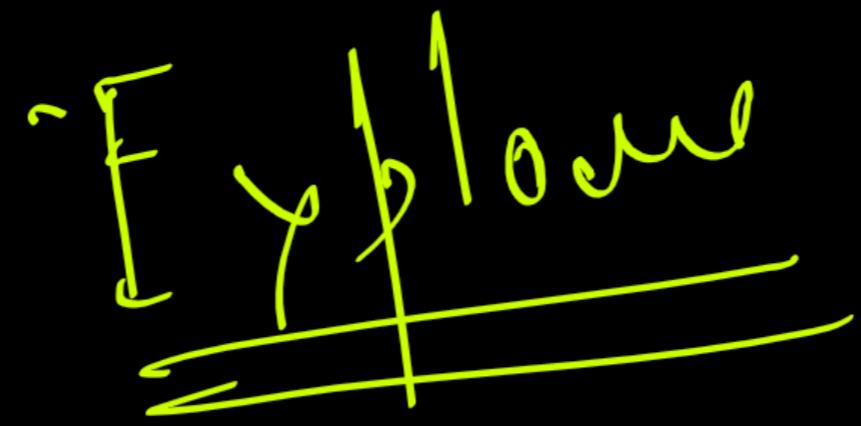
Complete { - 6 days WIP Pillow 20

30% 2 days * Open env 5.6

Practical Optimal BU VB
Theory | Procedures
10 models

T_{con} =

1) Lenet



2) Alexnet

3) VGG

4) Inception

5) Resnet

Visual Computing

Zf Net

Deeplearn

Image

Deep

SqueezeNet

Efficient

WAS WET

Functions

1) Open (V) *

2) Hyperparameter from Image

2) Open V

PyTorch *

CNN

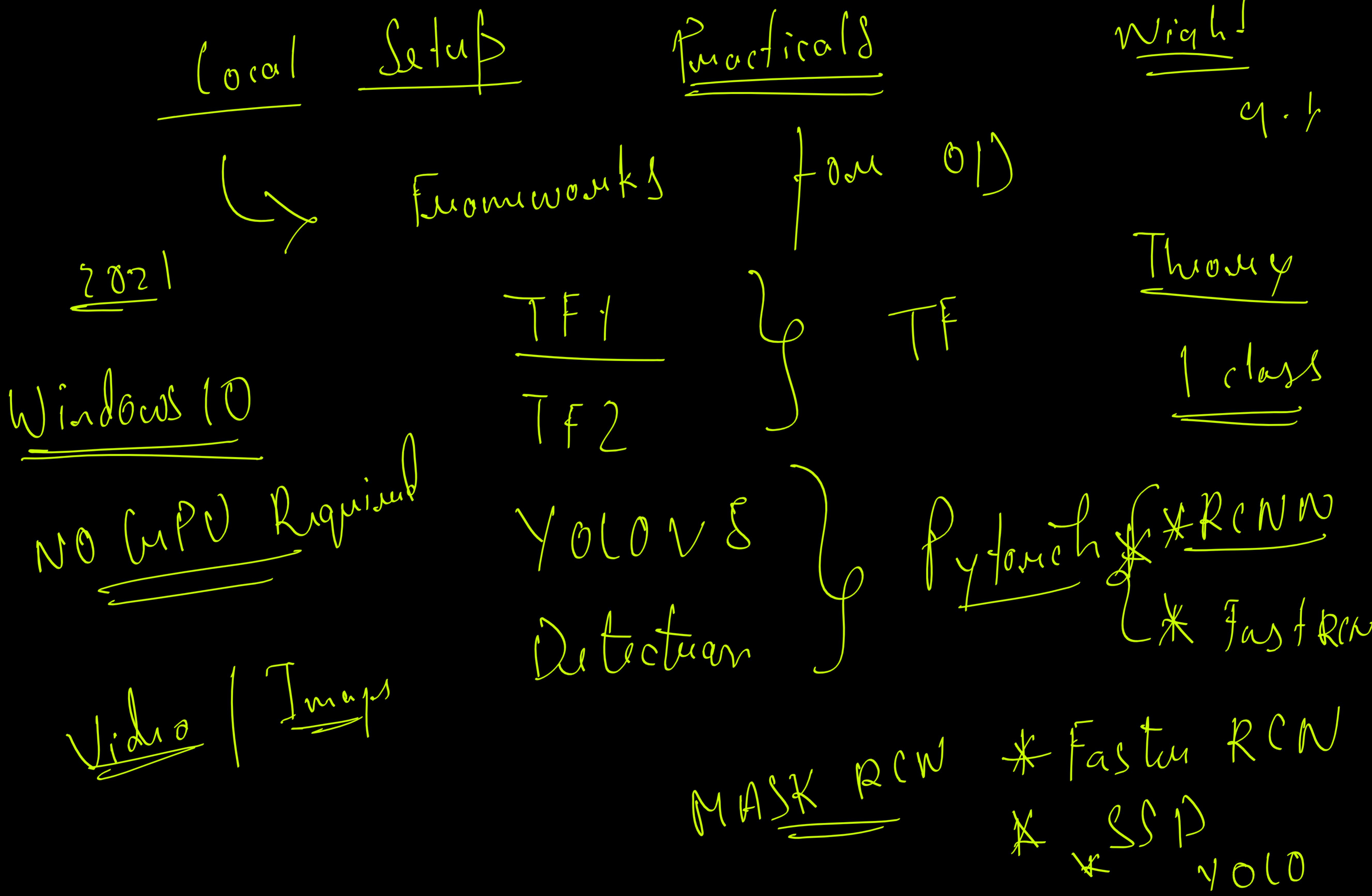
Loss } ReLU

Py

T.F

60%

=



CV

Square / Rectangle
OD

CCas

1) IC \rightarrow Covered

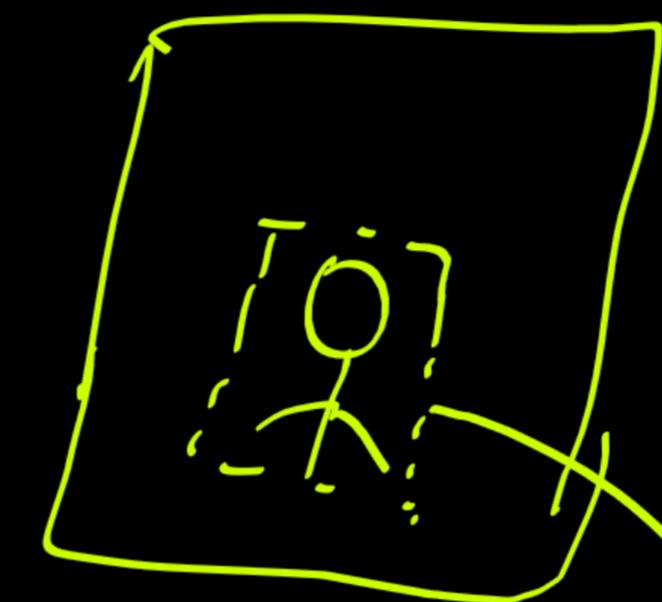
2) OD

3) IS

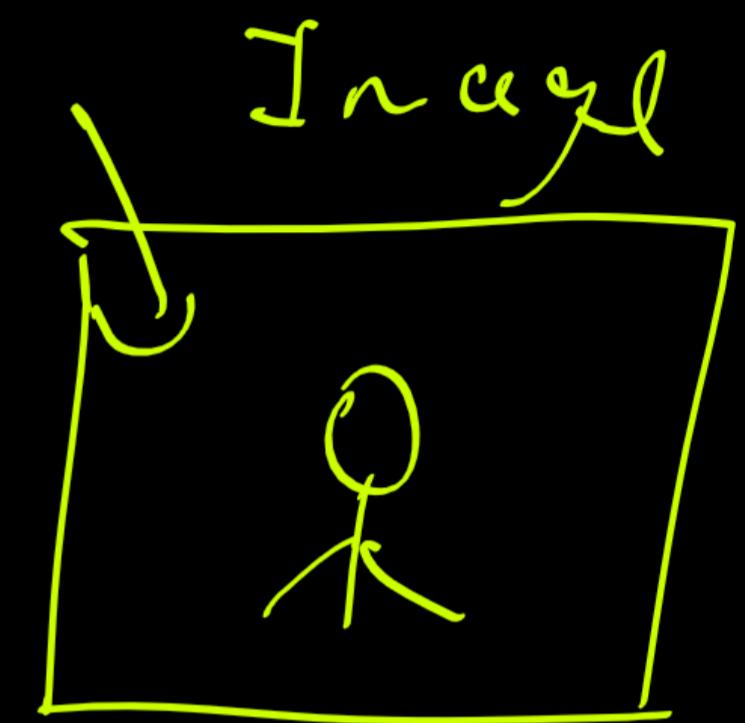
Co-ordinates

of the (x, y)

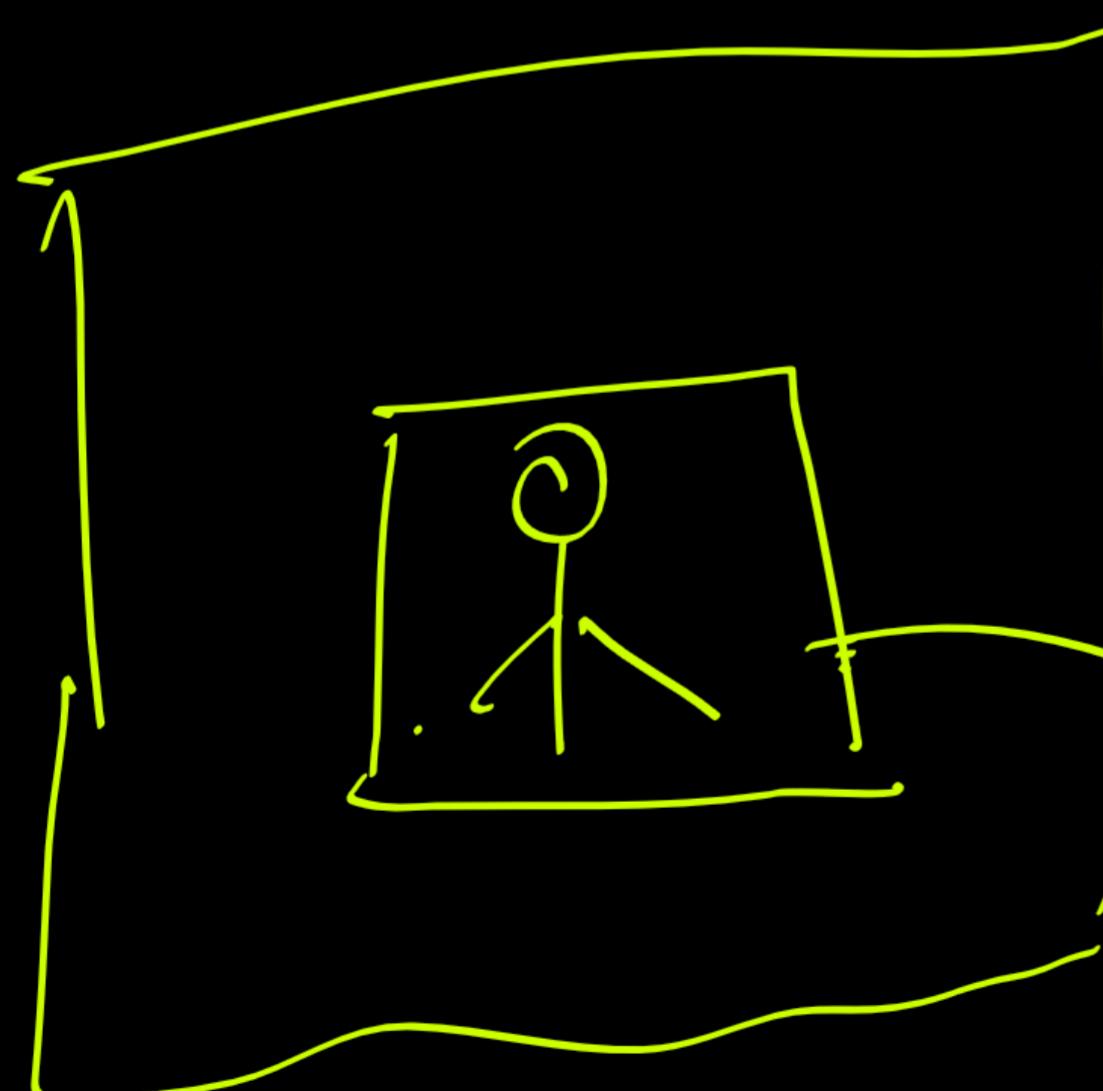
person



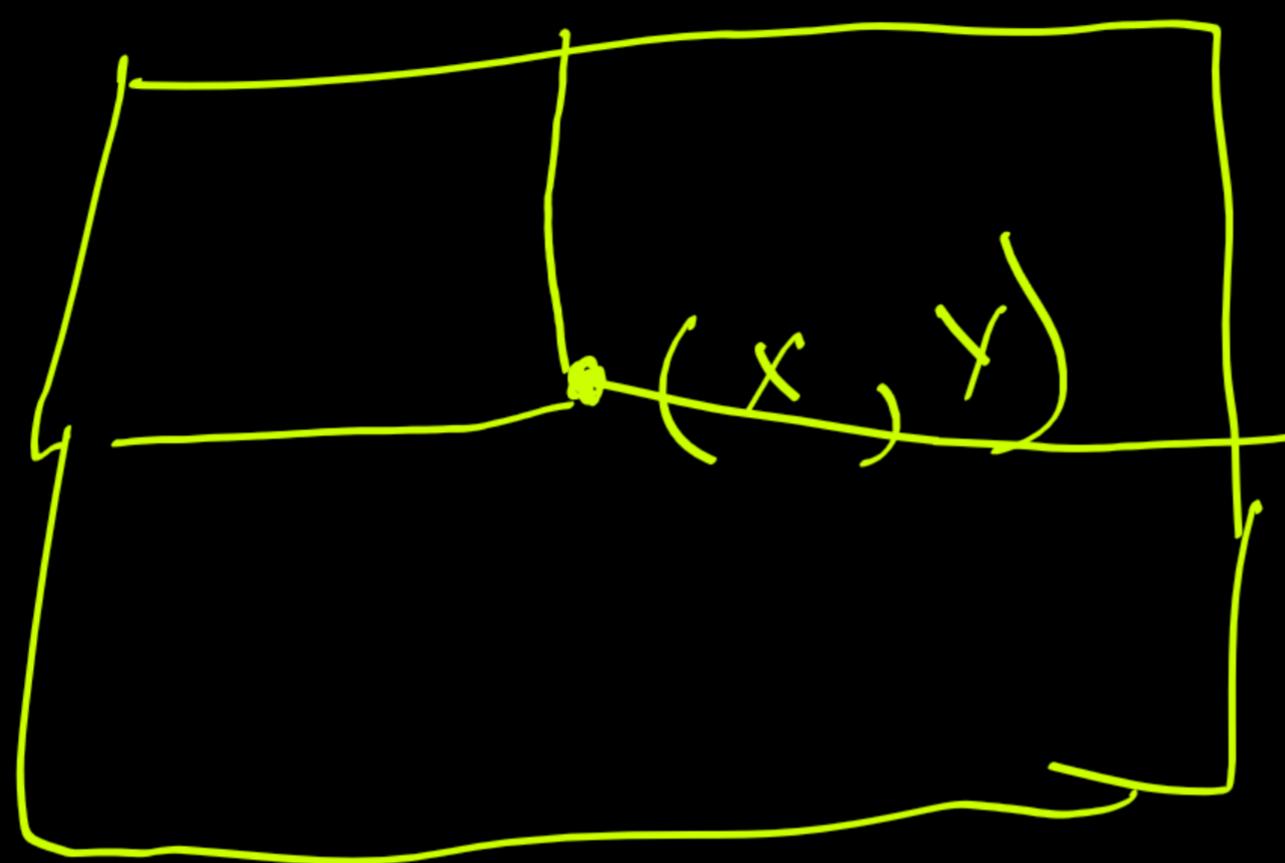
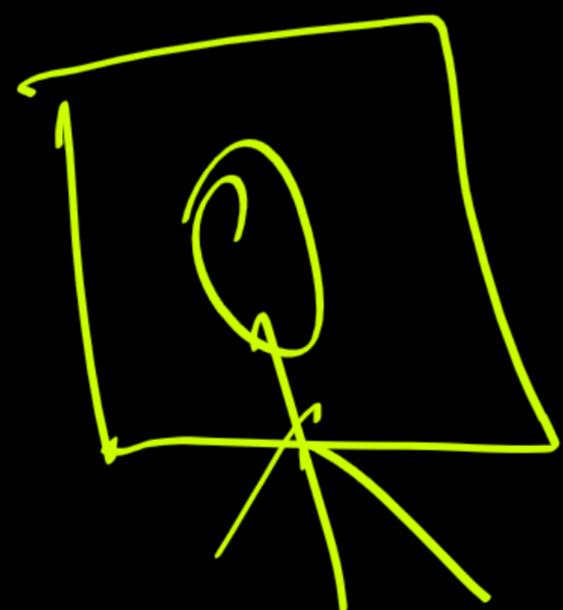
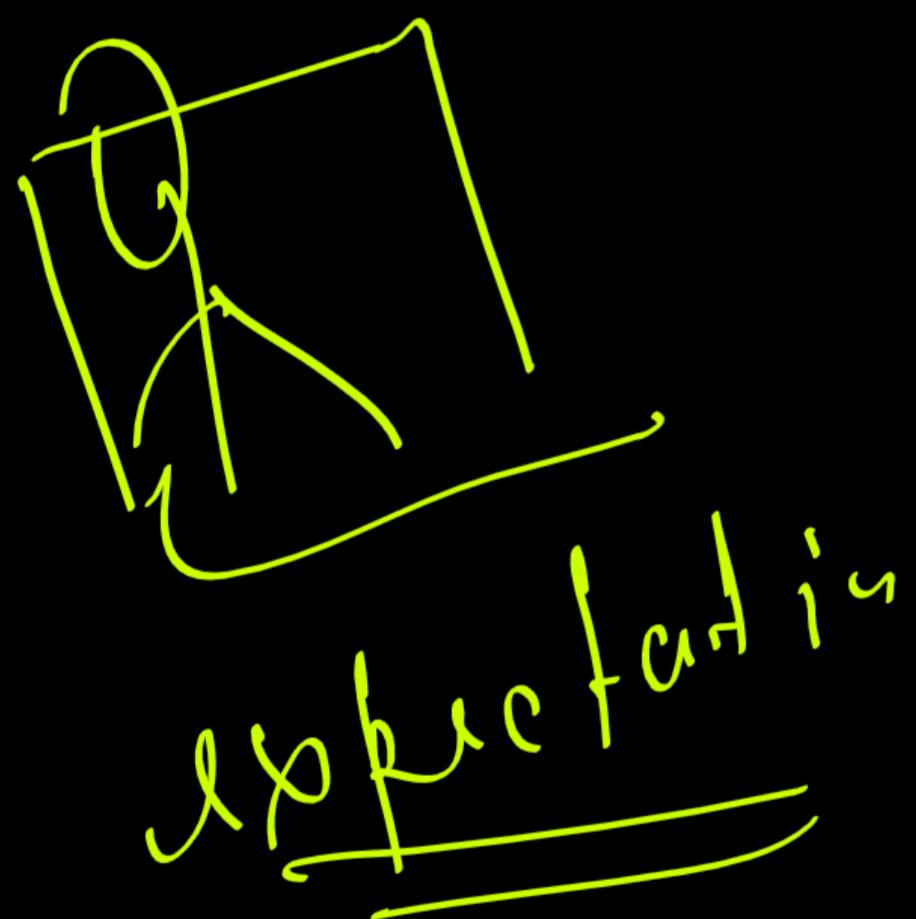
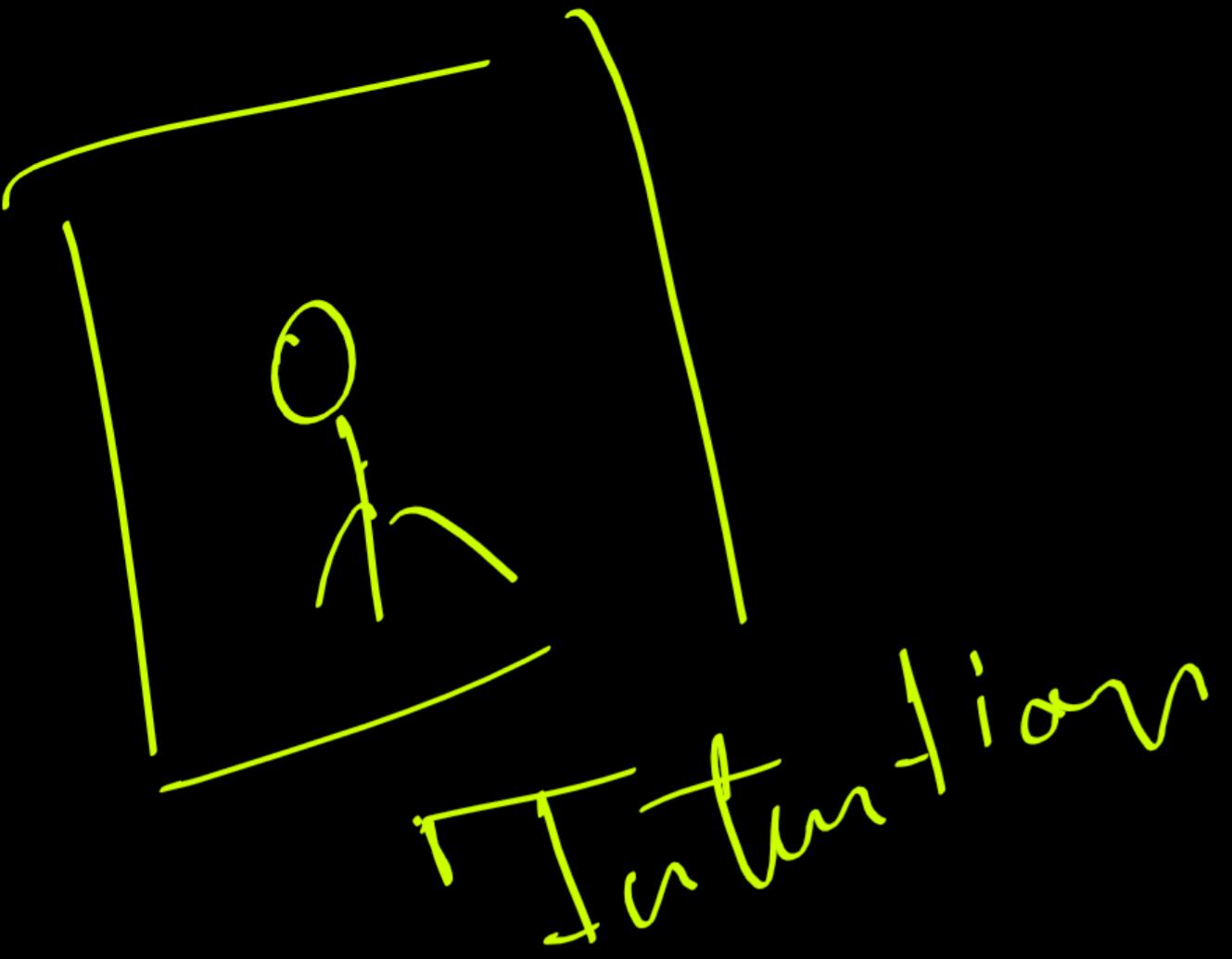
localization
of object



person



BBox | Bounding Box | Another Box

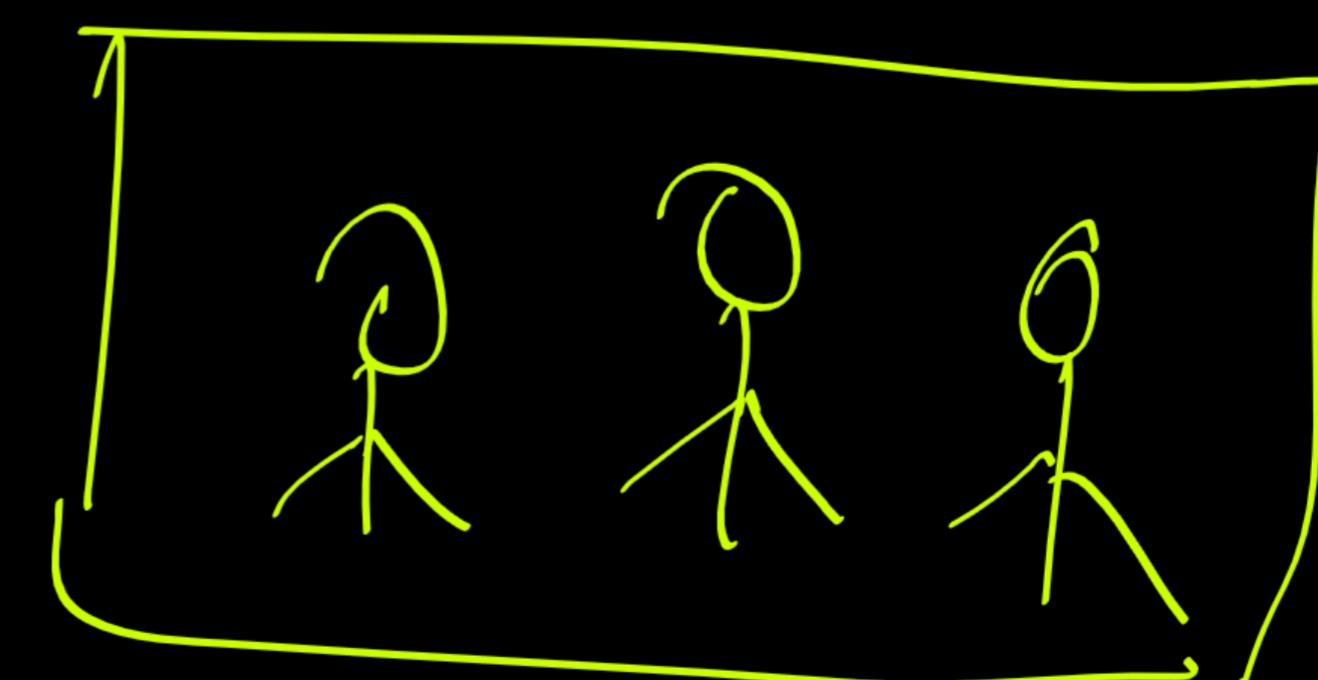


Overlapping

NMS

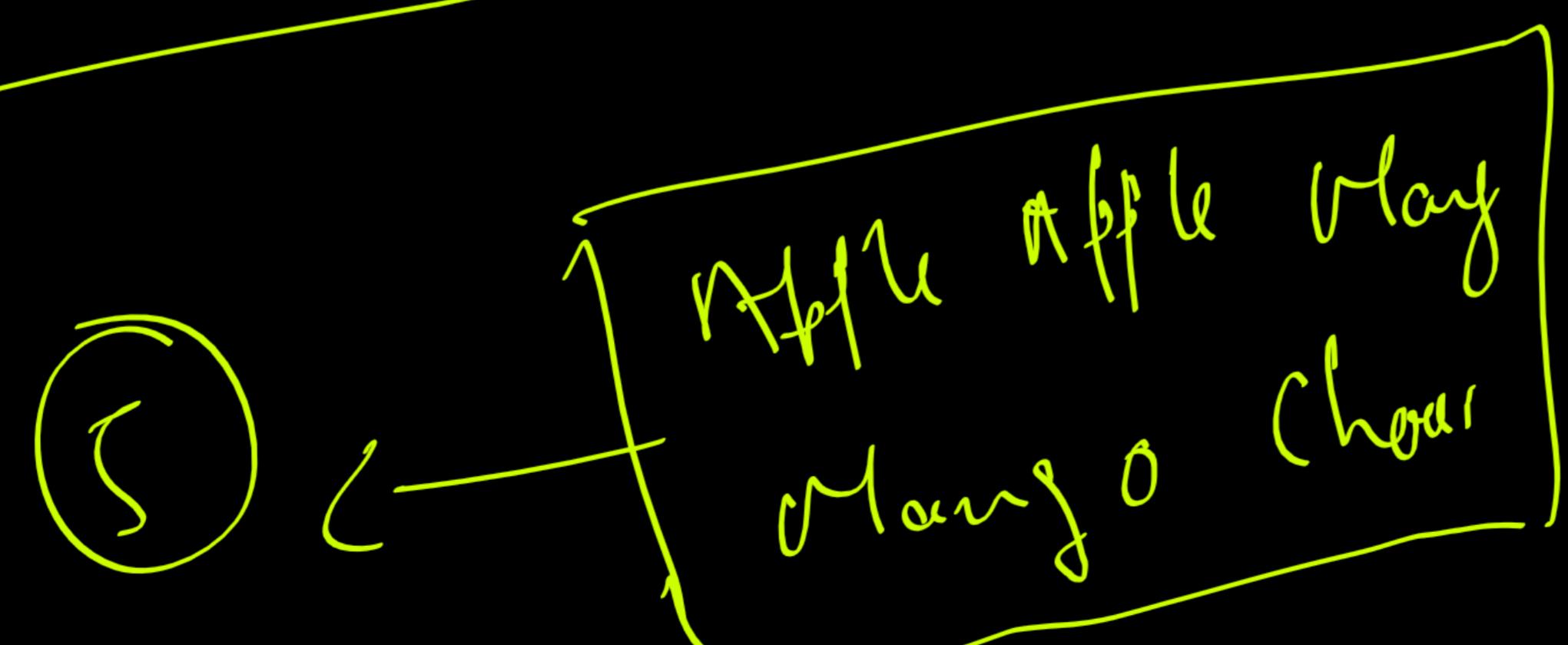
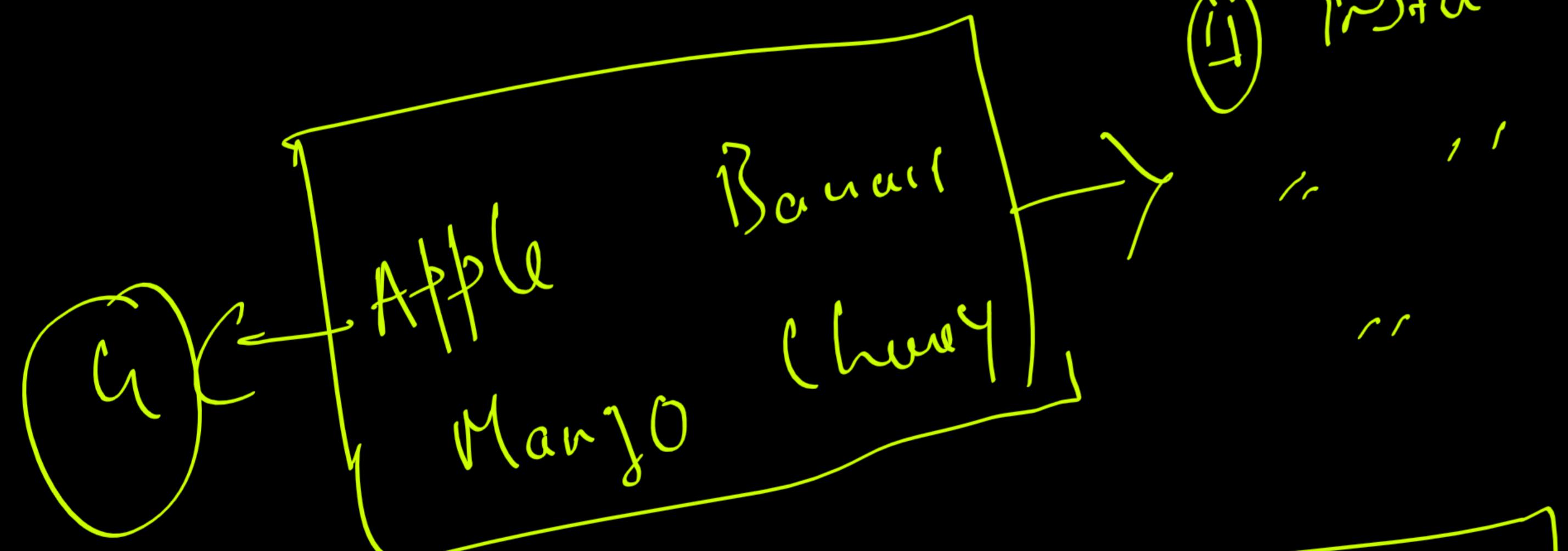
Three info

- 1) Middle Point
- 2) length
- 3) width



Class \rightarrow OD \rightarrow Segmentation \rightarrow Tracking

Image/Video \rightarrow Model

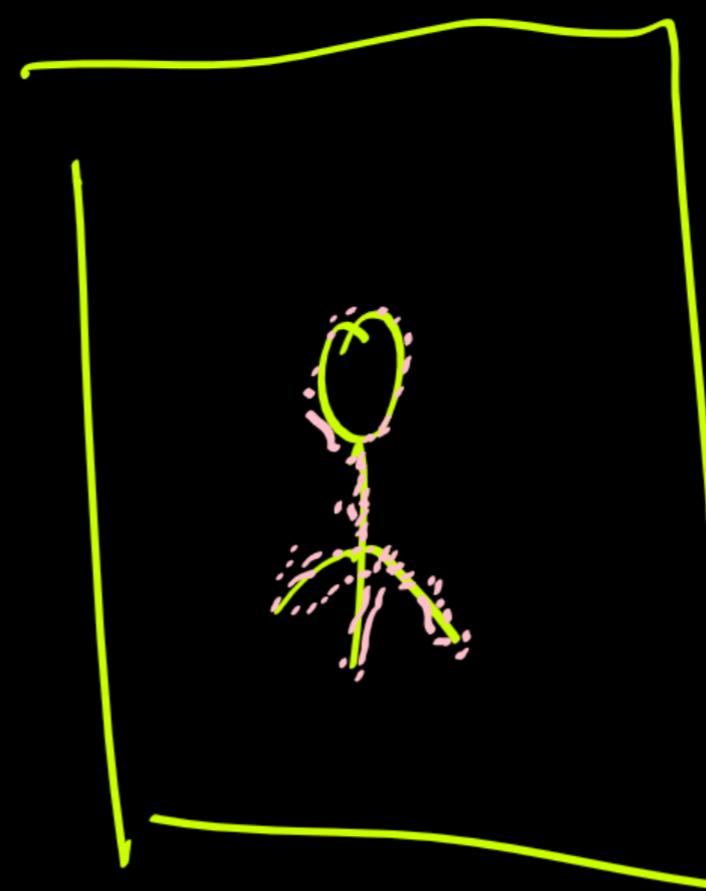


\cong 4) No. of instances of
Total no. of objects in the object

1) instance of Apple, 2) Bann, 3) Bounding Box
99% Confidence Score
(x,y) mid point of the

i) Classif.
Regres.

mask



Practicals

I.C
Pre trained Models

TF \equiv old | stable

OD
Pre trained Models

TF /

COCO Dataset

-> 90 classes

OD

Pretained

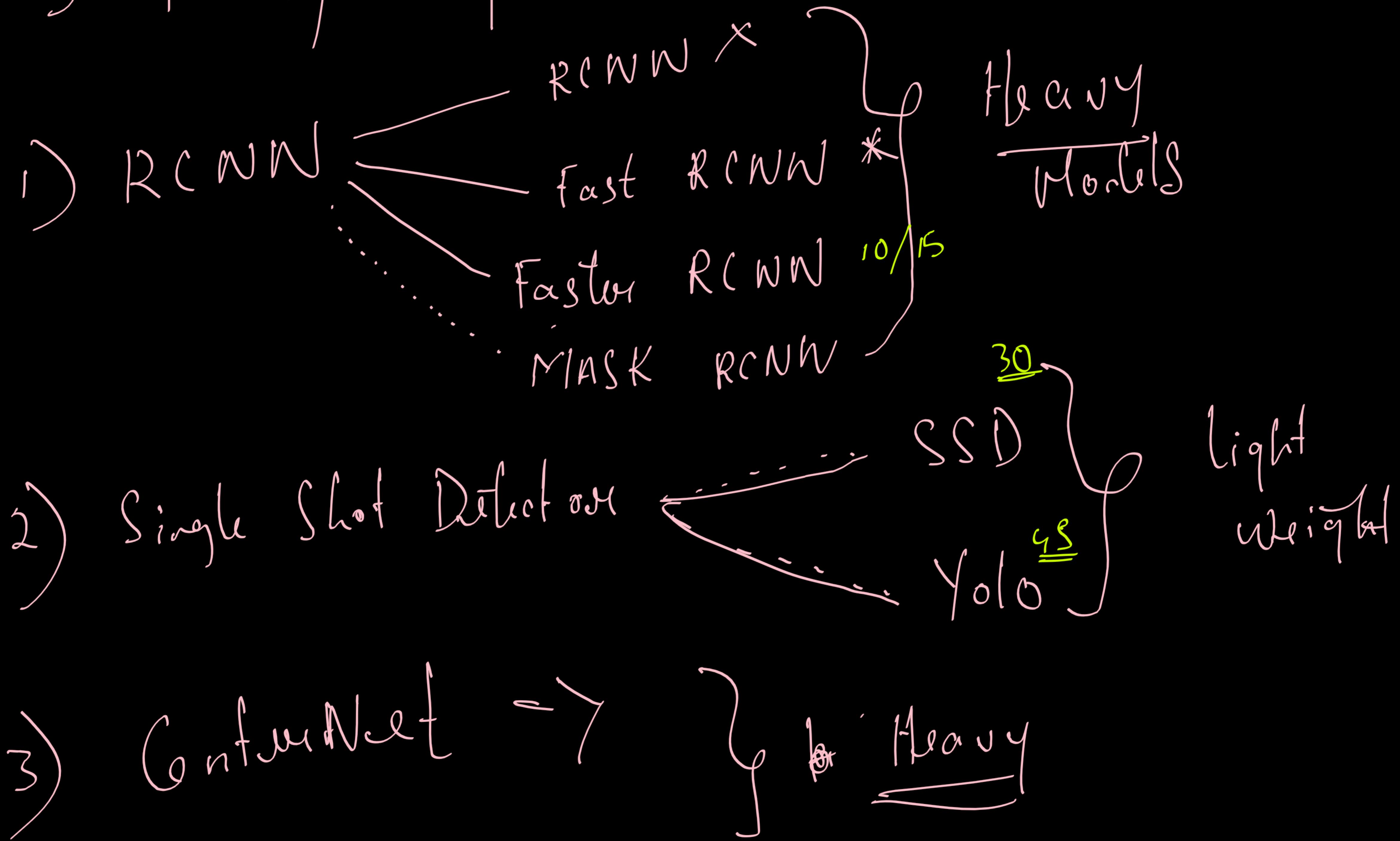
{ Class-Net + Detection + Dataset }
Inception + Faster RCNN + COCO

OD : MAP

IC = $\frac{\text{Data} + \text{Class}}{100}$

~~batch~~
Result
Inception

3 Family of OD :-



A MAP (1)

$x_{(1)}$ is higher (2) will be lower.

Trade-off

$x_{(2)}$ is higher (1) is lower

Imaged

Speed (2) Image (1)

Speed

↓
FPS (30)

30 f/I and
produced by model
in 1 sec

1)

MAP ↑

→ FPS will be lower

30 FPS
=====

2)

MAP ↓ → FPS will be higher

15 FPS
=====

← SSD is predicting
HC faster

30 frames per sec

is predicting 15 times per sec -
Model

Selection

(Real Time)

Batch Predict

Real Time \rightarrow lighter Models (Single Shot Detector)

CVPR

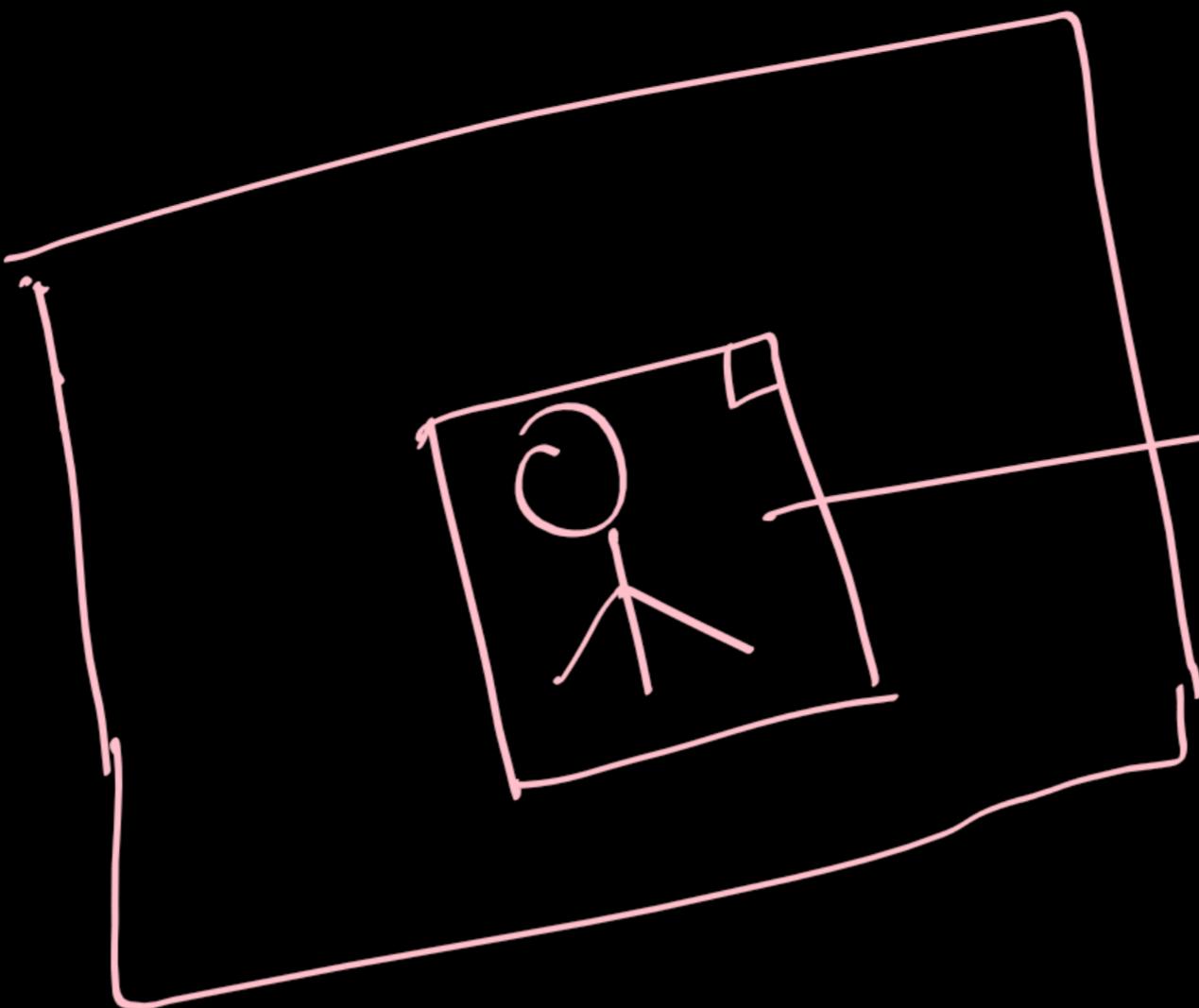
YOLO, SSD

90% 10%

Batch Prediction \downarrow heavy Models (Faster RCNN ResNet Inception)

Pascal Kitti $\xrightarrow{10 - 12 \text{ FPS}}$ 100 $\xrightarrow{300 \text{ FPS}}$ 45 $\xrightarrow{\text{V100 GPU}}$

MASK



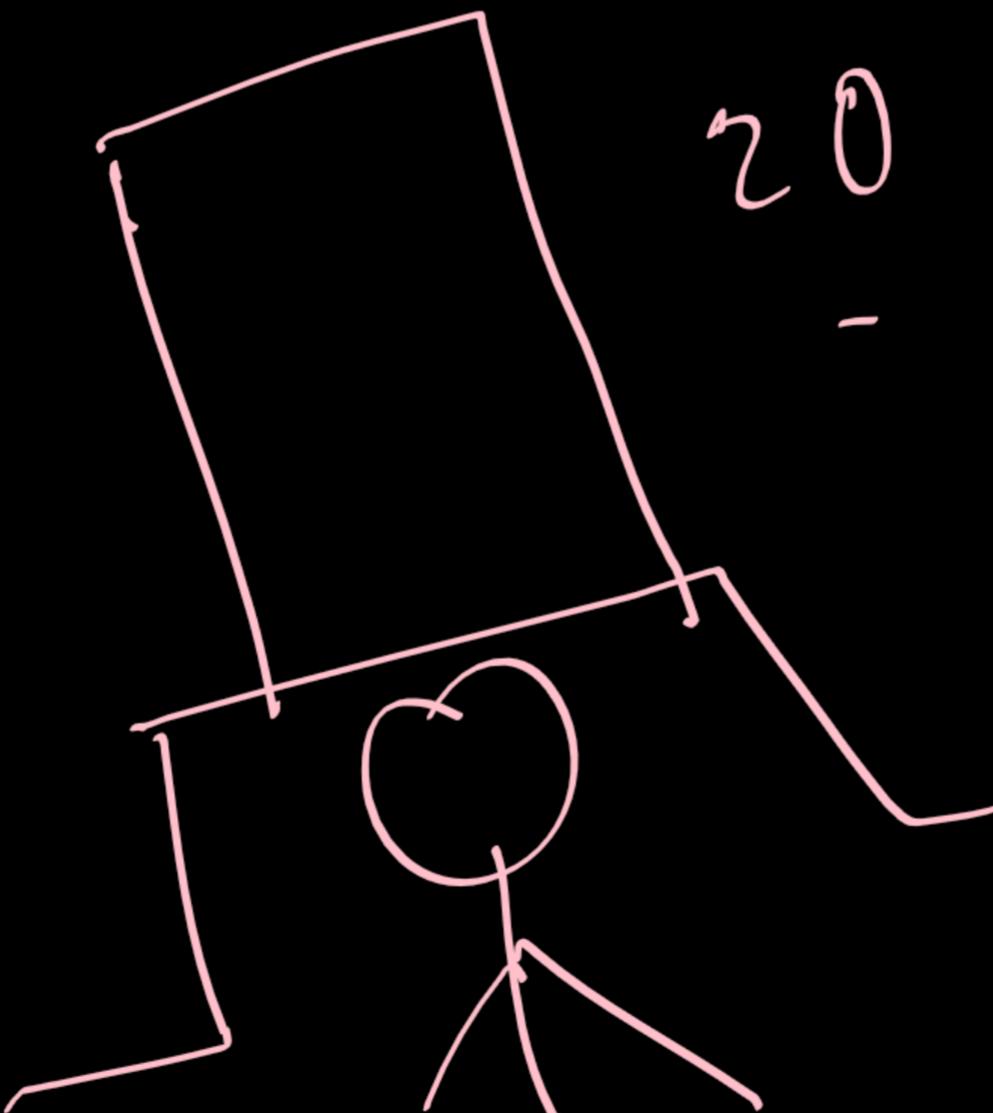
Regression -

confidence

\rightarrow whether

30% the

Overlapping



YOLO

