

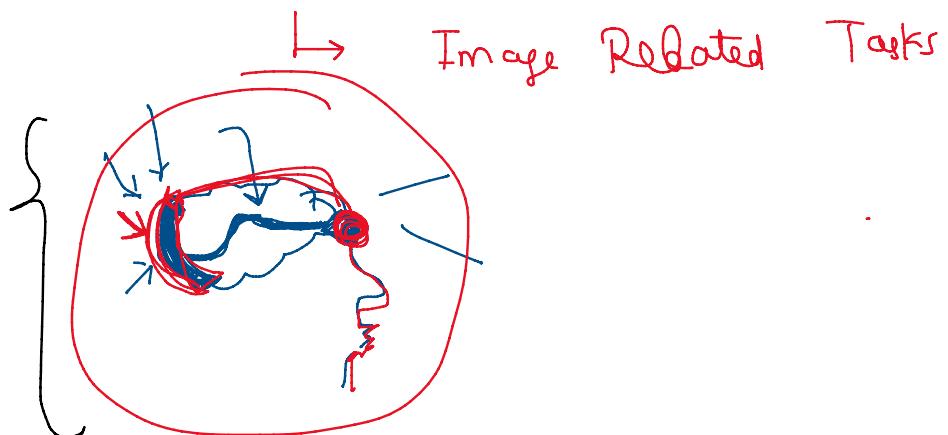
# Convolutional Neural Network

07 August 2020 01:04 PM

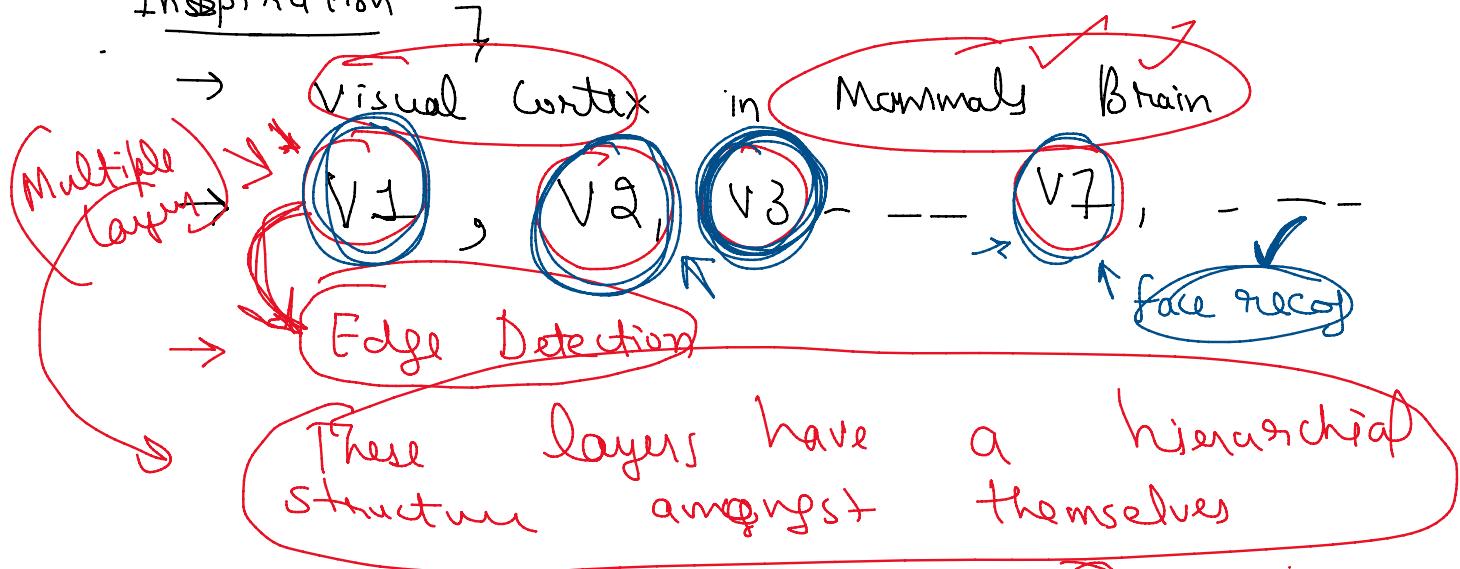
Starting @ 4:10 PM

Topic →

→ Convolutional Neural Network



Inspiration →



→ Motion, Depth, Color, face,

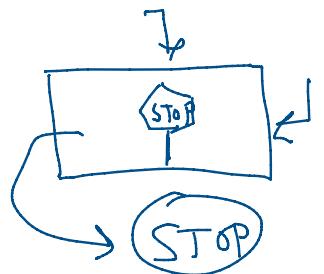
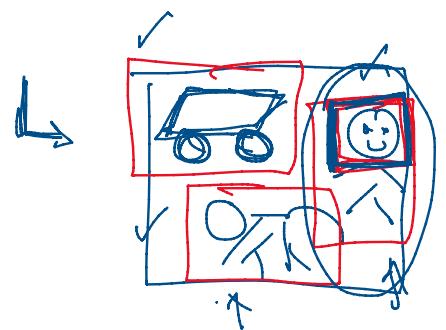


{ Detection →  
↓ Recognition



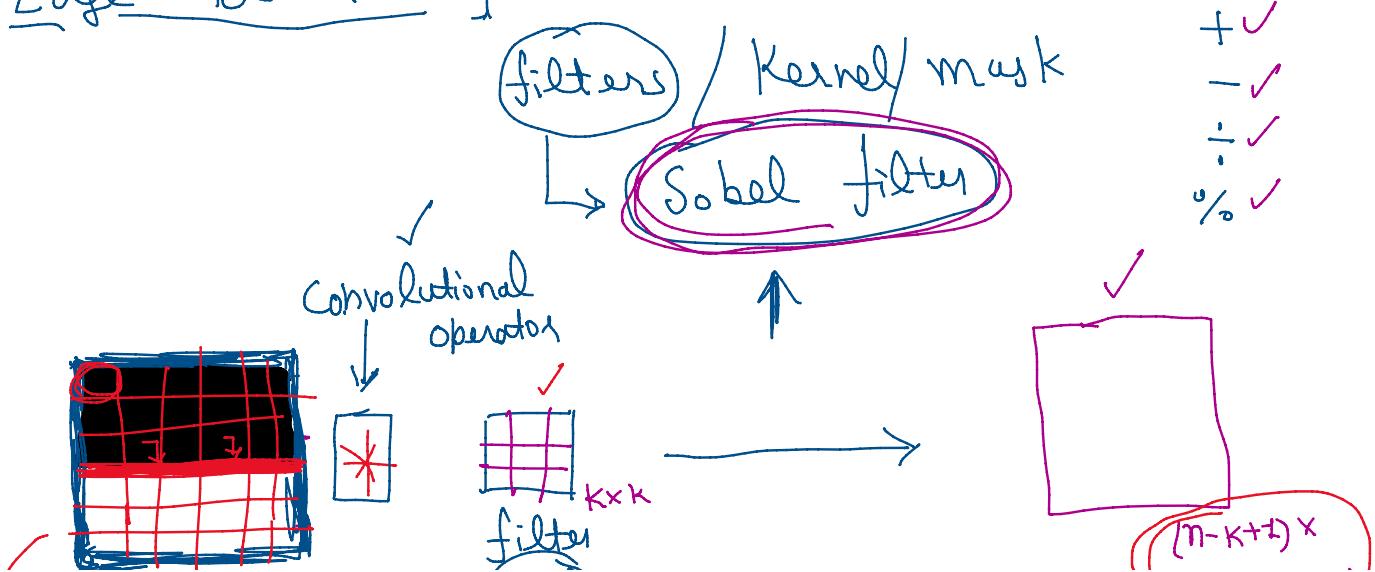
## CNN Applications

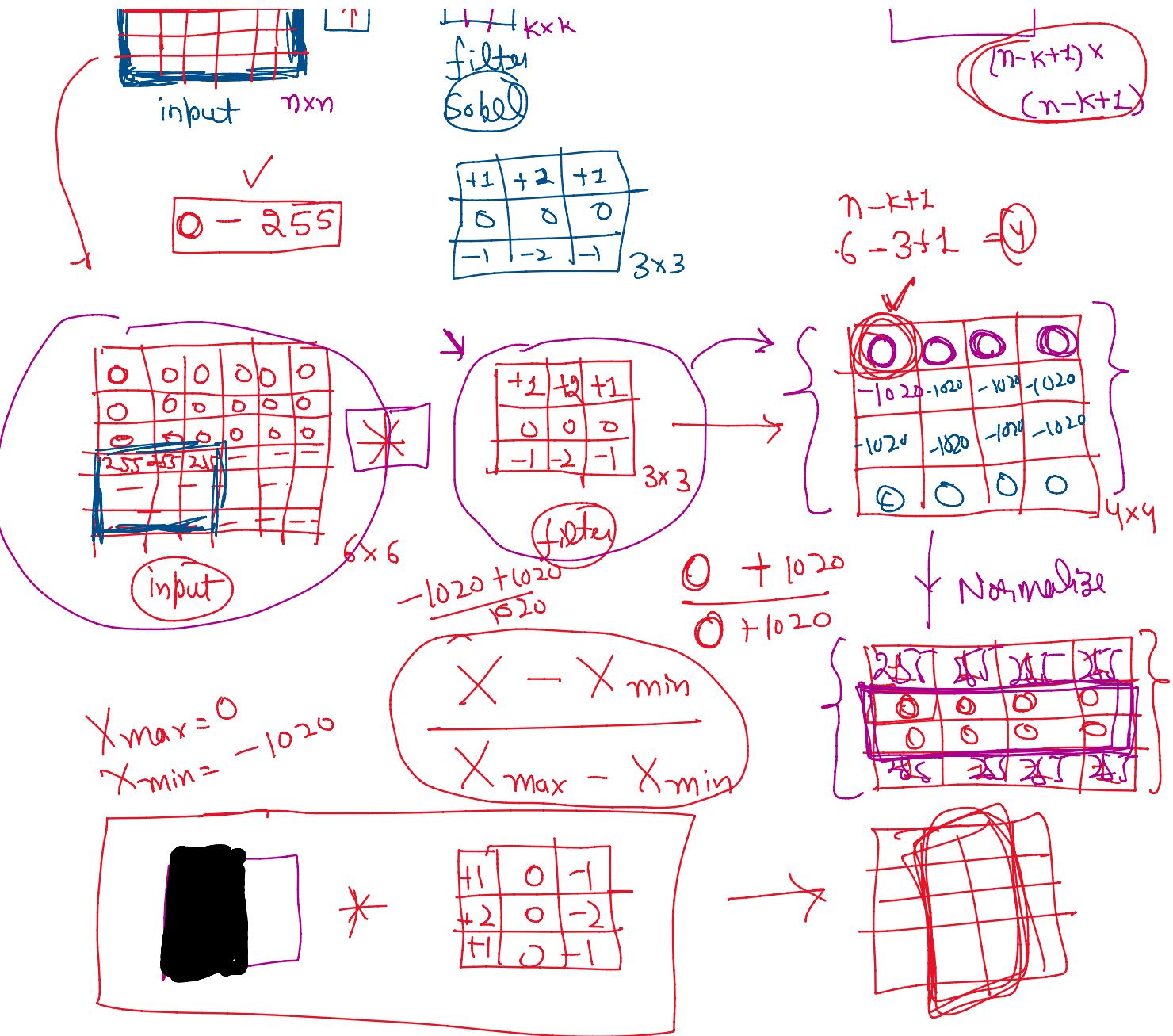
- Image Segmentation
- Object Localization
- Optical Character Recognition
- Object Detection
- Face Recognition



$\checkmark_1 \rightarrow$  Primary visual cortex

## Edge Detection



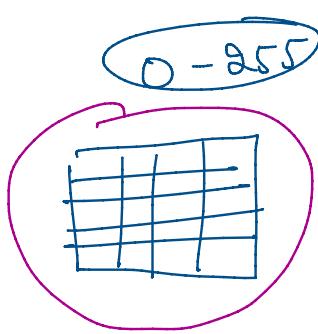


[https://en.wikipedia.org/wiki/Sobel\\_operator](https://en.wikipedia.org/wiki/Sobel_operator)

<https://towardsdatascience.com/a-comprehensive-guide-to-convolutional-neural-networks-the-eli5-way-3bd2b1164a53>

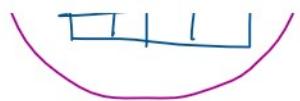
<https://neurohive.io/en/popular-networks/vgg16/>

Image  $\downarrow$

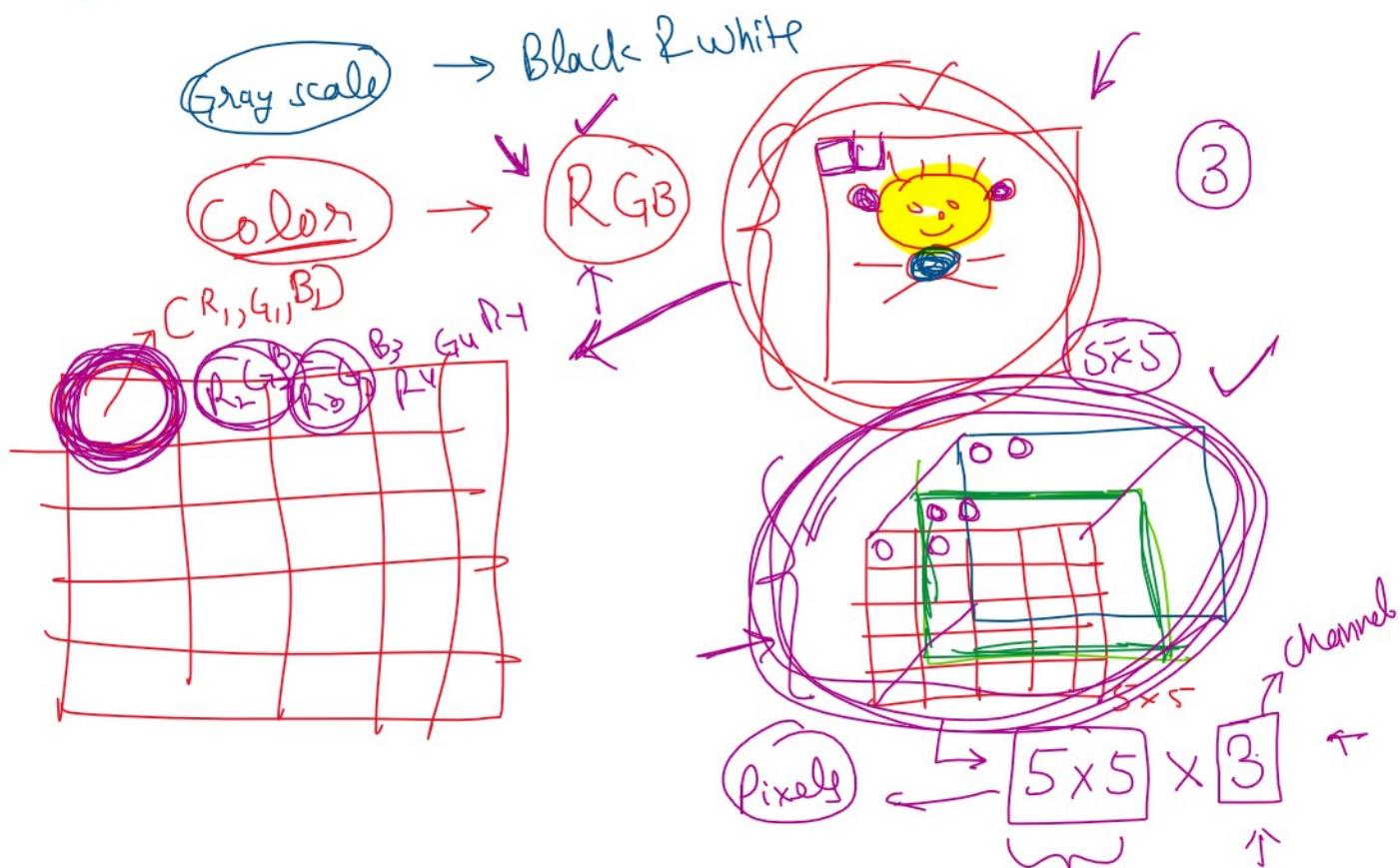


White  $\downarrow$  Black  
offwhite

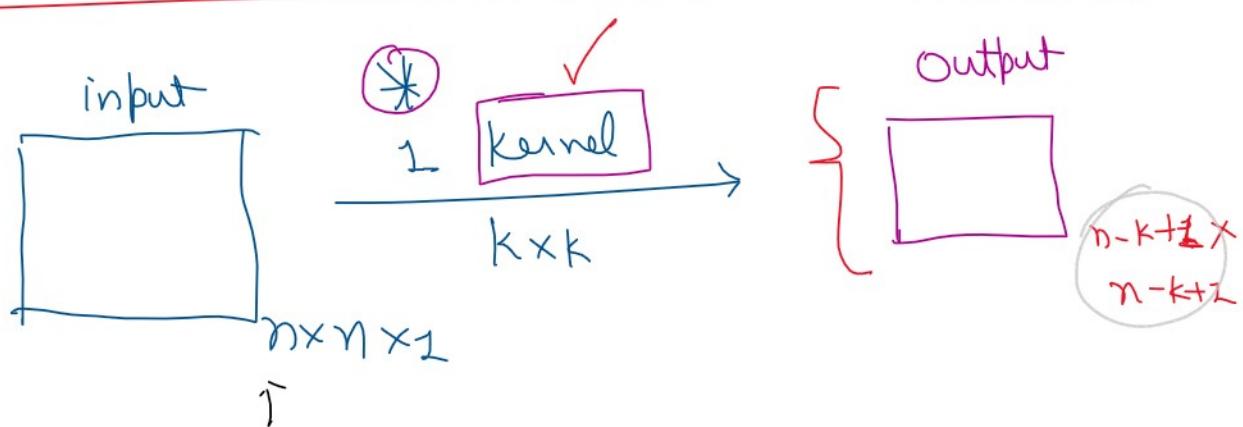
Image ↴



Obj



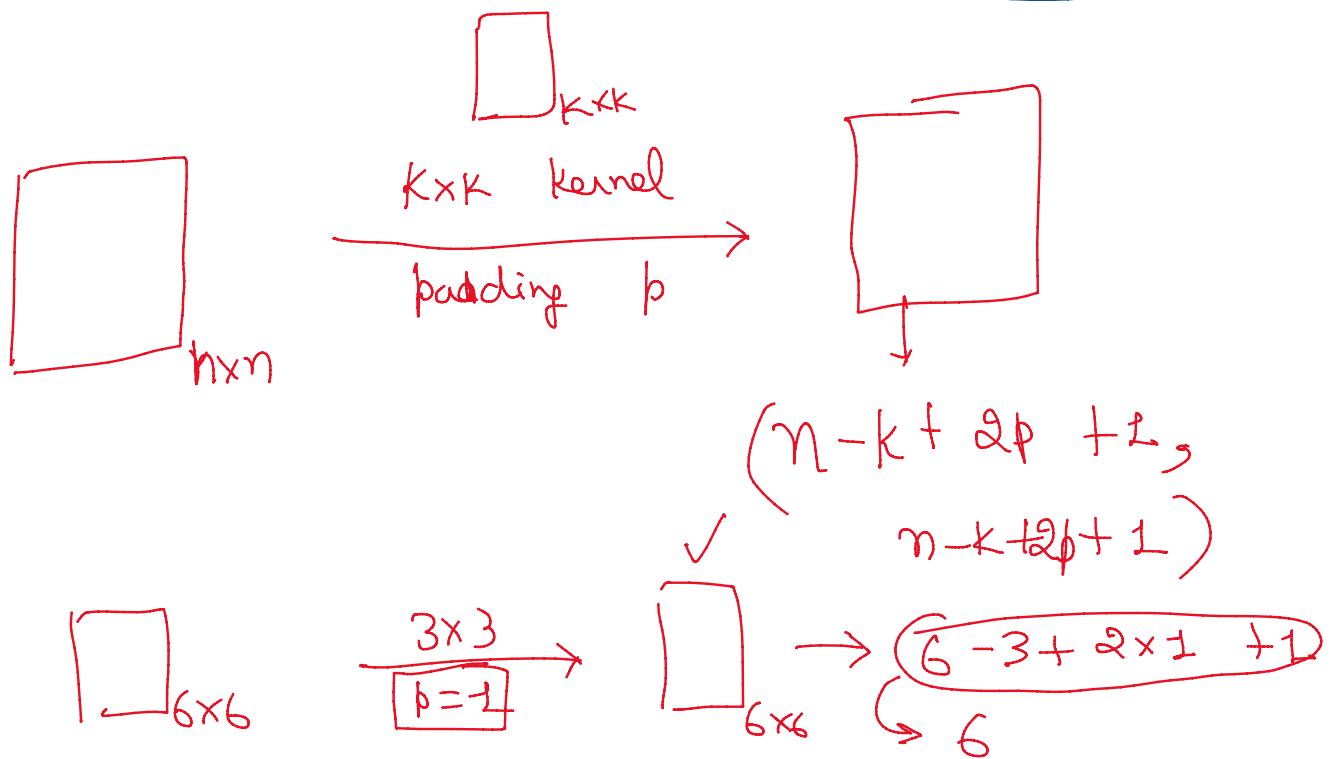
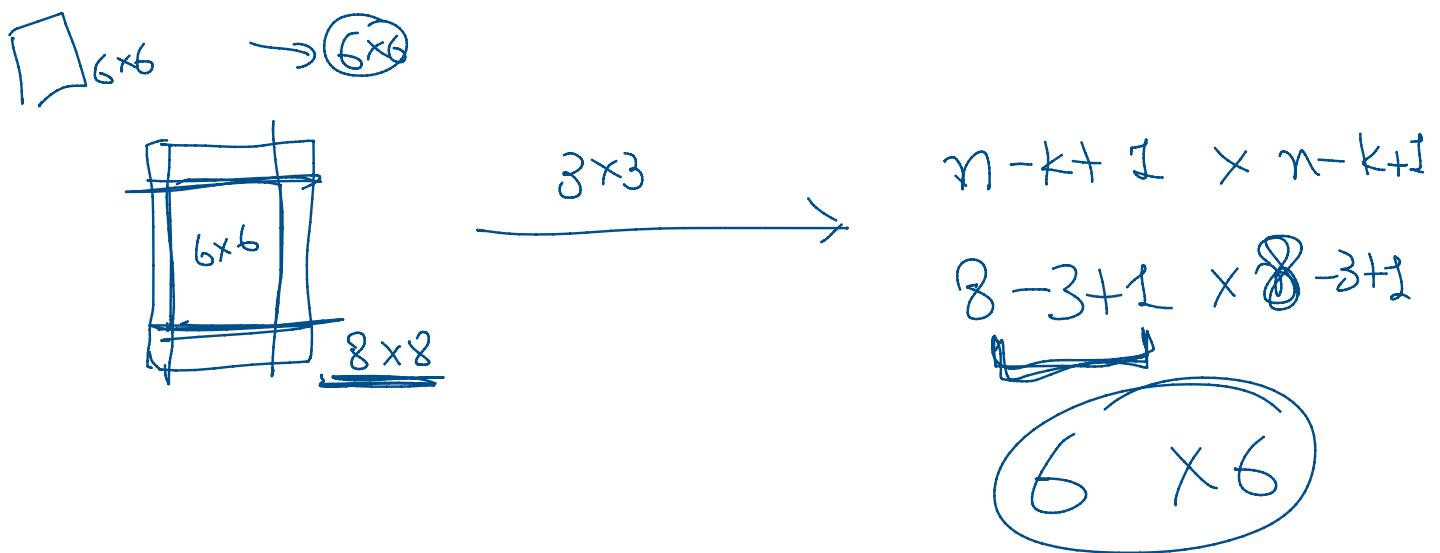
Gray scale →  $5 \times 5 \times 1$



Padding ↴

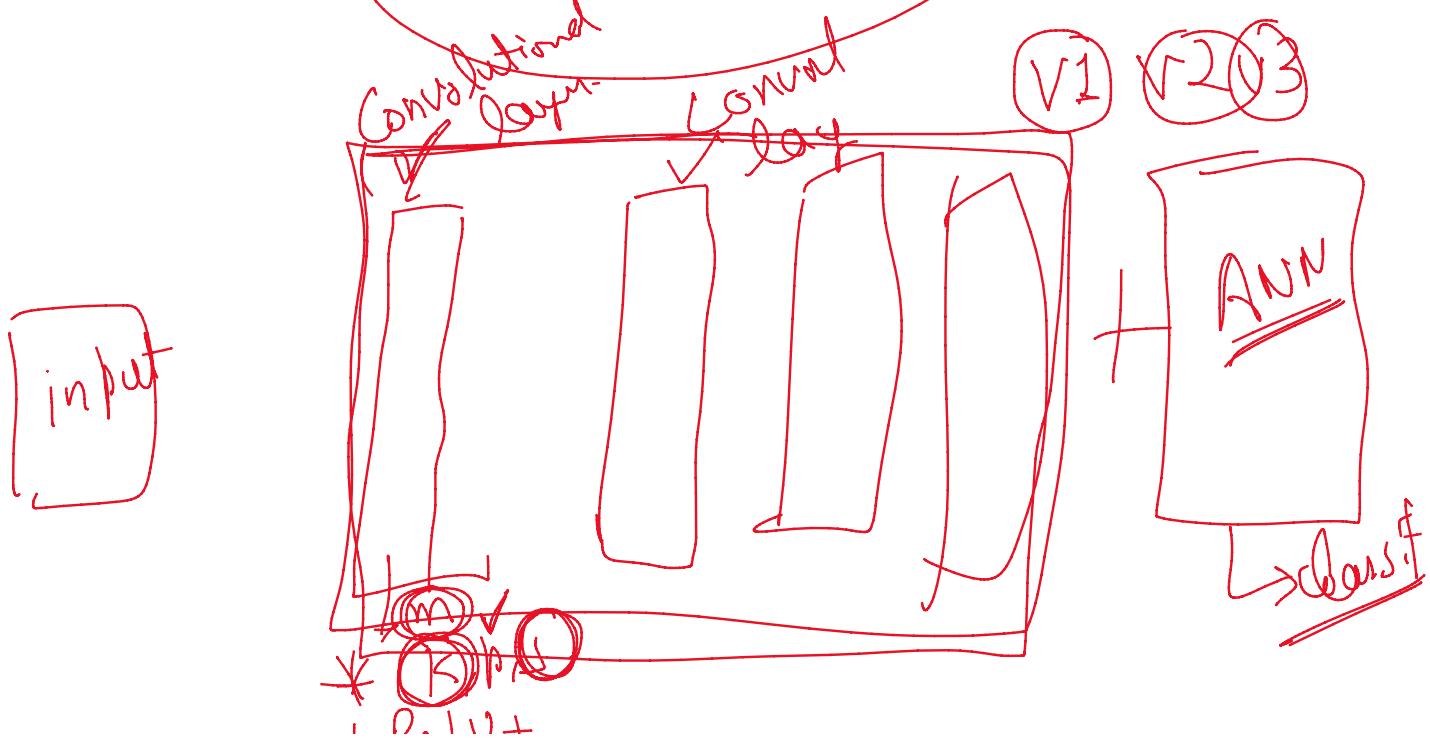
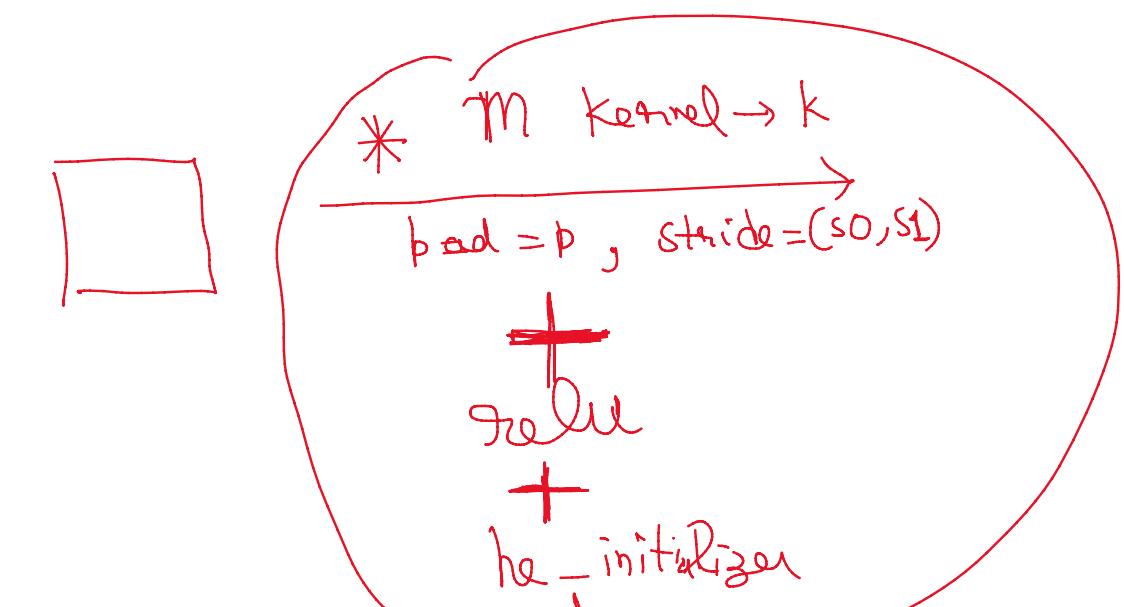
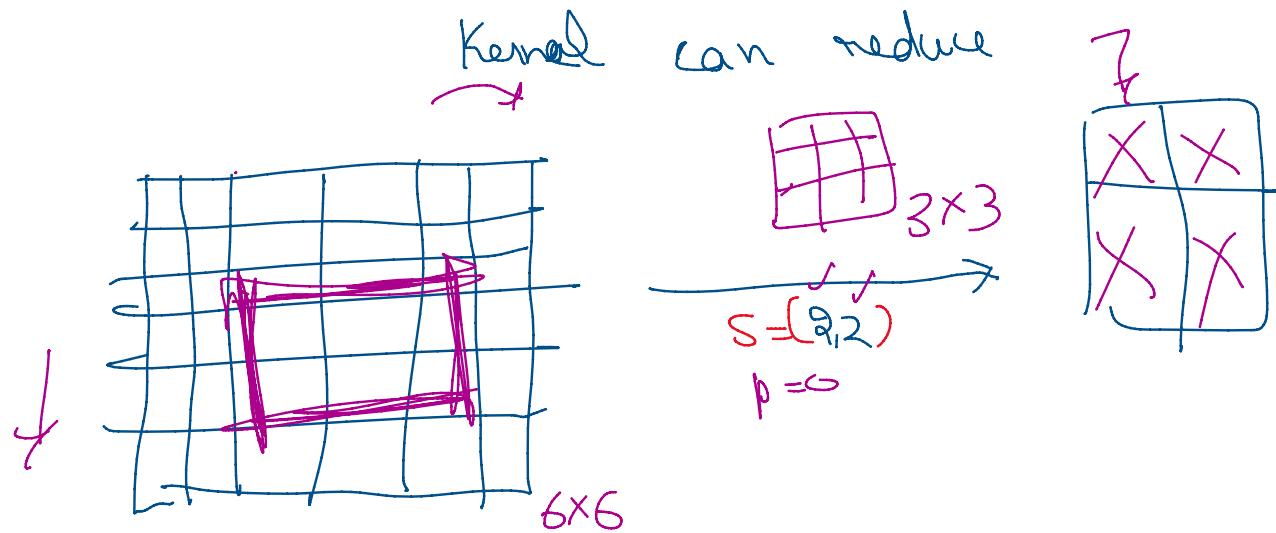
0	0	0	0	0	0	0	0
0							0
0							0
0							0
0							0
0							0
0							0
0	0	0	0	0	0	0	0

Zero-padding added to image

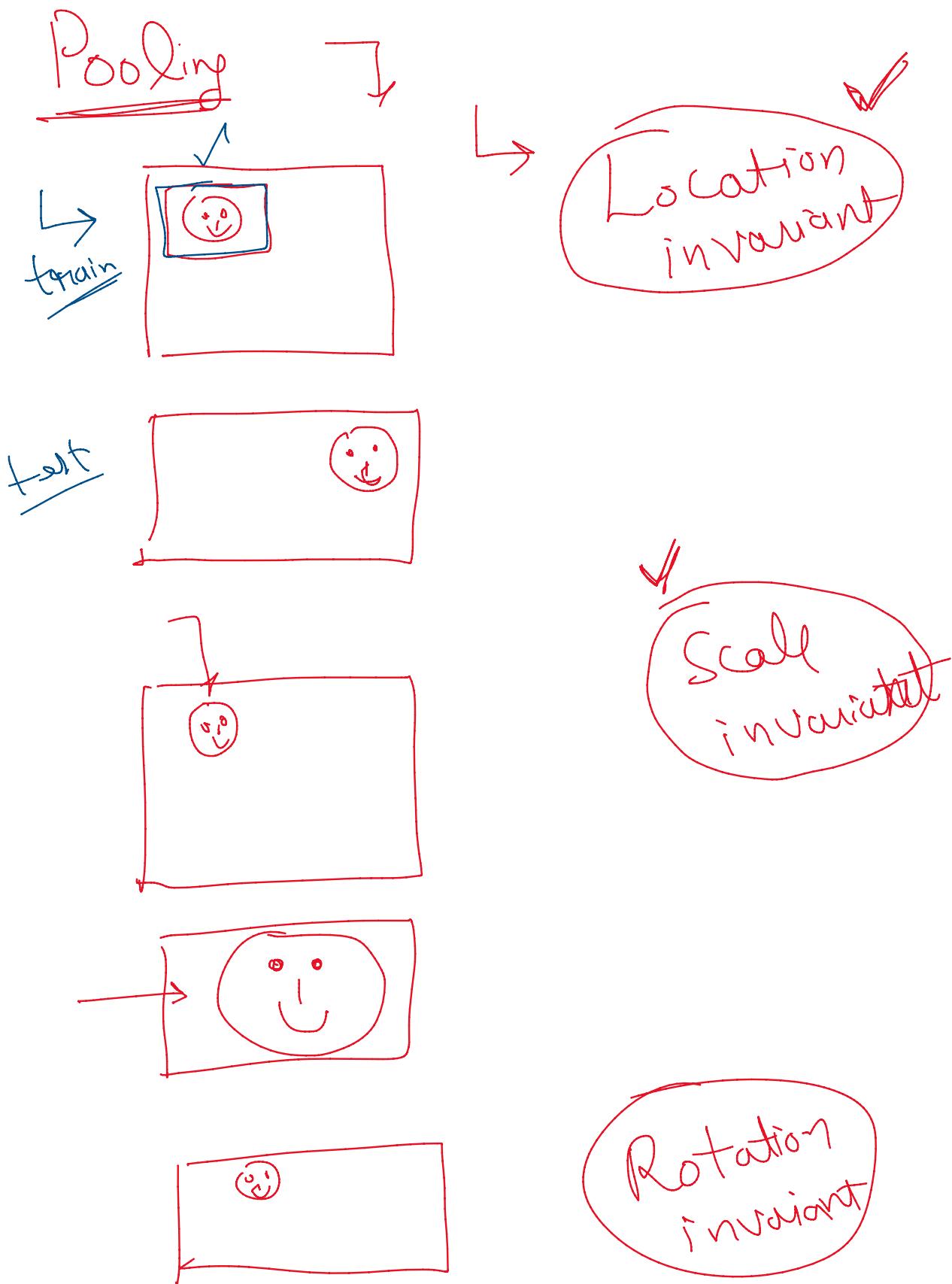


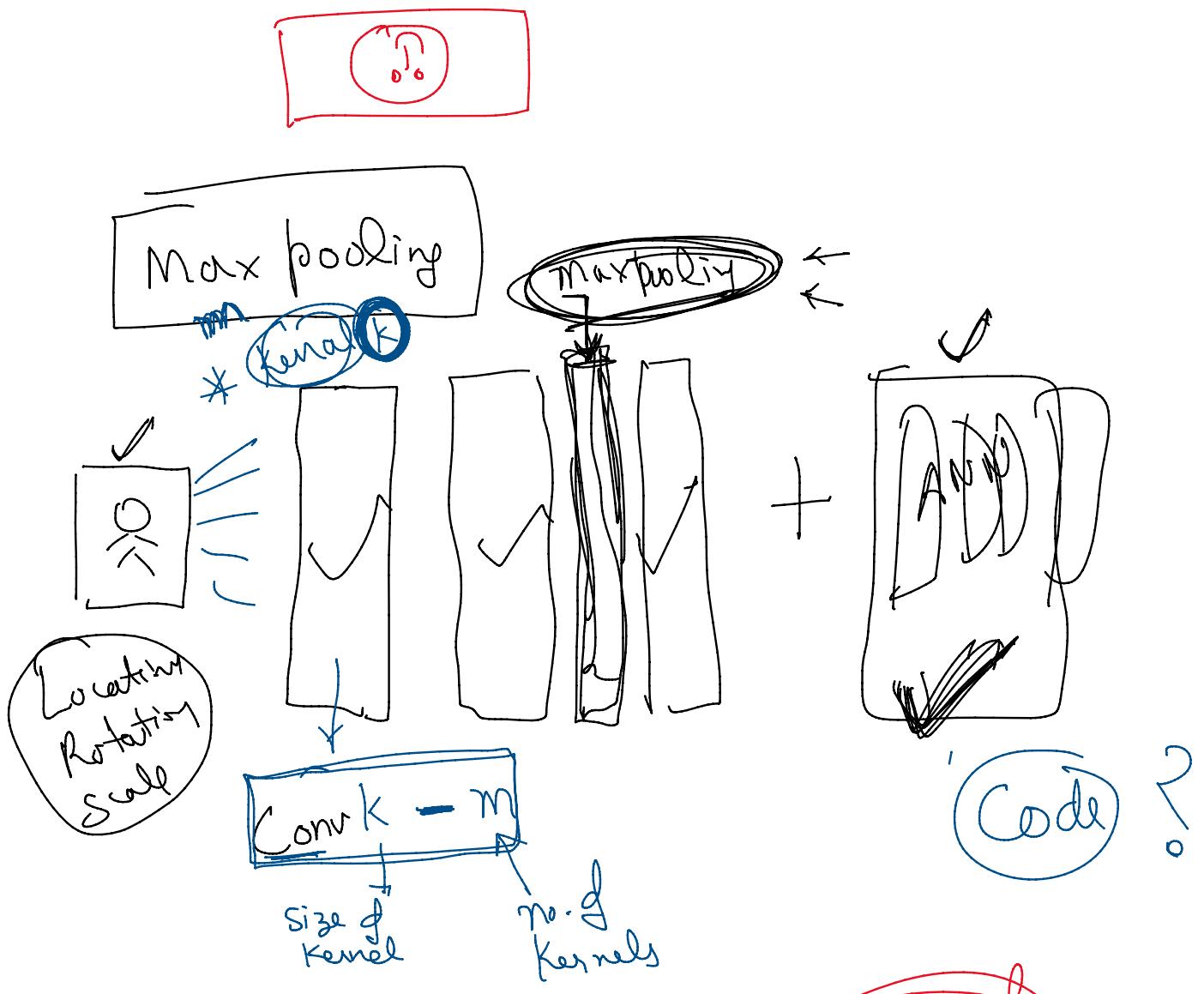
Stride → Used to reduce the size

- (Stride) → Used to reduce the size of output more than what a kernel can reduce



~~BN~~  
→ + ReLU +  
he-normal

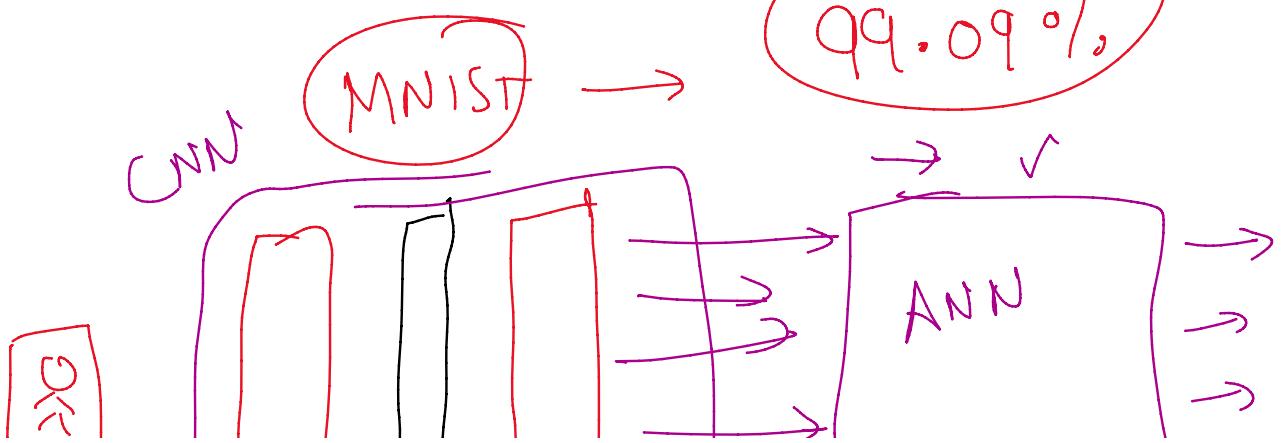


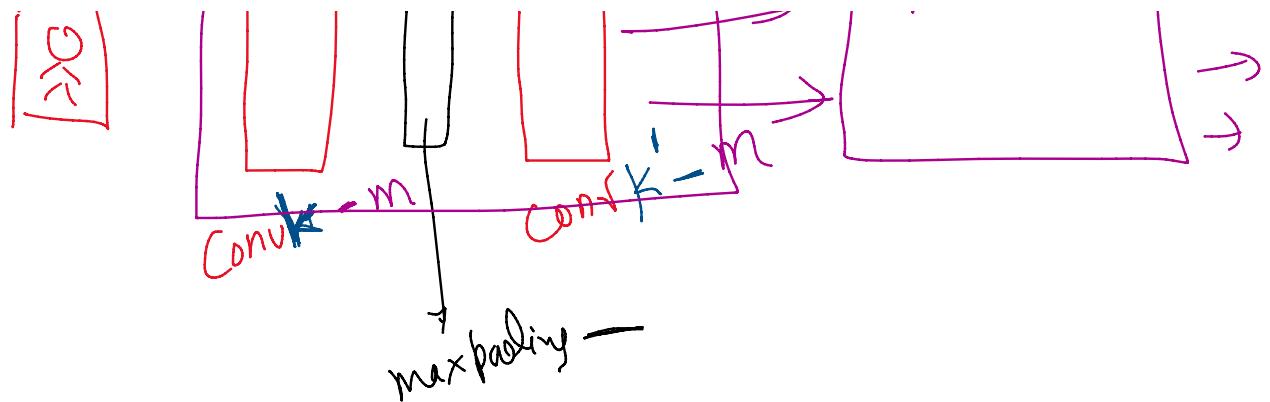


Conv net

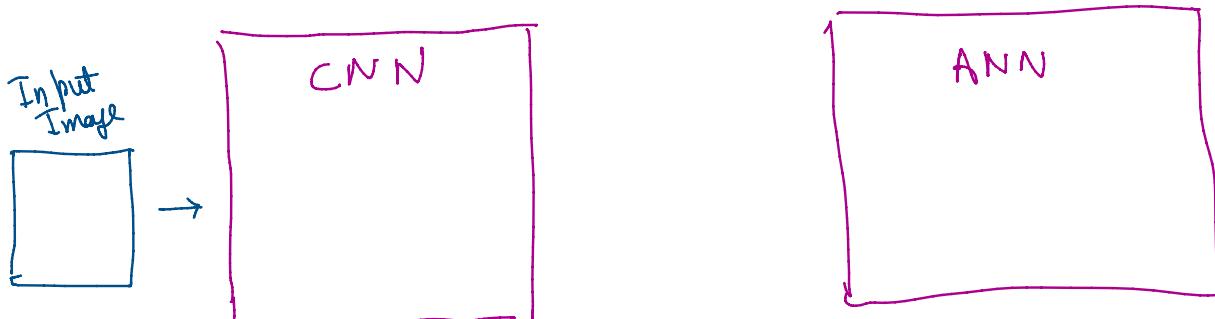
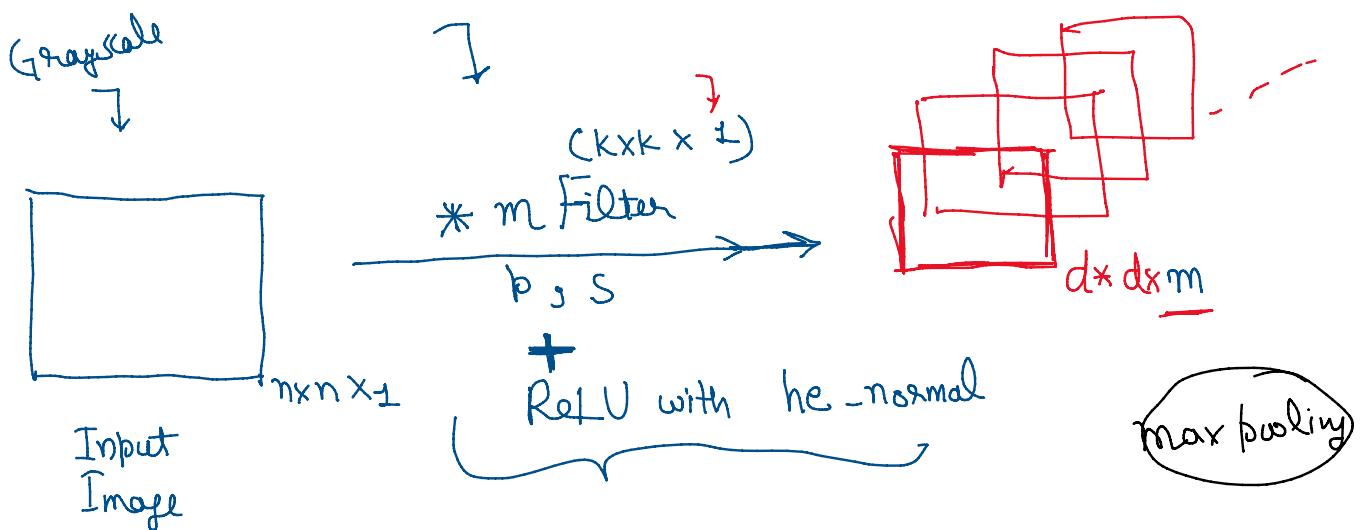
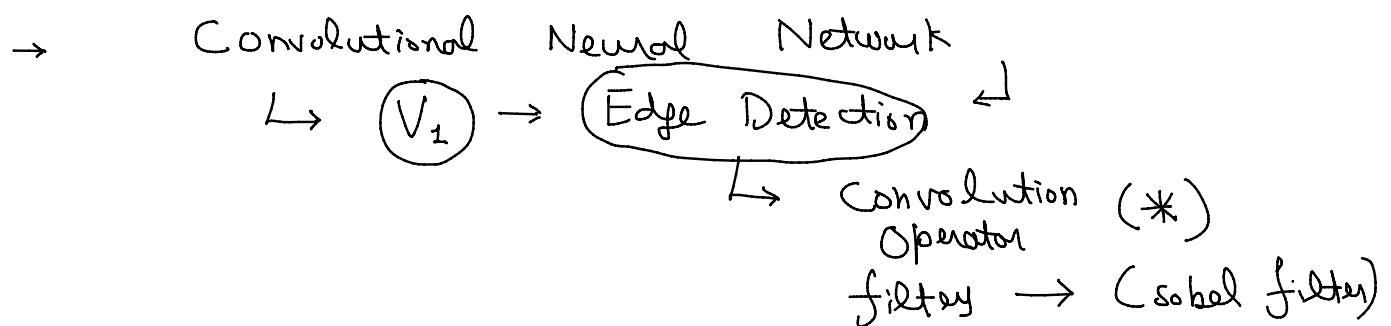
Convolutional Neural Net

↳ CNN





→ Starting @ 4:10:30 :-



Flattening

28,28

