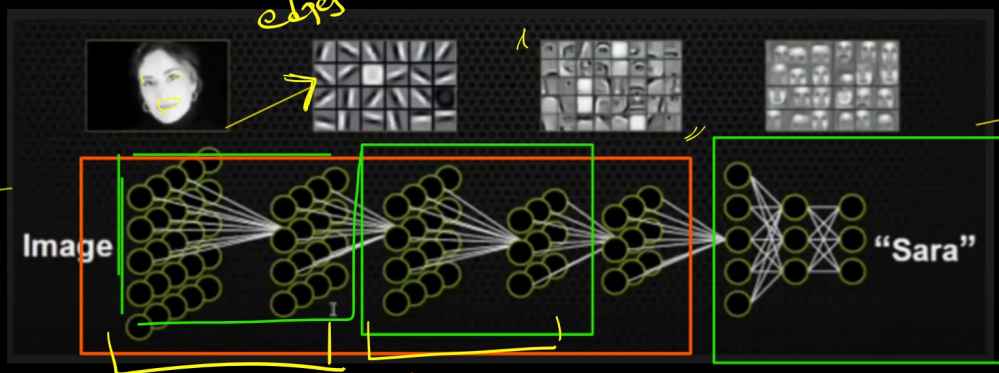
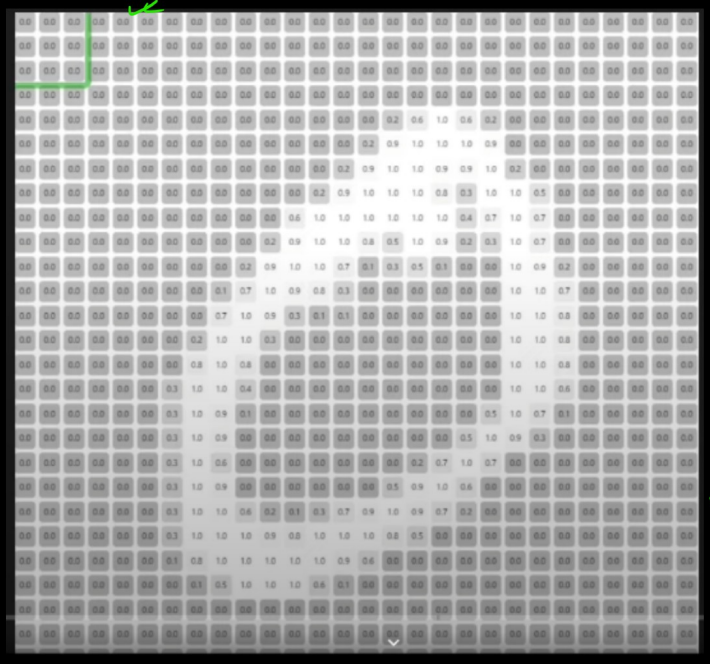
Convolution Operation



CNN — ① convolution layer
② pooling layer
③ FC layer

0 - 255

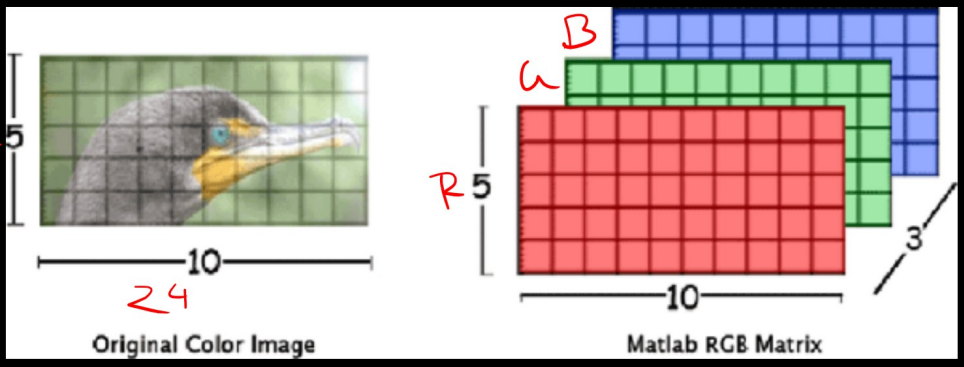


24 × 24

2D

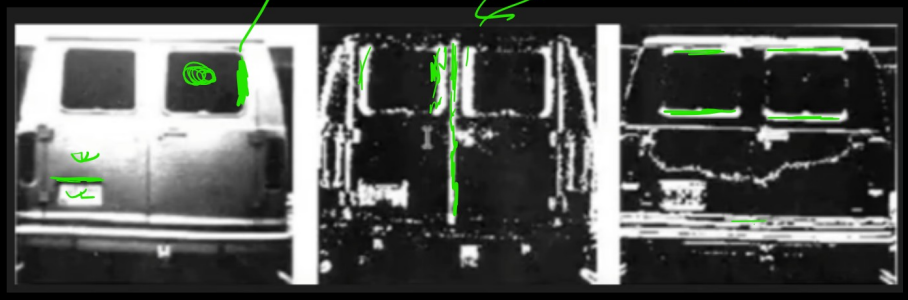
24

Gray scale



(24×24×3)

Sobel Filters



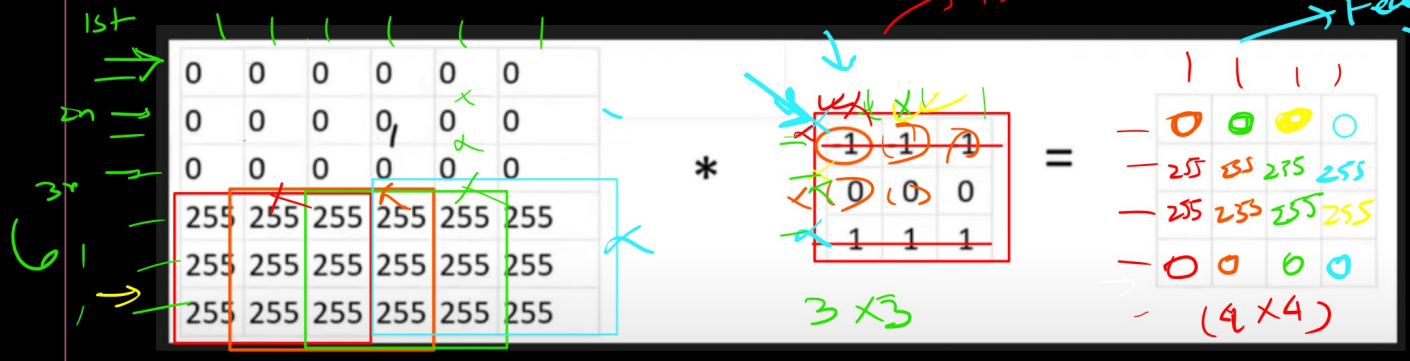
① Vertical edge detection

② Horizontal edge detection

Random weight Init done → BP

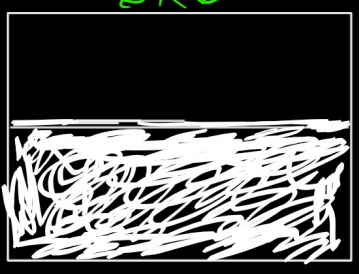
loss ← BP

Randomly (3,3)

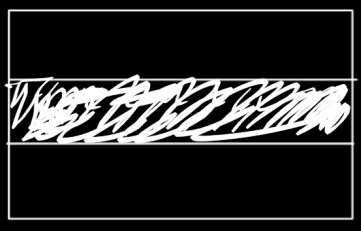


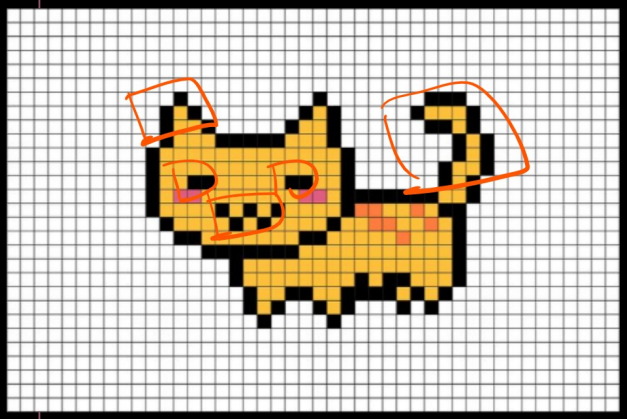
(-1)×0 + (-1)×0 + (-1)×0 +

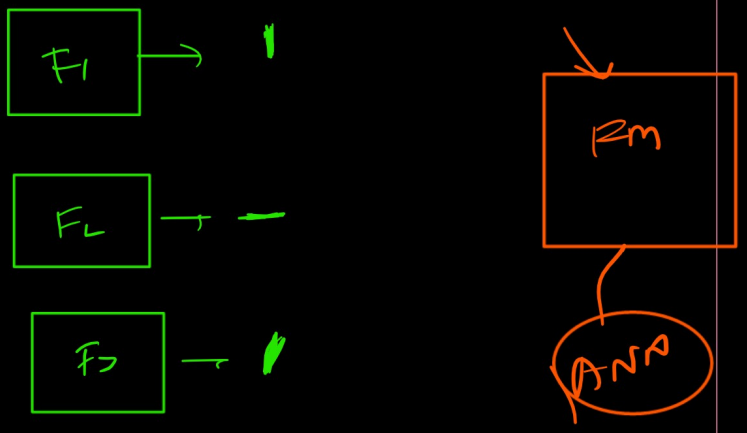
⇒



Original





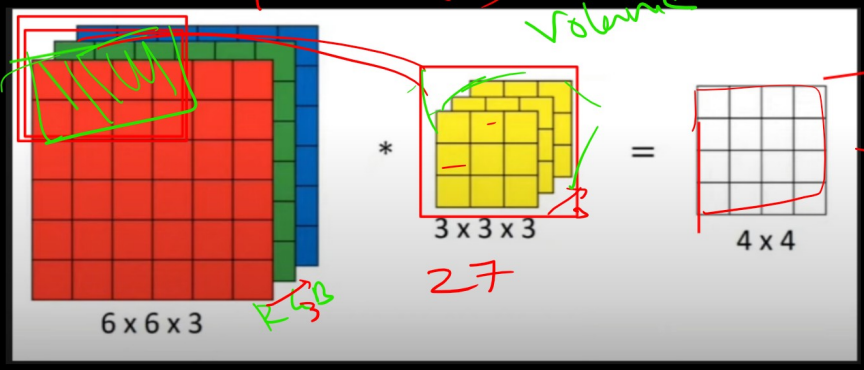


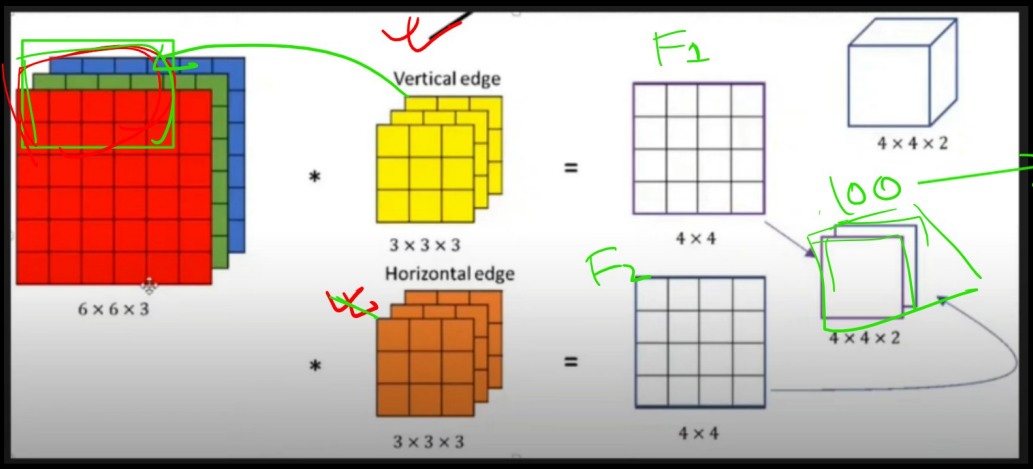
$(28 \times 28) \leftarrow (3 \times 3) = ?$

$(n \times n)$ $(m \times m)$

formula $\Rightarrow (n-m+1) \times (n-m+1)$

$(64 \times 64) \leftarrow (3 \times 3) \rightarrow (62 \times 62)$





1. padding
2. Stride
3. pooling layers
4. CNN Architectures

Filter | kernel (FE