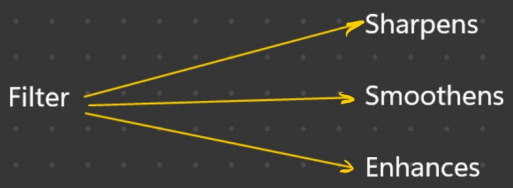
KRISHAI TECHNOLOGIES

Image Filters In openCV

www.krishnaik.in

A image filter is a set of rules that we apply to an image to extract or emphasize certain features.



Filter depends on Kernel, which is a 3x3 or 5x5 or NxN matrix which determines how filter operates.

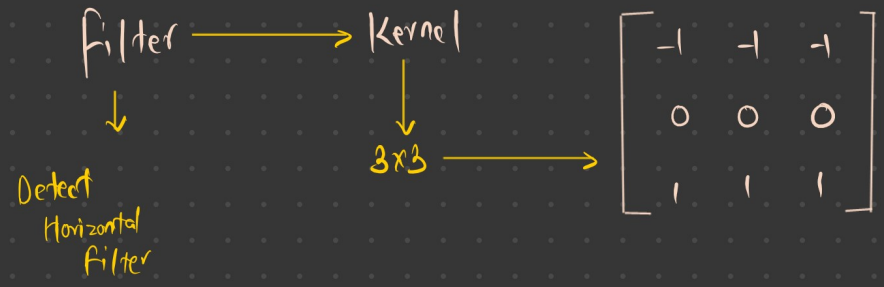


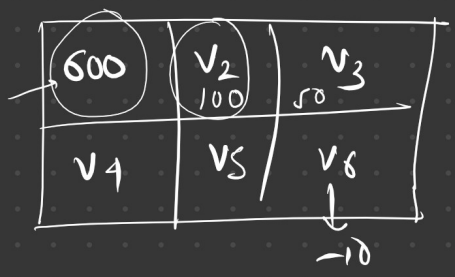
Image 4×5

50	50	50	100	100
150	150	150	80	80
250	250	250	200	200
100	110	110	110	110

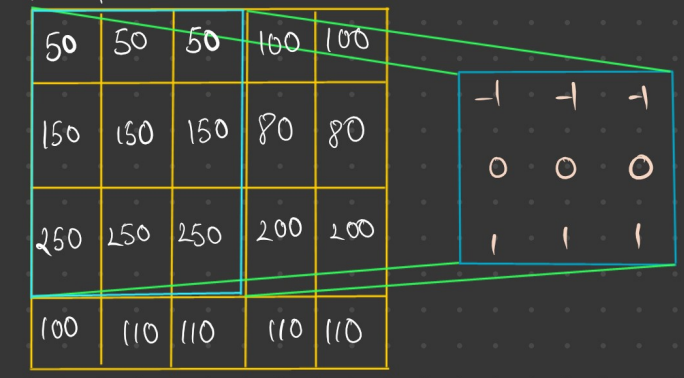
3×3

-1	-1	-1
0	0	0
1	1	1

Filter / kernel



Start



$$(-1\times50)+(-1\times50)+(-1\times50)$$
$$+(0\times150)+(0\times150)+(0\times150)$$
$$+(1\times250)+(1\times250)+(1\times250)$$
$$=-150+0+750=600$$

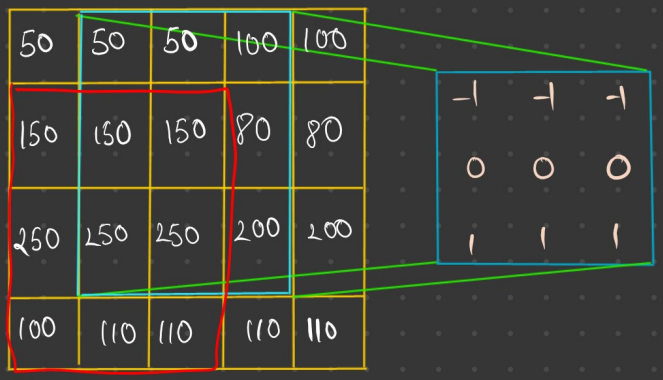
→ if below 0, i.e. $v<0$

Clip → 0

→ if above 255,

OR → 255

Start + 1

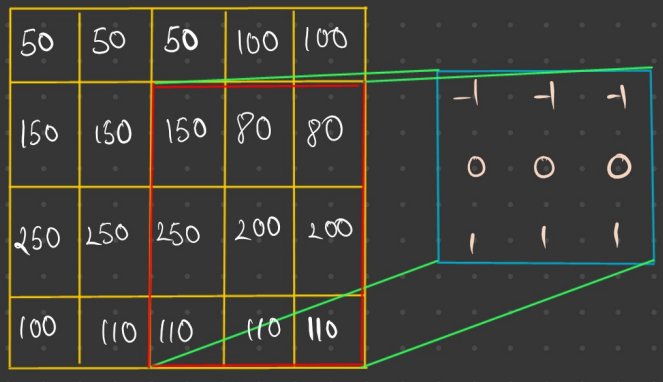


Min-Max Normalization

$$v_{new} = \frac{v - min}{max - min} \times 255$$

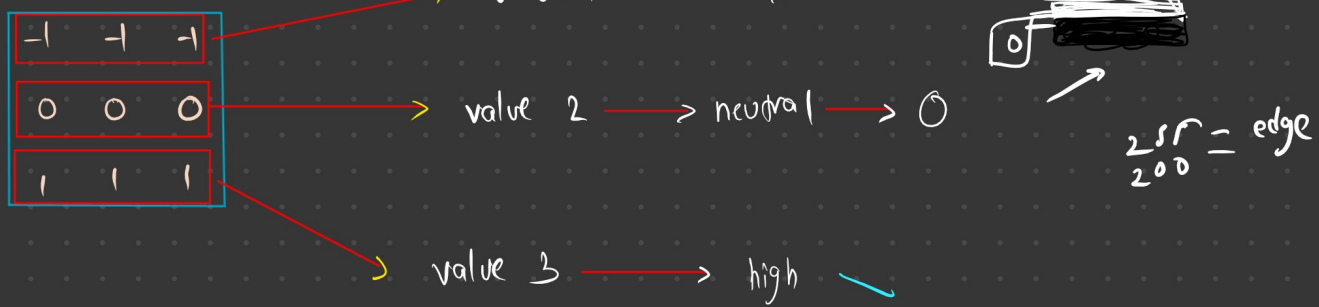
pixel → 0 – 255

→ Clip



end

Intituion



low + ~~neutral~~ + high → Big value, means presence of horizontal edge

→ 0, no horizontal edge.