

$$f(t) * g(t) = \int_{-\infty}^{\infty} f(\tau) g(t-\tau) d\tau$$

$$f(u, y) * g(u, y) = \sum \sum f(u, v) g(u-v, u-y)$$

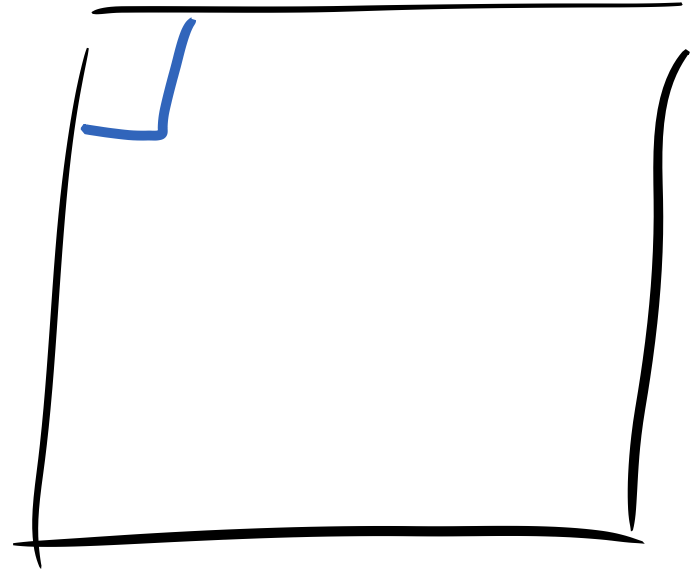
4	3	1	2	7
3	1	6	5	2
4	9	7	8	6
5	2	7	1	4

$f$

1	2	1
2	0	1
1	2	0

$g$

$=$



$4 \times 1 + 2 \times 3 + 1 \times 1 + 3 \times 0 + 1 \times 0 + \dots$

padding

zero padding

mirror

$$f_{m \times n} * g_{3 \times 3} = h_{(m-2) \times (n-2)}$$

$$f_{m \times n} * g_{k \times k} = h_{(m-k+1) \times (n-k+1)}$$

Smoothing

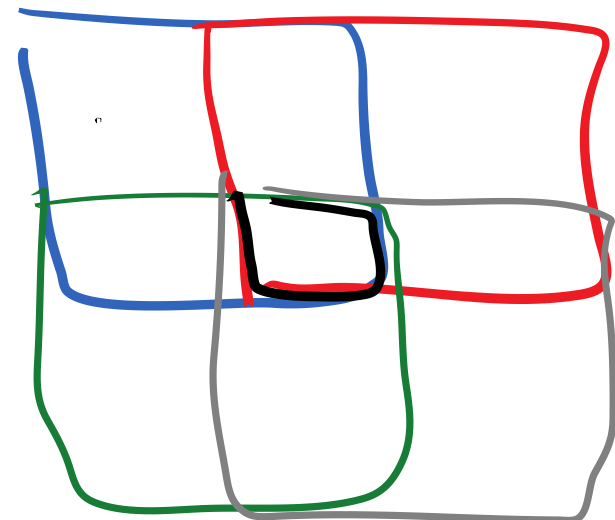


μ  
σ<sup>2</sup>

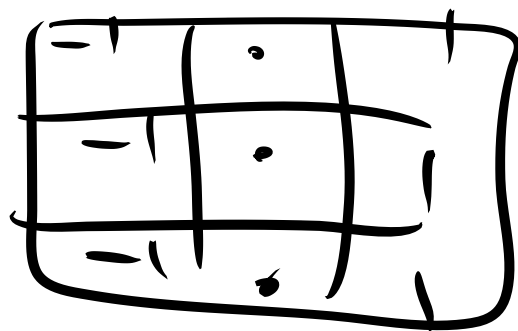
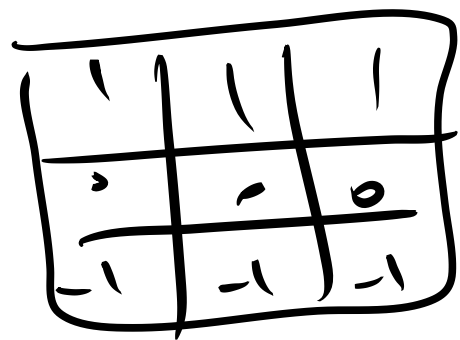
σ<sup>2</sup>

Gaussian

Kawahara



Prewitt



$$\sqrt{P_h^2 + P_v^2}$$

$$\theta = \arctan \frac{P_v}{P_h}$$

Sond

1	2	1
0	0	0
-1	-2	-1

$S_h$

-1	0	1
-2	0	2
-1	0	1

$S_v$

Res  $\sqrt{S_h^2 + S_v^2}$

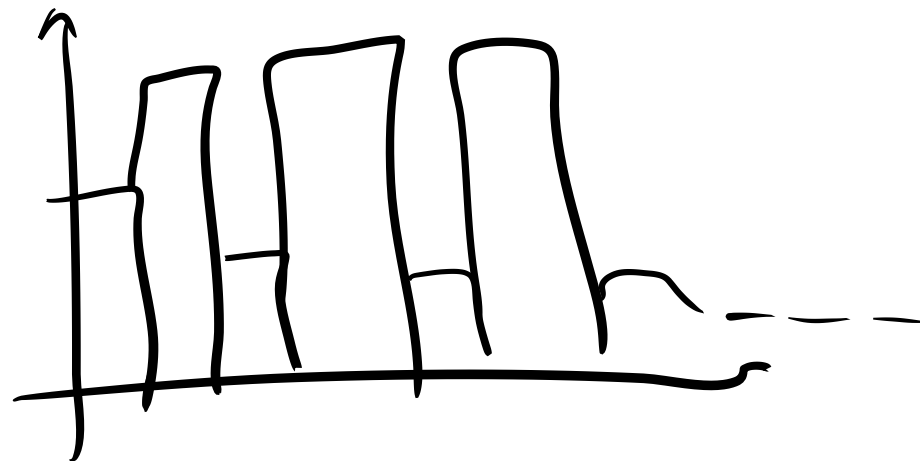
لایف

0	1	0
1	-2	1
0	1	0

Sharp

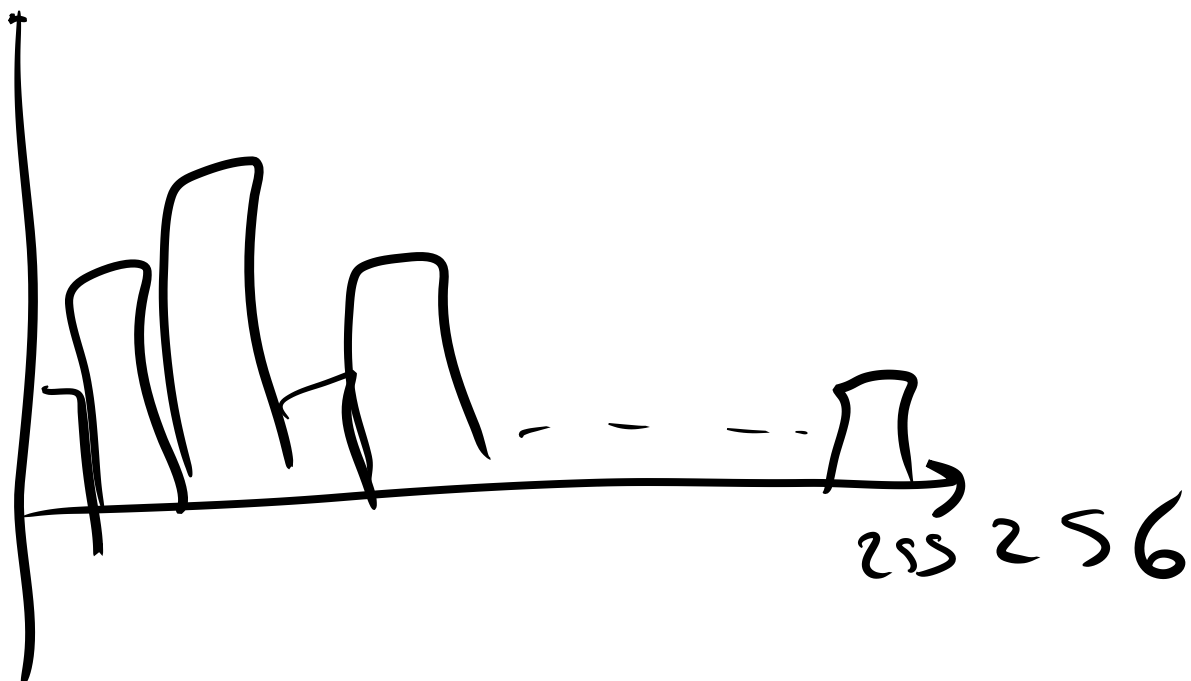
I +  $\alpha$  L

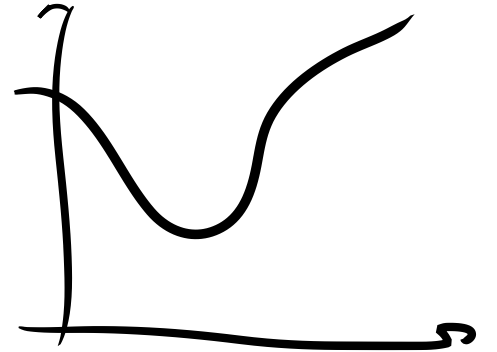
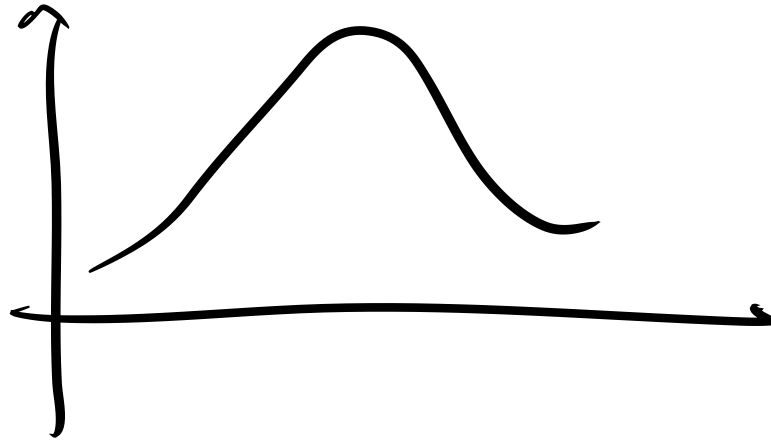
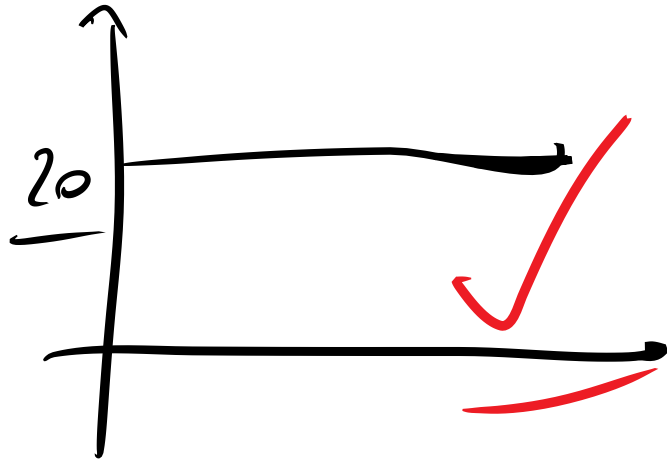
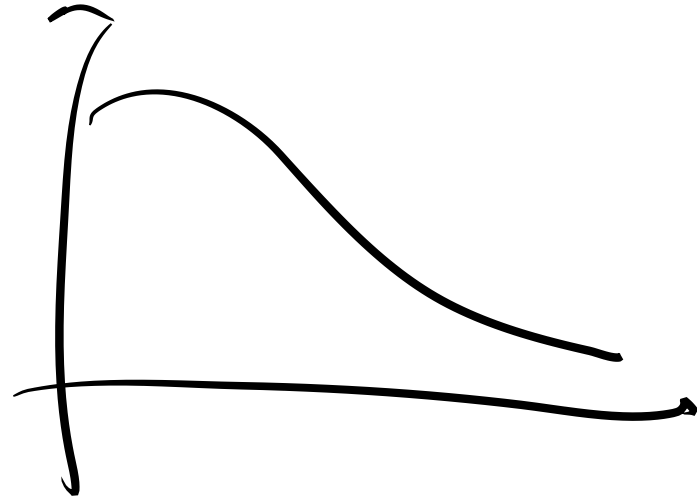
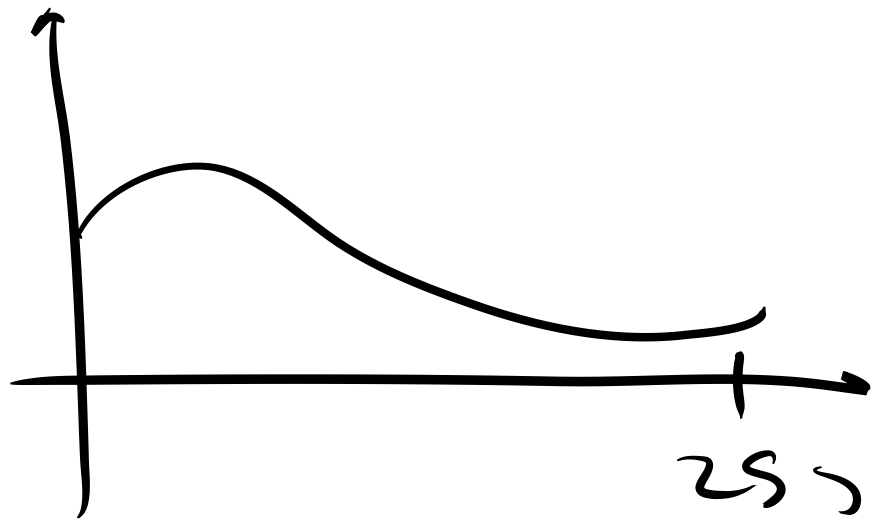
حسب الامر

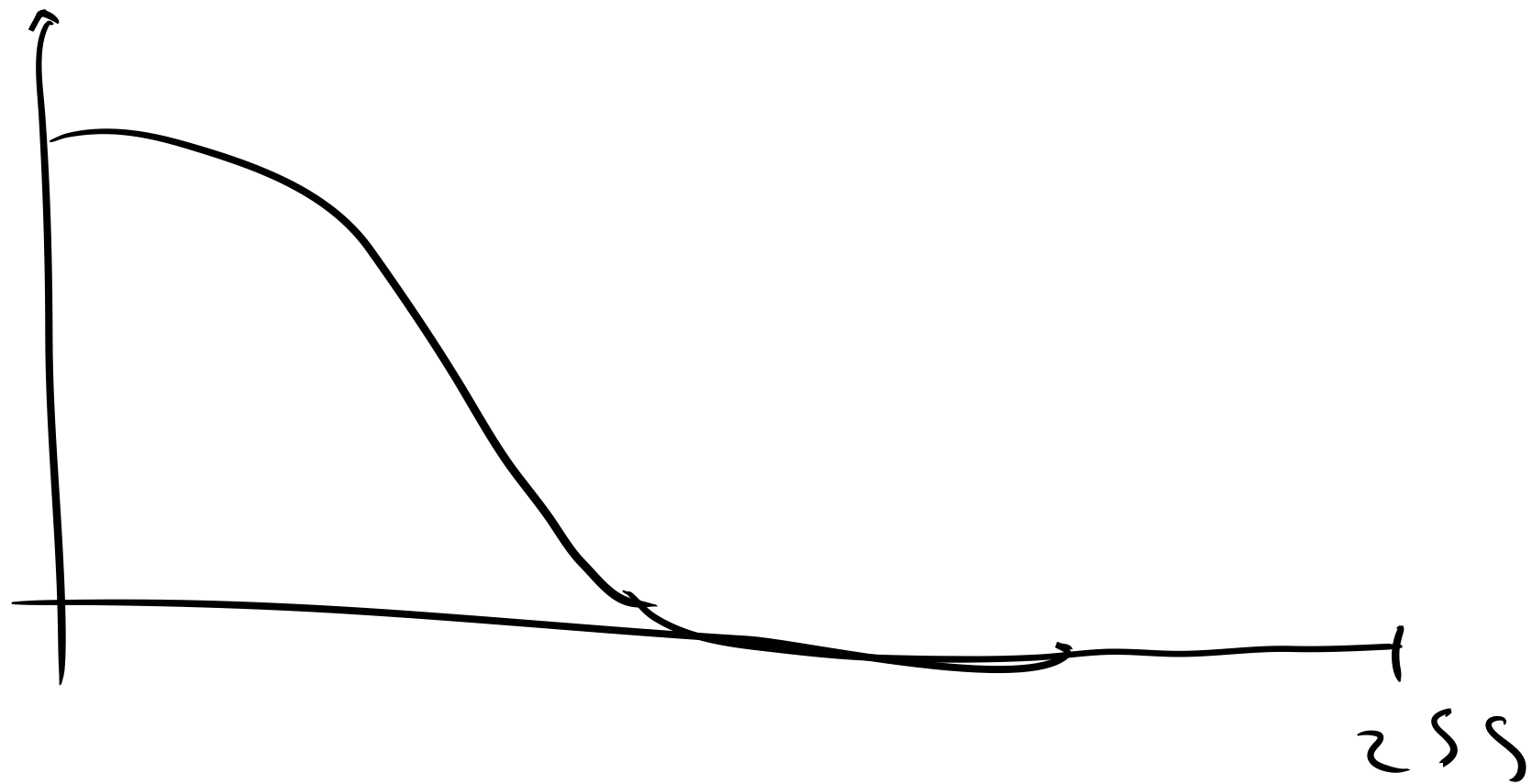


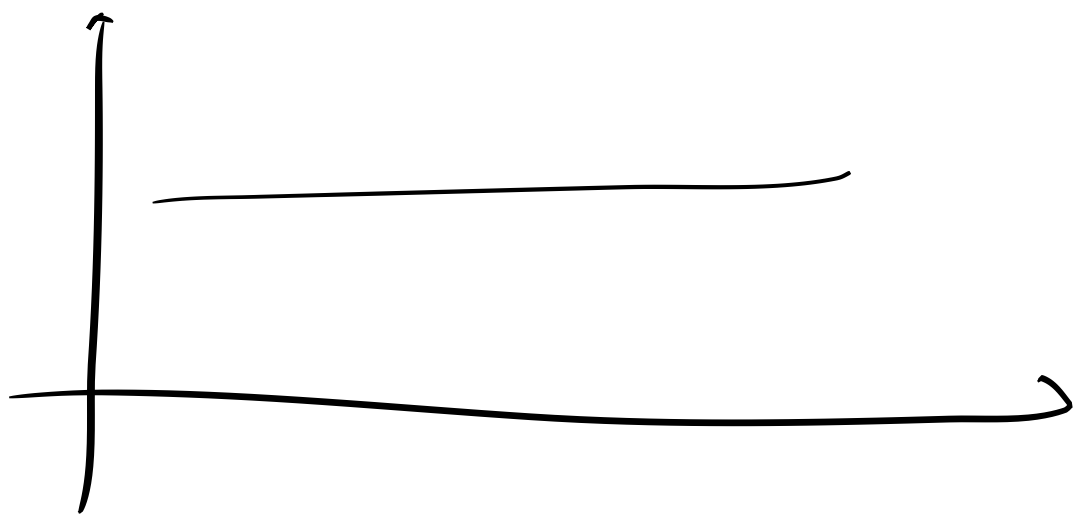
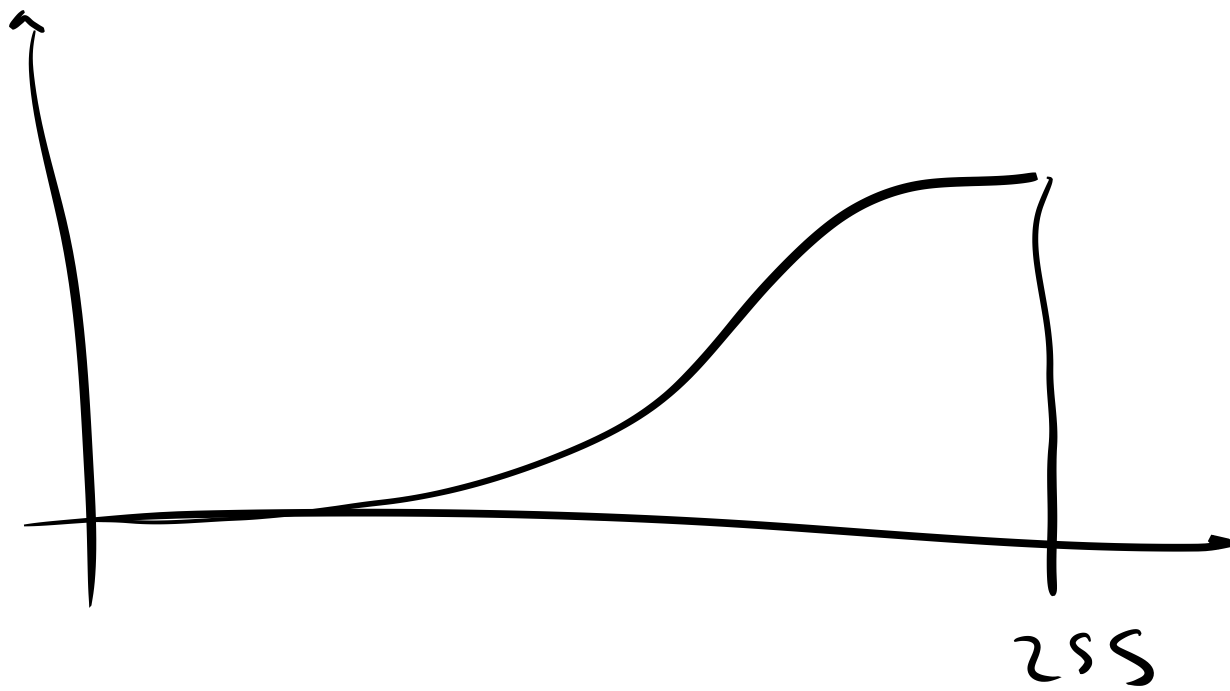


gray





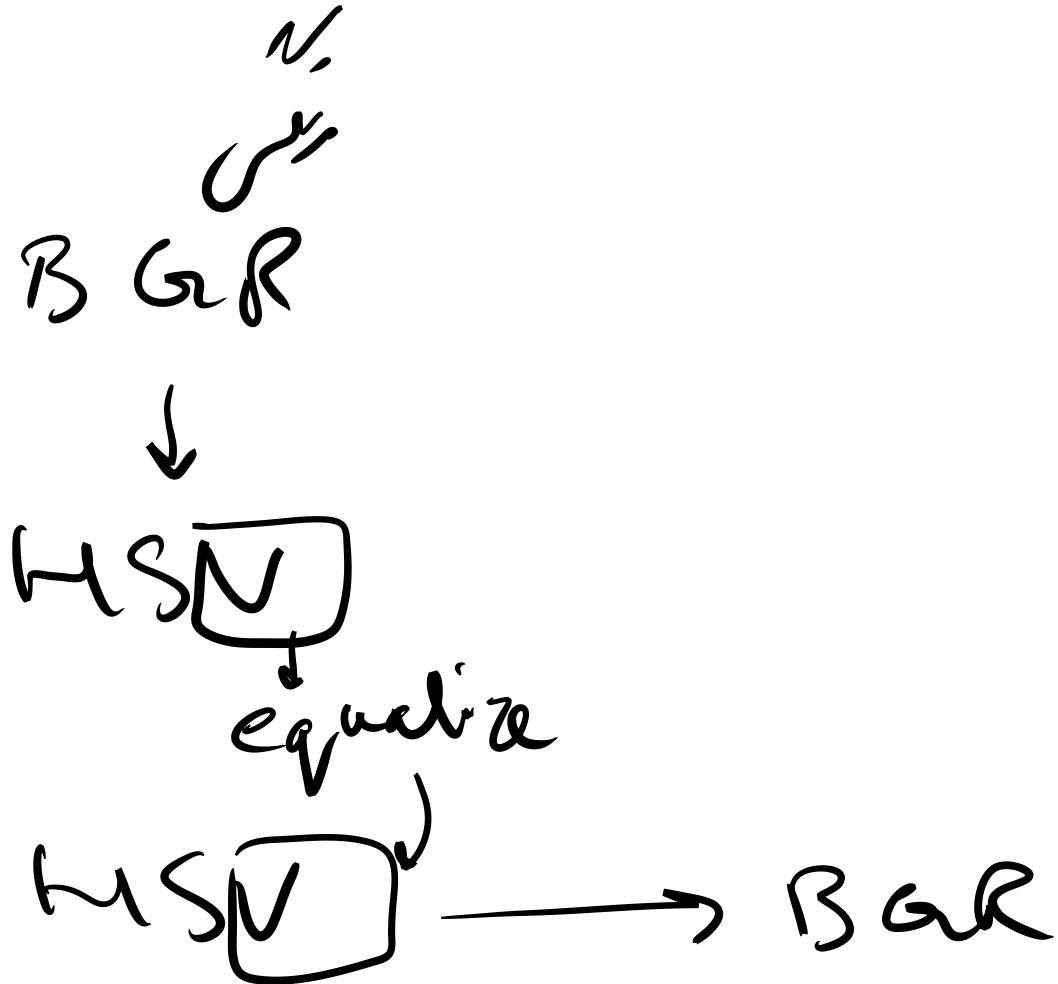




↙ histogram  
equalization

# CLAME

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MOG

