

$$f(x,y) - \nabla^2 f(x,y) = 5 \left[\frac{6}{5} f(x,y) - \frac{1}{5} \bar{f}(x,y) \right]$$

where $\bar{f}(x,y)$ average filter

$$f(x,y) - \nabla^2 f(x,y) = 5 [\alpha f(x,y) - \beta \bar{f}(x,y)]$$

If $\alpha, \beta, 5$ are treated as constants
then

$$f(x,y) - \nabla^2 f(x,y) \approx f(x,y) - \bar{f}(x,y)$$

Here $f(x,y)$ is original image

$\bar{f}(x,y)$ is Average or Smoothed version of $f(x,y)$

$\Rightarrow f(x,y) - \bar{f}(x,y)$ is onsharp mask

\therefore (Image - Laplacian) is proportional to

(Image - Smoothed image)