# HW4 Experiemnt Results

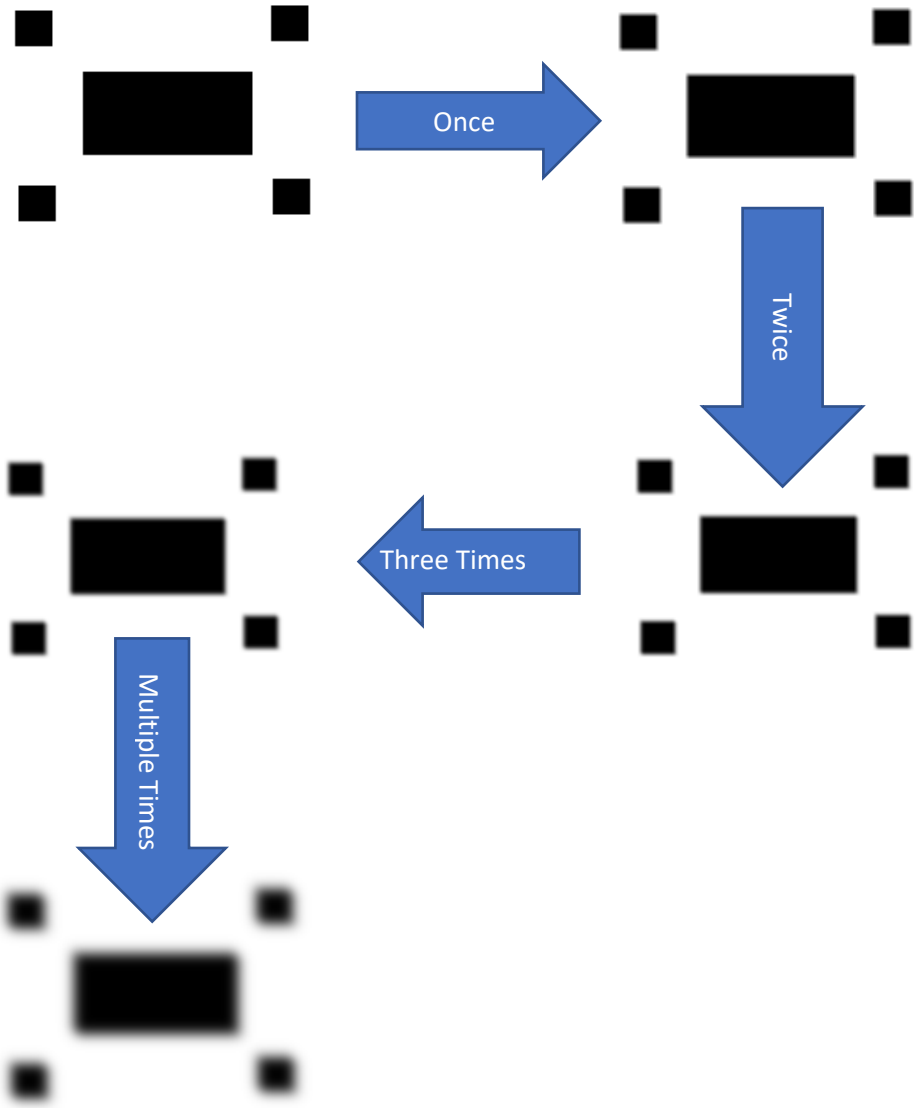
Ziheng he

- **I'm using reflection to the pixel values when the kernel extends beyond the boundary.**

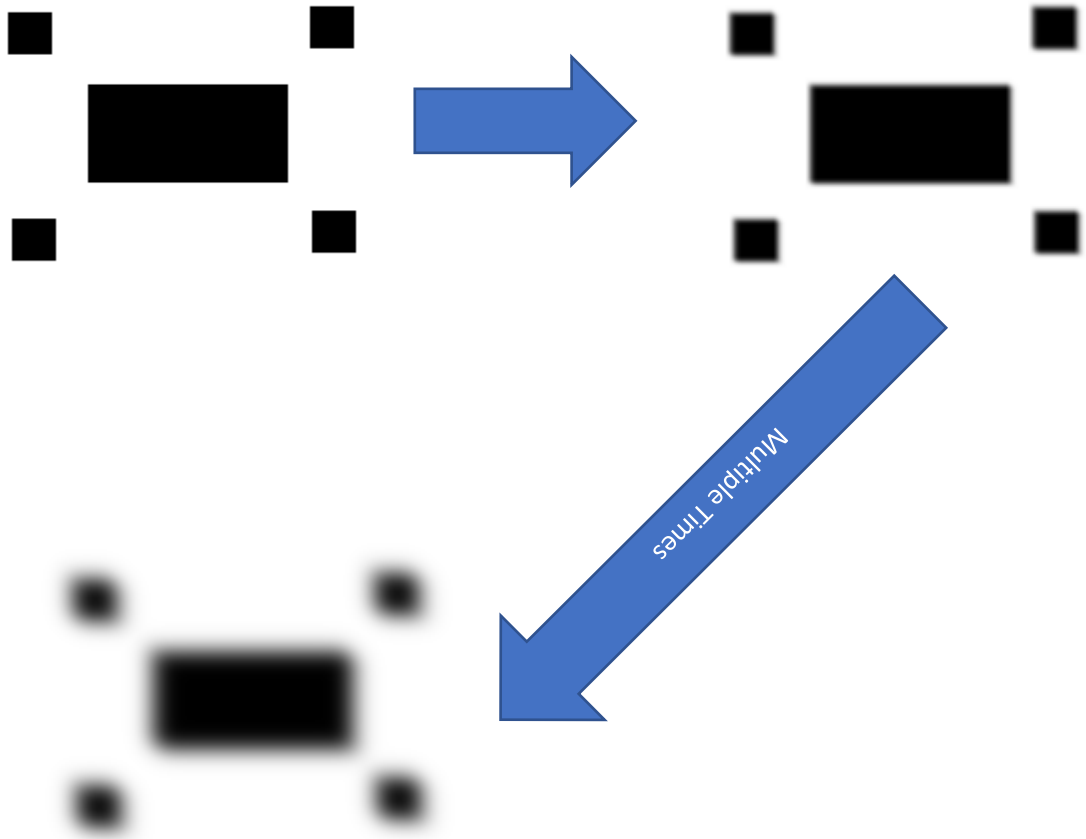
- **For the scator factor, I make sum of the positive kernel values and the absolute value sum of negative kernel values. The larger sum will be used to produce scator factor. This mechanism ensures the scator factor always being positive.**

- **My own filter files are named as new1.filt and new2.filt in the folder "filters"**

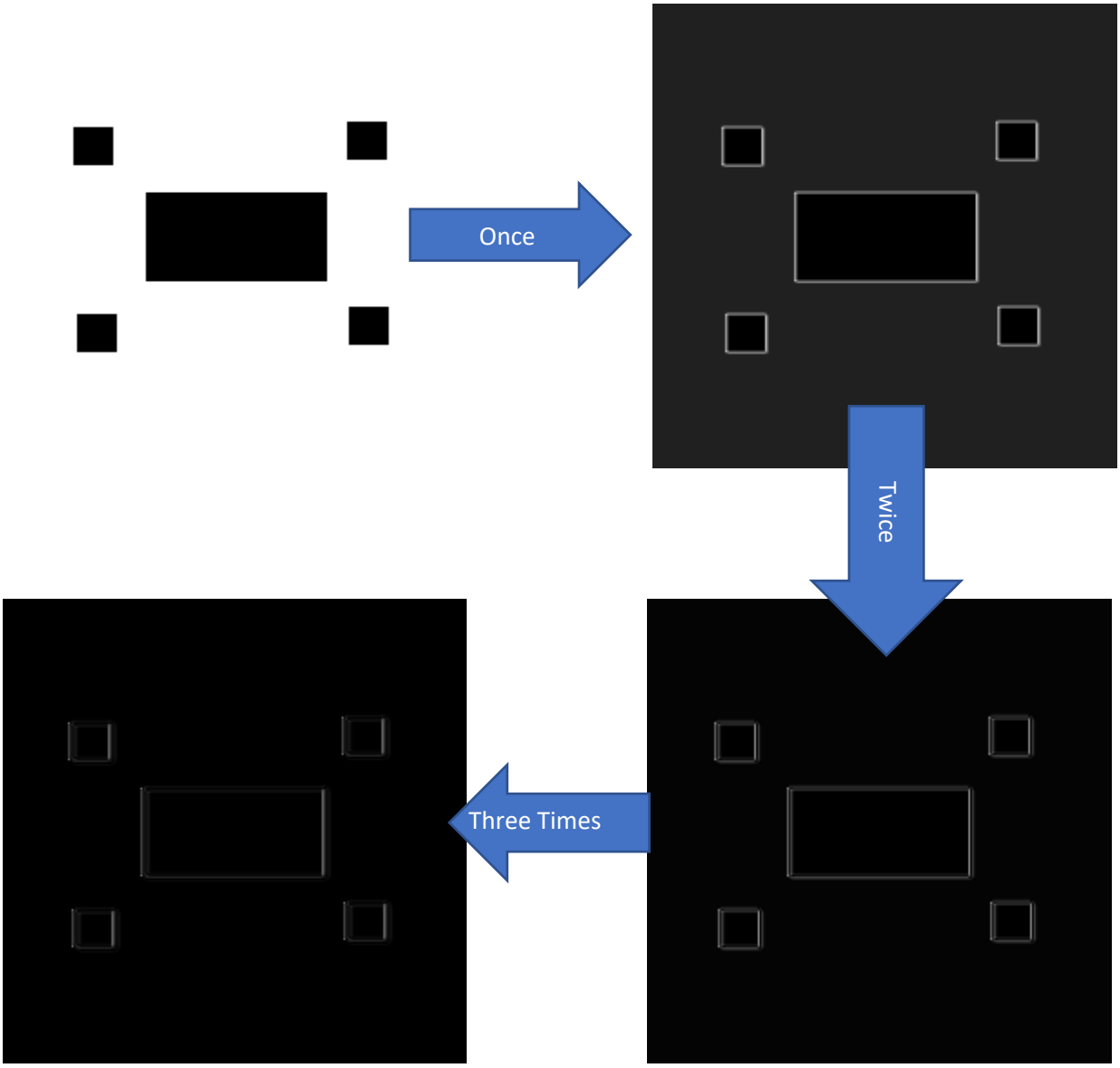
**1.1 Filter the image squares.png using pulse.filt**



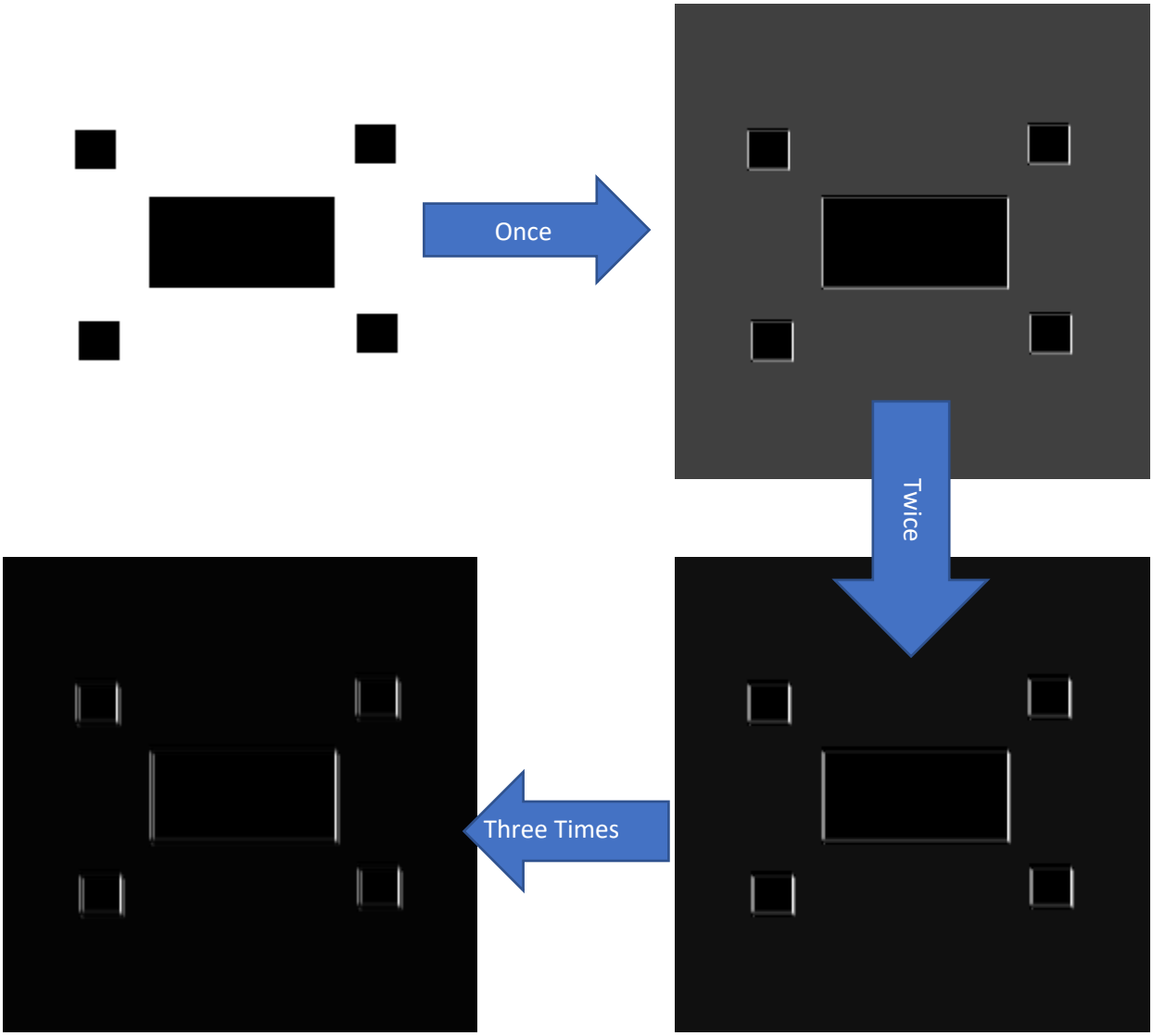
**1.2 Filter the image squares.png using tent.filt**



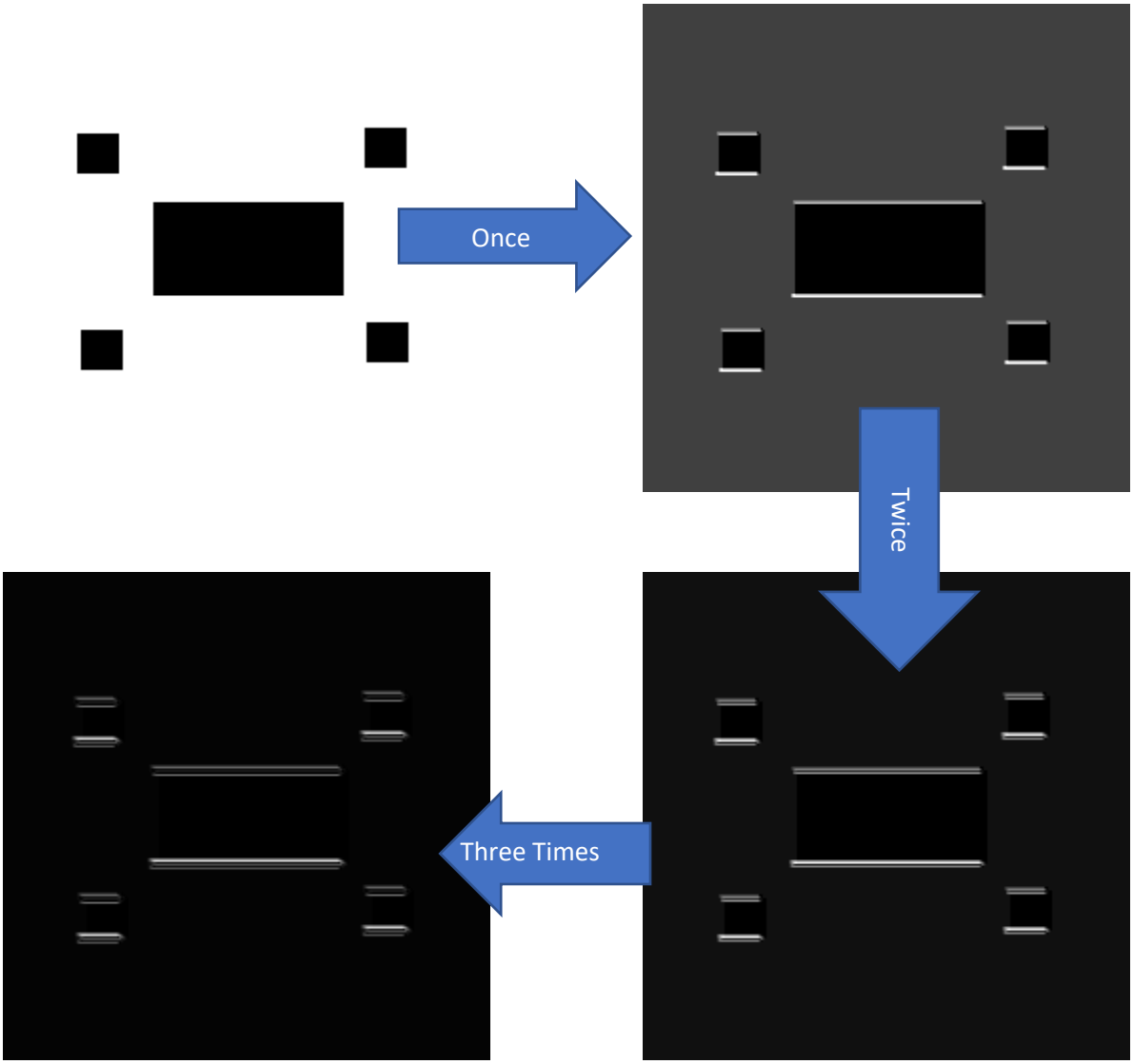
**1.3 Filter the image squares.png using hp.filt**



**1.4 Filter the image squares.png using sobol-horiz.filt**



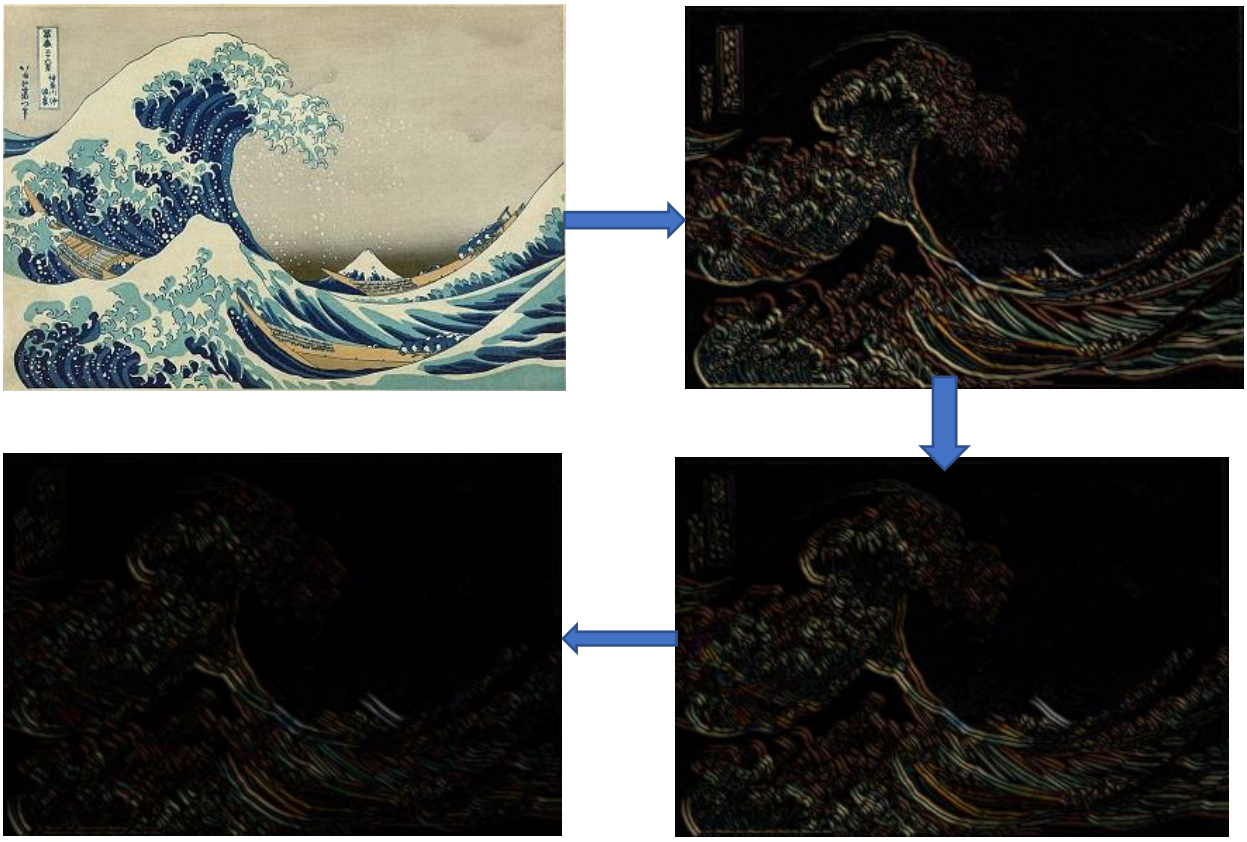
**1.5 Filter the image squares.png using sobol-vert.filt**



**2 Filter waves.png with my own convolution kernels**

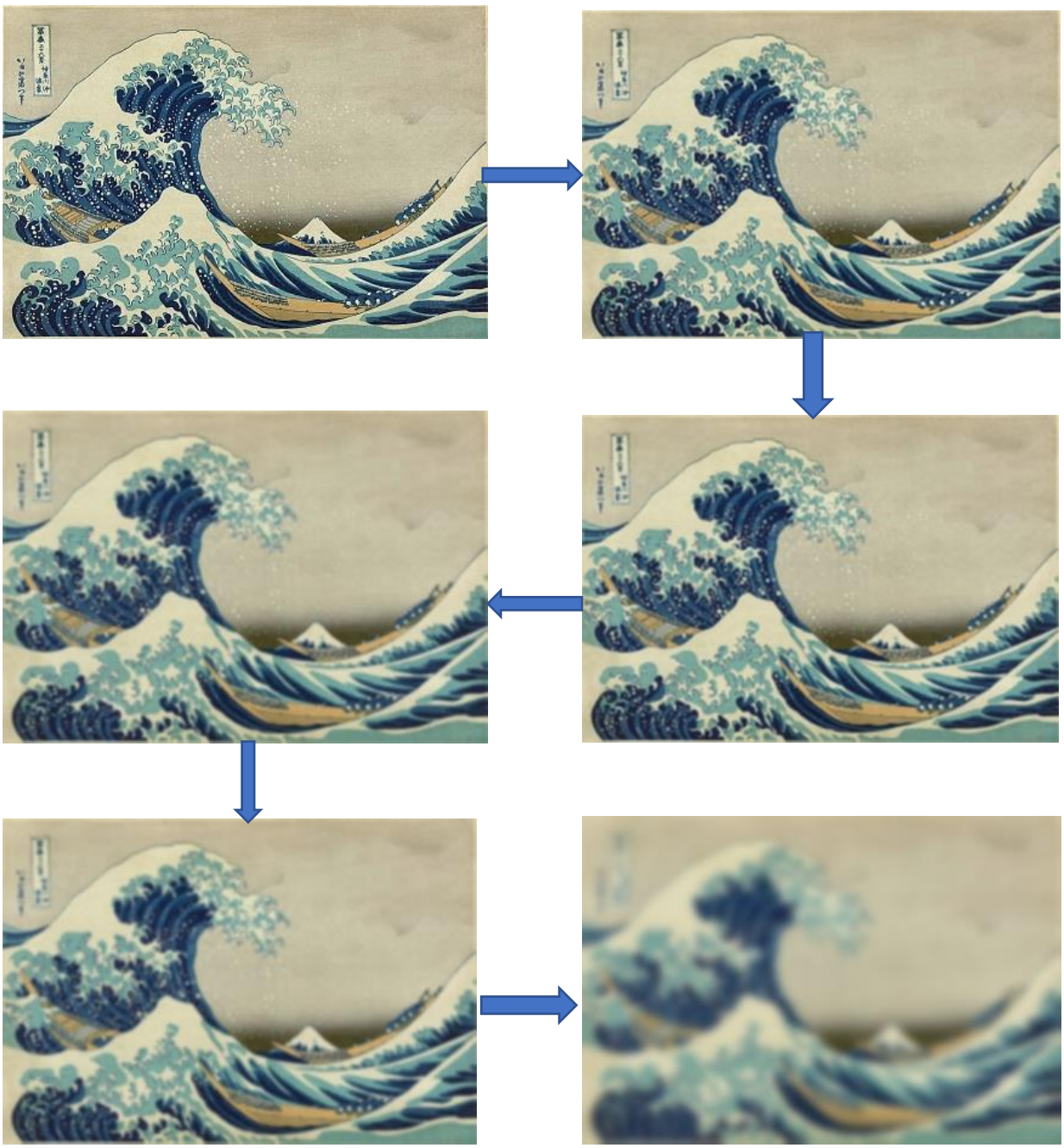
2.1

$$\frac{1}{15} * \begin{bmatrix} -1 & -1 & -1 & -1 & 0 \\ -1 & -1 & -1 & 0 & 1 \\ -1 & -1 & 0 & 1 & 1 \\ -1 & 0 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 & 1 \end{bmatrix}$$



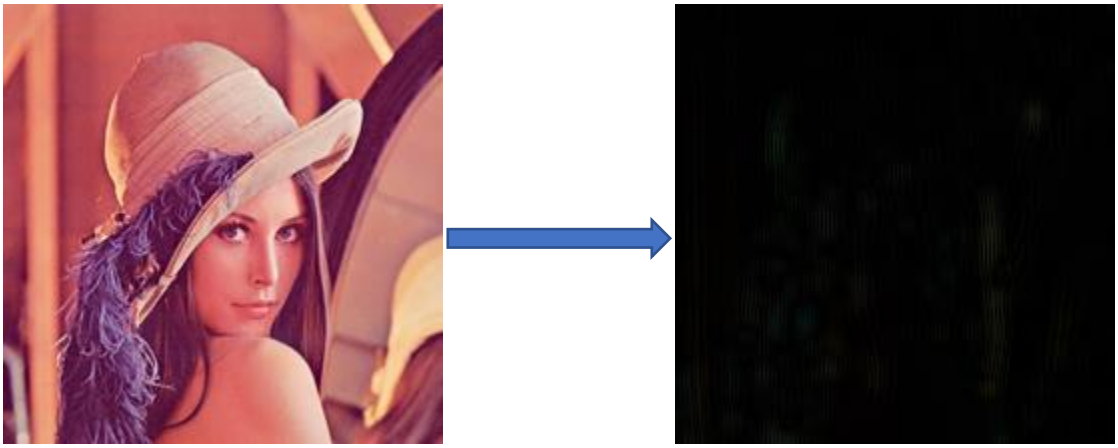
2.2

$$\frac{1}{9} * \begin{matrix} 1 & 2 & 1 \\ 2 & 4 & 2 \\ 1 & 2 & 1 \end{matrix}$$

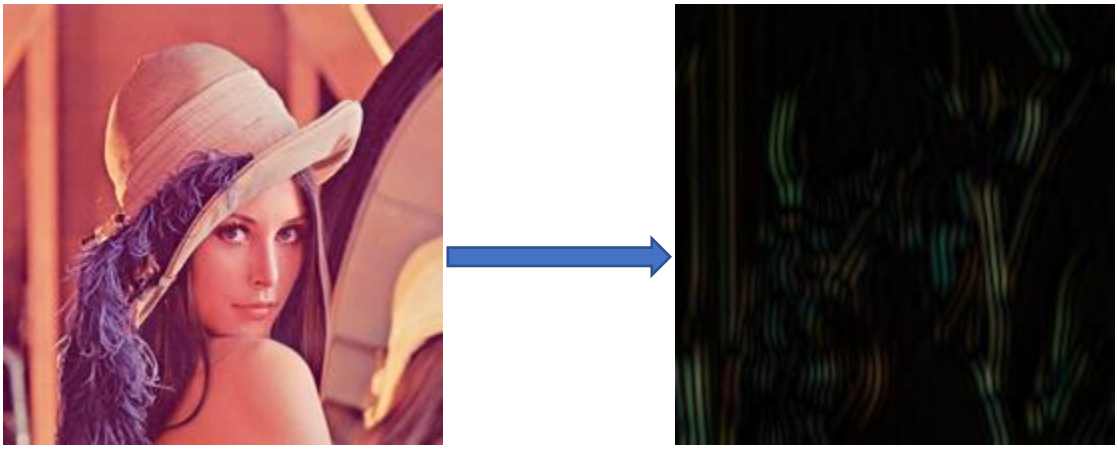


**3 Garbor filter with given auguments**

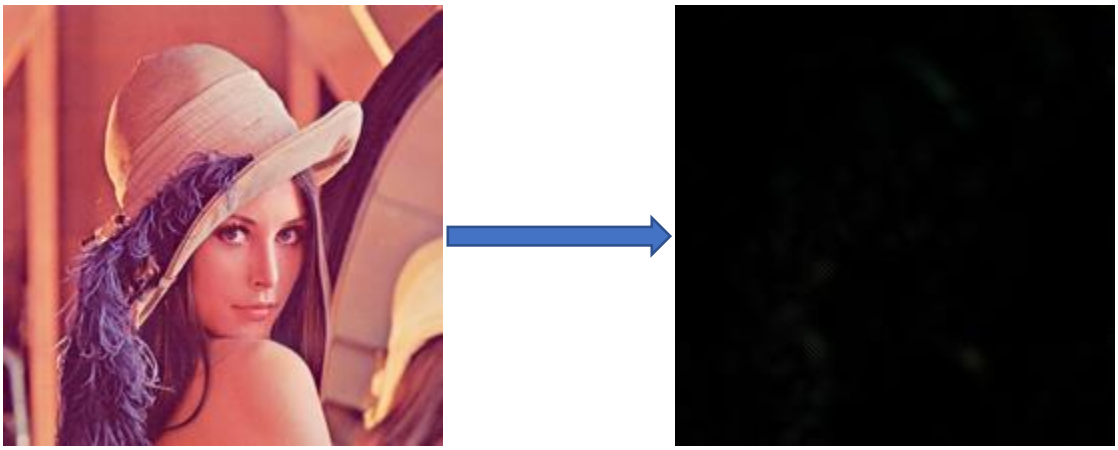
3.1 Theta=0, Sigma=4,  T=4



3.2 Theta=0, Sigma=4,  T=8



3.3 Theta=45, Sigma=4,  T=4



3.4 Theta=45, Sigma=4,  T=8