**Image convolution**

img = imread('paris.jpg');

gray\_img = rgb2gray(img);

gray\_img=double(gray\_img);

%using gaussian filter

psf = fspecial('gaussian',[5 5],2);

%using motion filter

motion\_filter = fspecial('motion',10,45);

%convolution with gaussian filter

convolution\_gf = conv2(psf,gray\_img);

%convolution with motion filter

convolution\_motion = imfilter(gray\_img,motion\_filter,'replicate');

self\_conv = conv2(gray\_img,gray\_img);

subplot(2,2,1), imshow(img);

title('Original Image');

subplot(2,2,2), imshow(convolution\_gf,[]);

title('Gaussian Filter');

subplot(2,2,3), imshow(convolution\_motion,[]);

title('Motion Filter');

subplot(2,2,4), imshow(self\_conv,[]);

title('Self convolution');