

2D FOURIER TRANSFORMATION IN AN IMAGE

Exp: 4b

Objective:

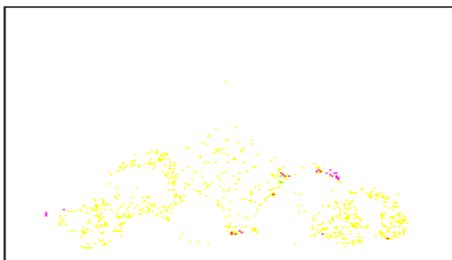
To perform the two dimensional Fourier transform operation in an image using SCILAB.

Source Code:

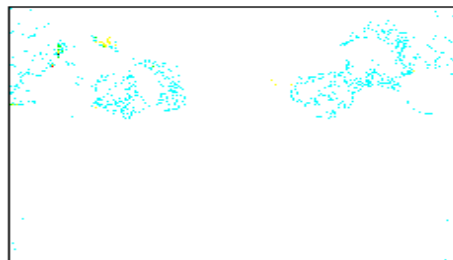
```
clc;
clear all;
close all;
I = imread('Fruit.jpg');
// [ 1 ] . 2D-DFT and its Inverse 2D-DFT
I = double(I);
J = fftshift(I);
K = real(iffshift(J));
subplot(2,2,1);
imshow(I);
title('Original Lenna Image');
subplot(2,2,2);
imshow(abs(J));
title('2D DFT (spectrum) of Lenna Image');
subplot(2,2,3);
imshow(K);
title('2d IDFT of Lenna Image');
L = fftshift(J);
M = fftshift(L);
subplot(2,2,4);
imshow(abs(L));
title('FFT shifted spectrum of image');
figure,
imshow(abs(M));
title('two times FFT shifted');
```

OUTPUT:

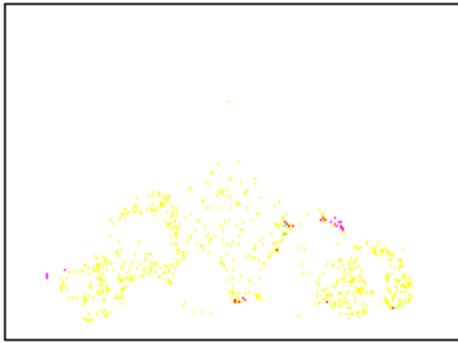
Original Lenna Image



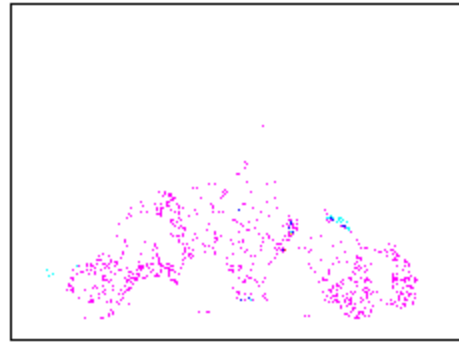
2D DFT (spectrum) of Lenna Image



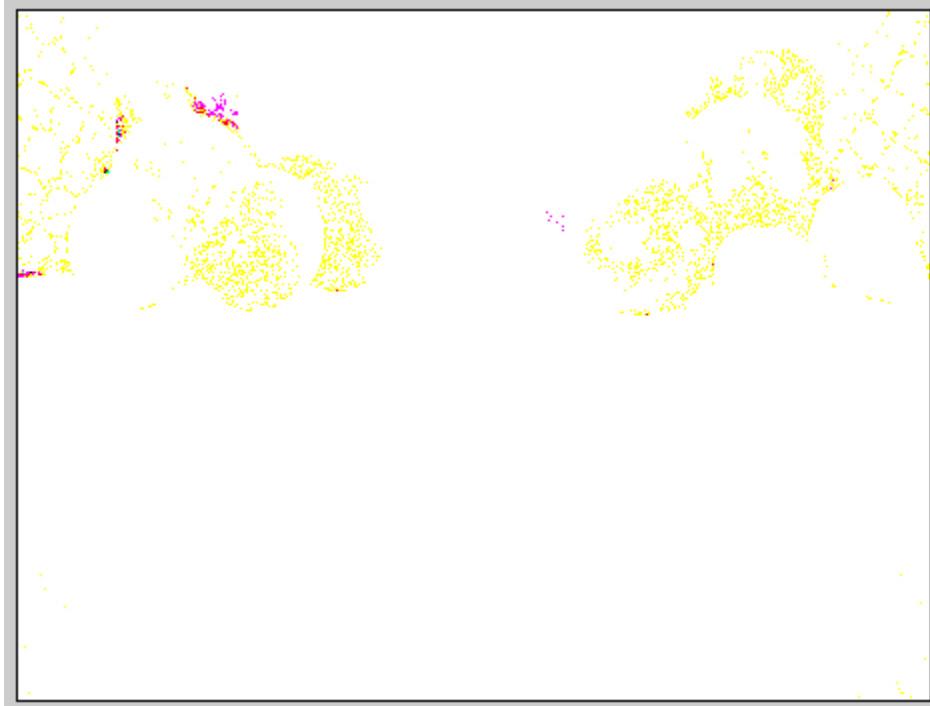
2d IDFT of Lenna Image



FFT shifted spectrum of image



two times FFT shifted



RESULT:

Thus, we have executed the basic two dimensional Fourier Transform operation in an image using Scilab successfully.