

# Digital Image Processing

Homework#4

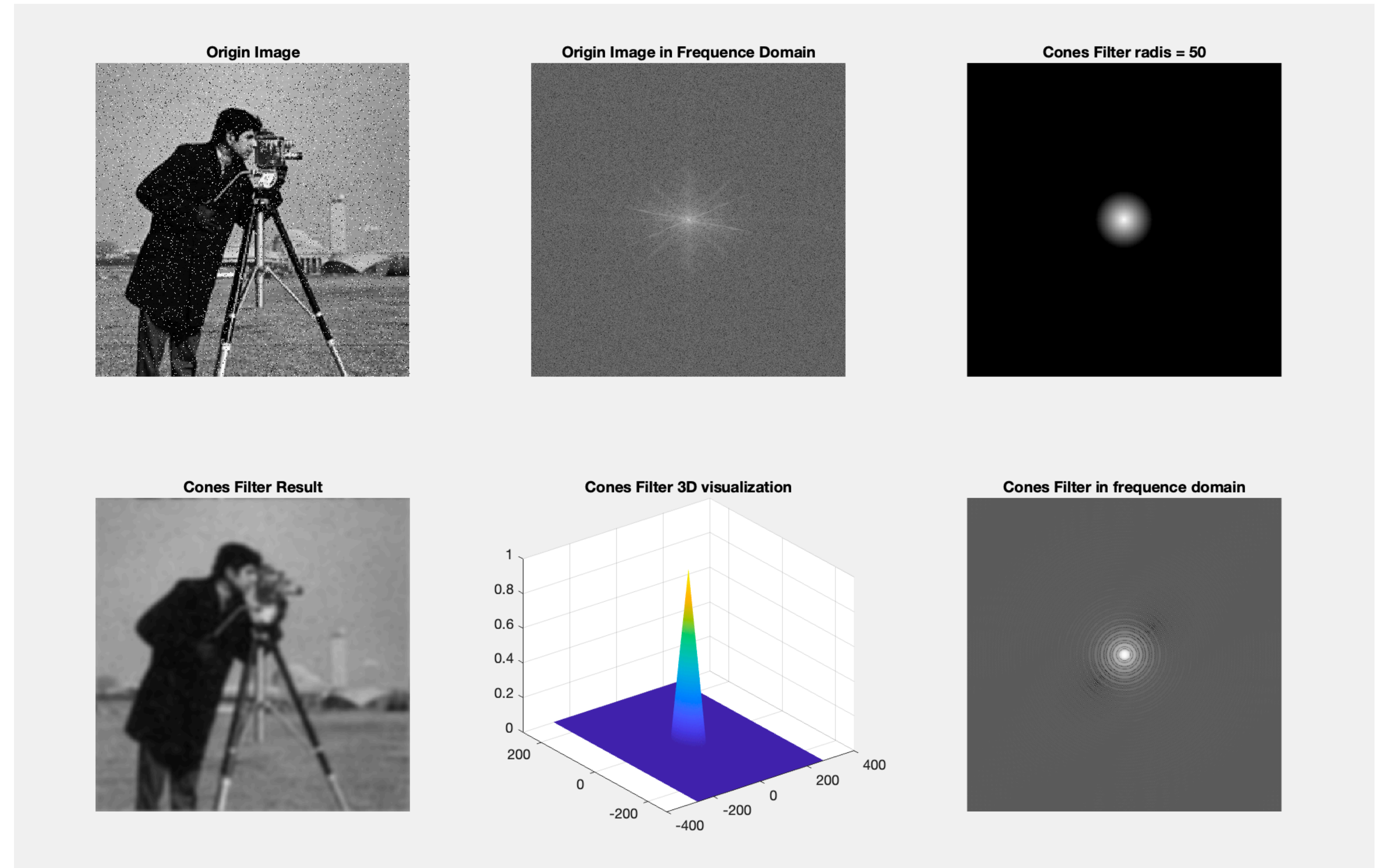
Low-Pass filter in frequency domain

# Low-Pass filter in frequency domain

- Use Matlab to finish a program of Low-Pass filter in frequency domain.
- The function definition should be `LowPassFilter(imagePath, radius)`, radius in this function is the radius of cone of the lowpass filter.
- Transformation Step:
  - Use Fourier transformation function to transform the original image and get the spectrum.
  - Create a low-pass filter with cone shape, the radius is what we give it.
  - Multiply the spectrum and filter element by element. (`Spectrum.*filter`)
  - Use inverse Fourier transform to transform your result in the last step to the time domain image.

# Program Result

- Your result should similar like this.
- You need to show the 3D visualization image and frequency domain of the cone filter.



# Tips

- Use `fft2()` and `ifft2()` to transform to the spectrum.
- Use `fftshift()` to shift the spectrum to the center.
- Use `surf()` to show 3D visualization.

- Please compress the matlab file to zip file and the file name should be "yourname\_HW4.zip"
- If you are afraid that I can't execute your code, please give the description to let me execute your program.
- The homework deadline is 12/15 23:59:59.