

INT3404E 20 - Image Processing: Homeworks 2

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1 Kết quả HW1

1.1 Ảnh gốc



Figure 1: image.

1.2 Ảnh xám lật



Figure 2: flip image.

1.3 Ảnh xám quay góc 45 độ



Figure 3: rotate image.

1.4 Ảnh xám



Figure 4: grayscale iamge.

2 Kết quả HW2

2.1 Image Filtering

2.1.1 Padding img

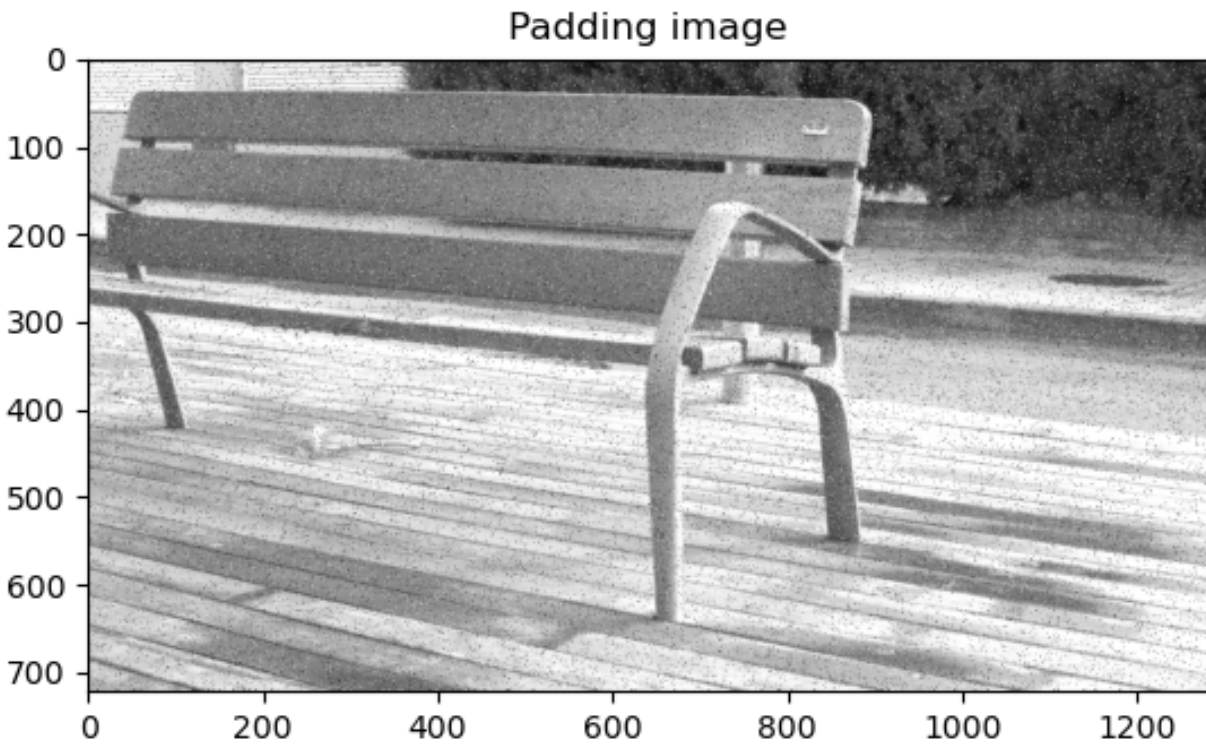


Figure 5: padding img

2.1.2 Mean filter

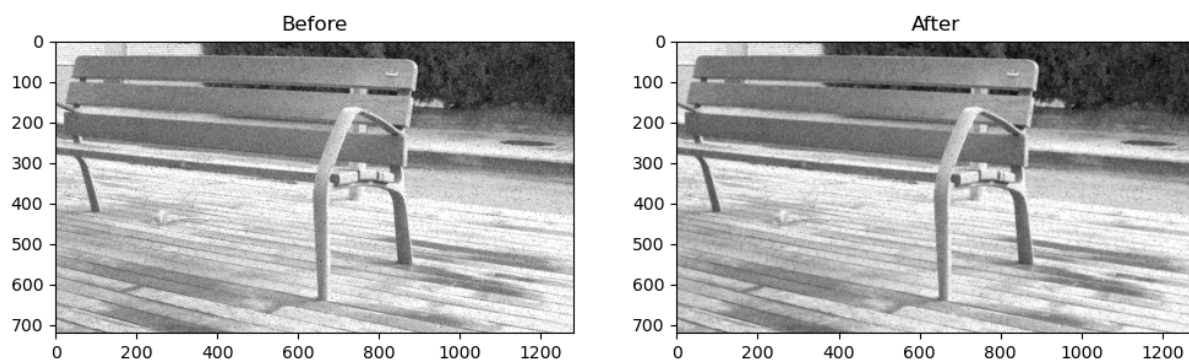


Figure 6: mean filter

2.1.3 Median filter

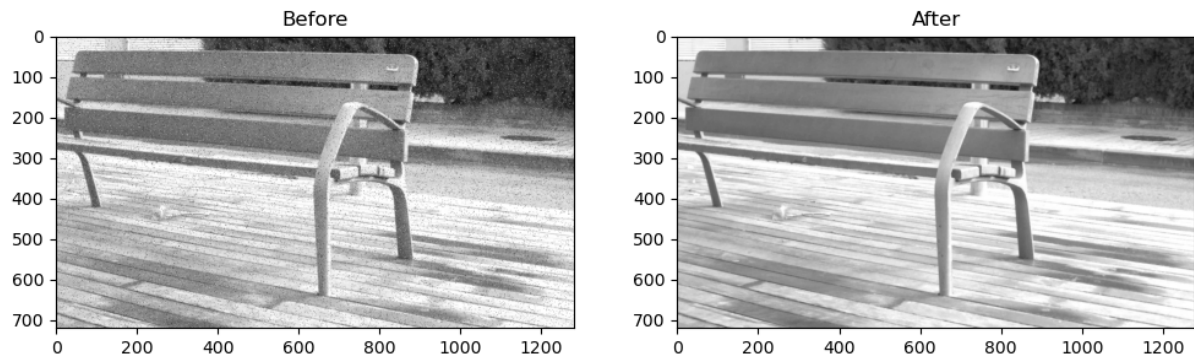


Figure 7: median filer

2.1.4 Peak Signal to Noise Ratio (PSNR)

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PSNR score of mean filter: 31.60889963499979
PSNR score of median filter: 37.11957830085524
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Figure 8: PSNR

Dựa trên PSNR metrics ở 8, chúng ta nên chọn median filter thay vì mean filter (PSNR càng cao thì chất lượng ảnh càng tốt).

2.2 Fourier Transform

2.2.1 1D Fourier Transform

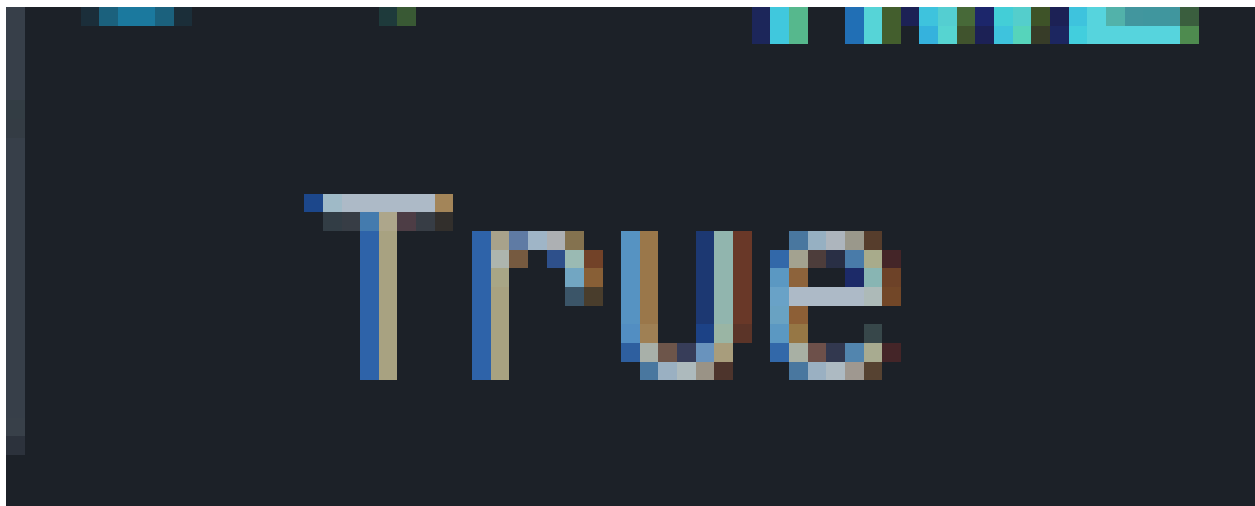


Figure 9: 1D Result

2.2.2 2D Fourier Transform

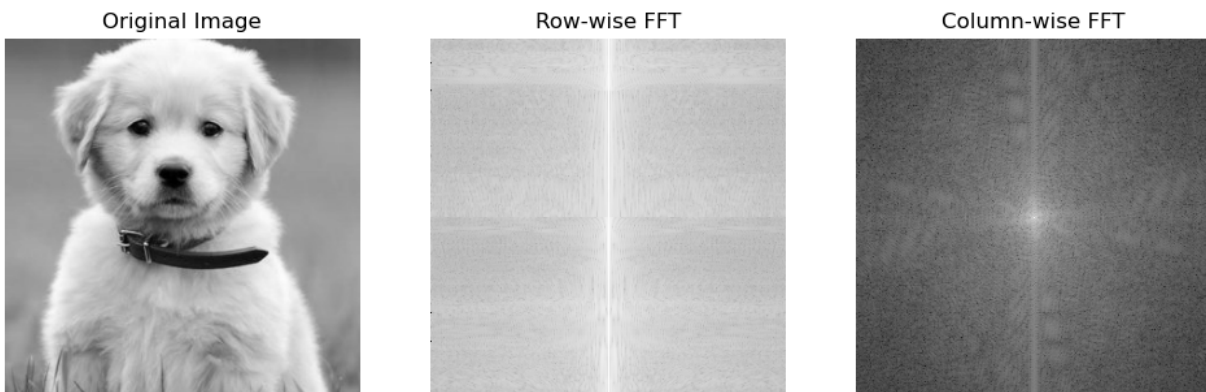


Figure 10: 2D result

2.2.3 Frequency Removal Procedure

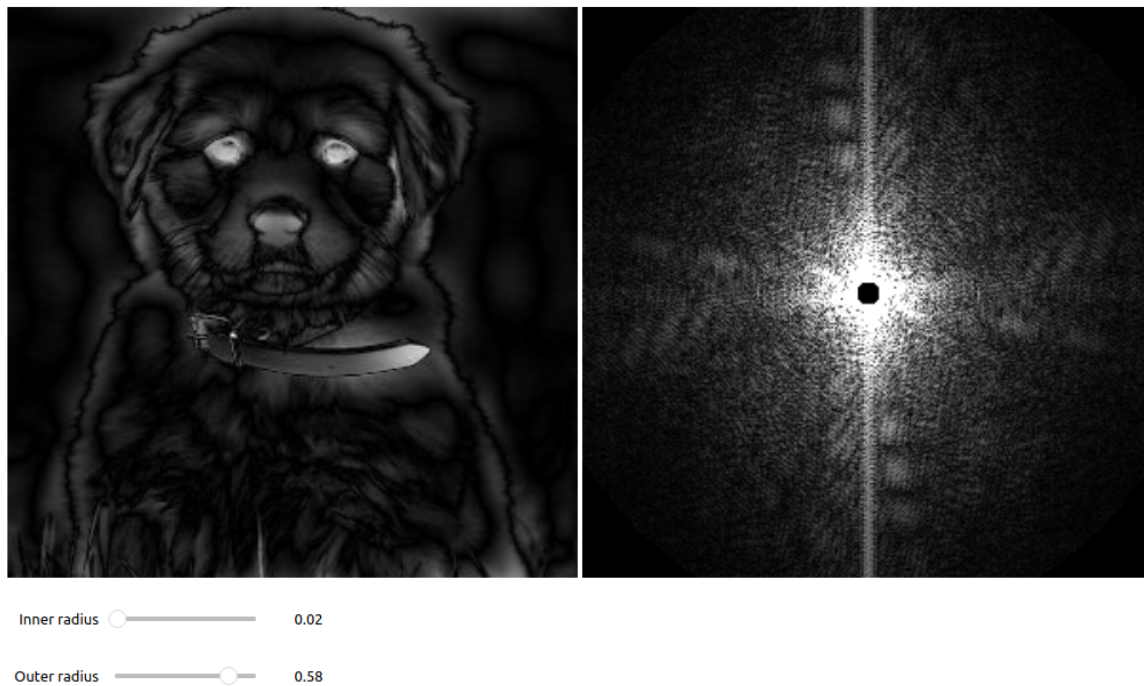


Figure 11: 2D Frequency Removal

2.2.4 Creating a Hybrid Image



Figure 12: Creating a Hybrid Image