DIGITAL IMAGE ANALYSIS

(CSL-461)

REPORT for

ASSIGNMENT-1

Submitted by:
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1 NEGATIVE:

Figure 1: Original Image

Figure 2: Transformed Image

2 LOG TRANSFORMATION:

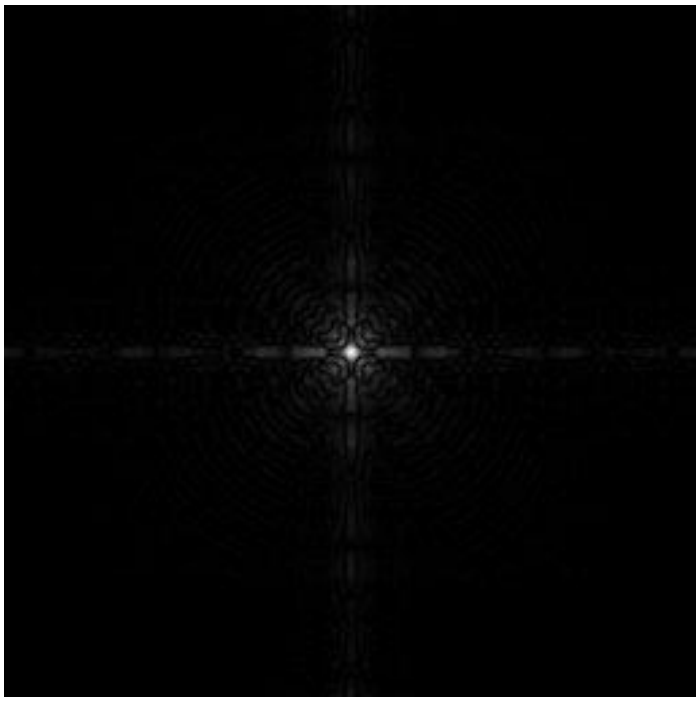

Figure 3: Original Image

*Figure 4: Transformed image(s=30*log (1+r))*

3 GAMMA TRANSFORMATION:

Figure 5: Original Image

Figure 6: Transformed Image (gamma=0.5)

Figure 7: Transformed Image (gamma=2)

4 BIT PLANE SLICING:

Figure 8: Original Image

Figure 9: Transformed Image (bit plane 8)

Figure 10: Transformed Image (bit plane 7)

Figure 11: Transformed Image (bit plane 6)

Figure 12: Transformed Image (bit plane 5)

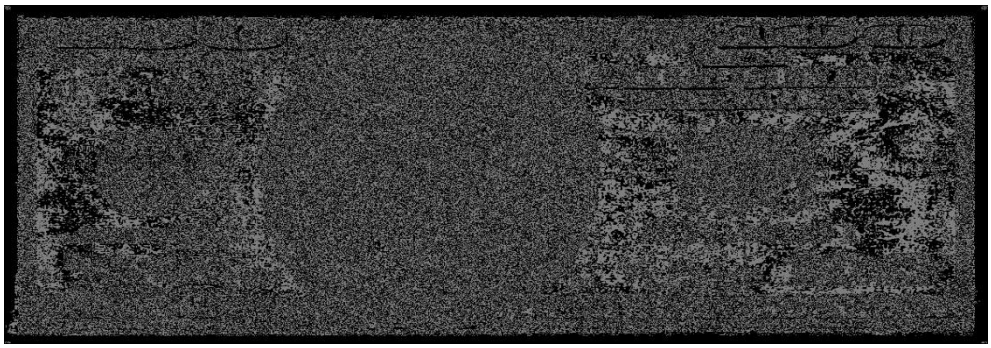

Figure 13: Transformed Image (bit plane 4)

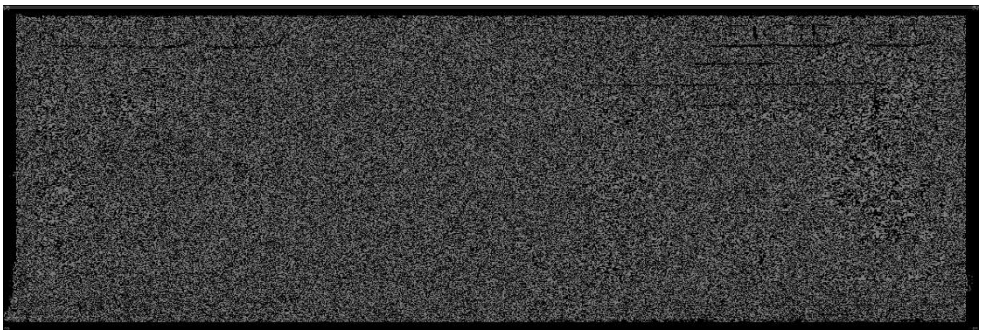

Figure 14: Transformed Image (bit plane 3)

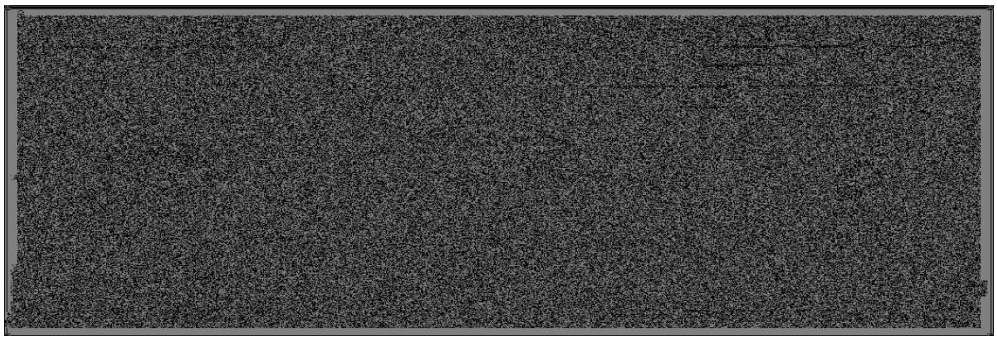

Figure 15: Transformed Image (bit plane 2)

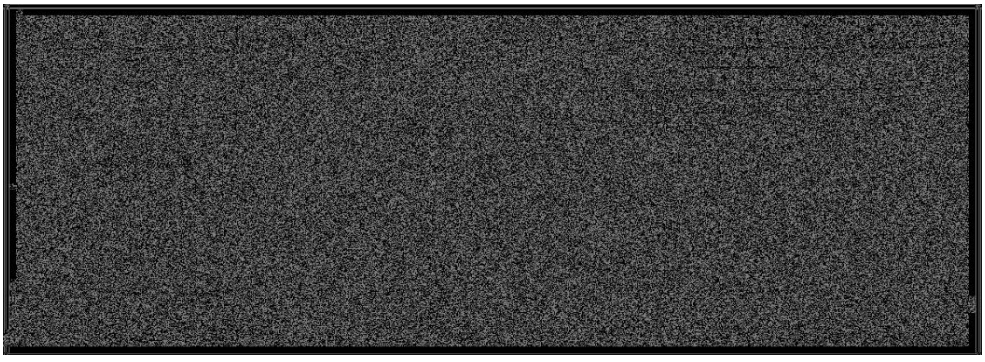

Figure 16: Transformed Image (bit plane 1)

5 GRAY LEVEL SLICING:

Figure 17: Original Image

Figure 18: Transformed image (Gray levels 125 to 200)

6 CONTRAST STRETCHING:

Figure 19: Original Image

Figure 20: Transformed Image (r1=100, s1=30, r2=150, s2=200)

7 ROTATION:

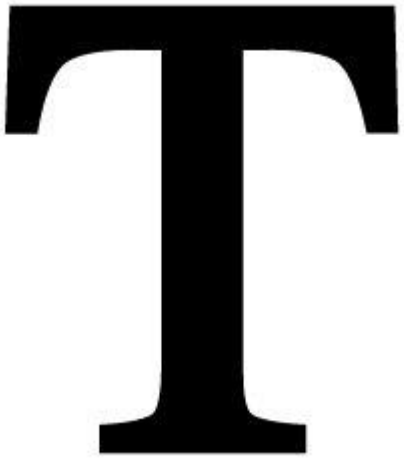

Figure 21: Original Image

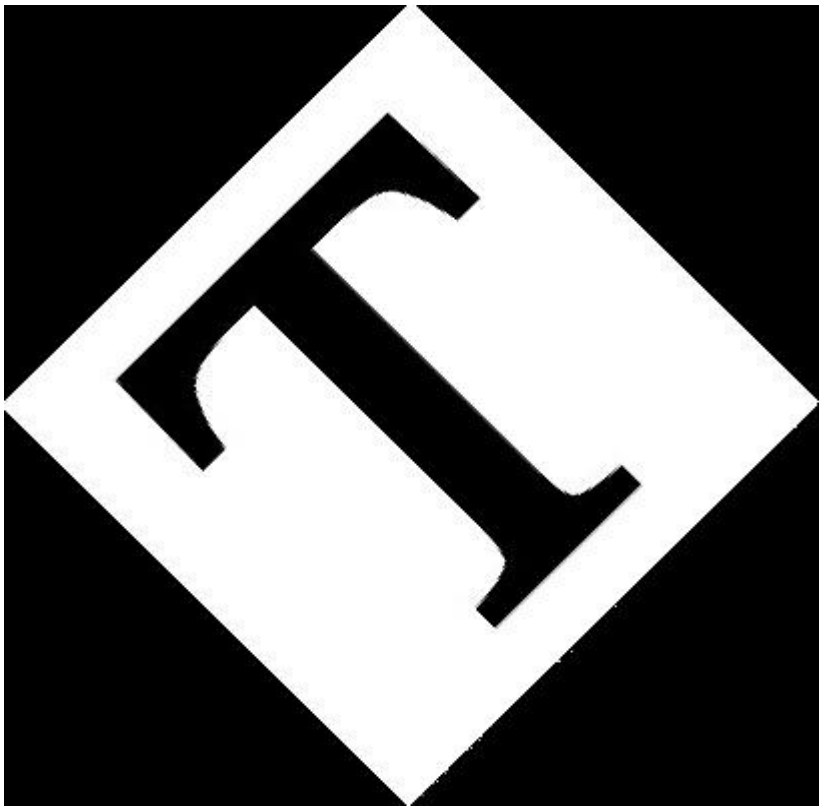

Figure 22: Rotated Image (45 degrees) - Nearest neighborhood Interpolation

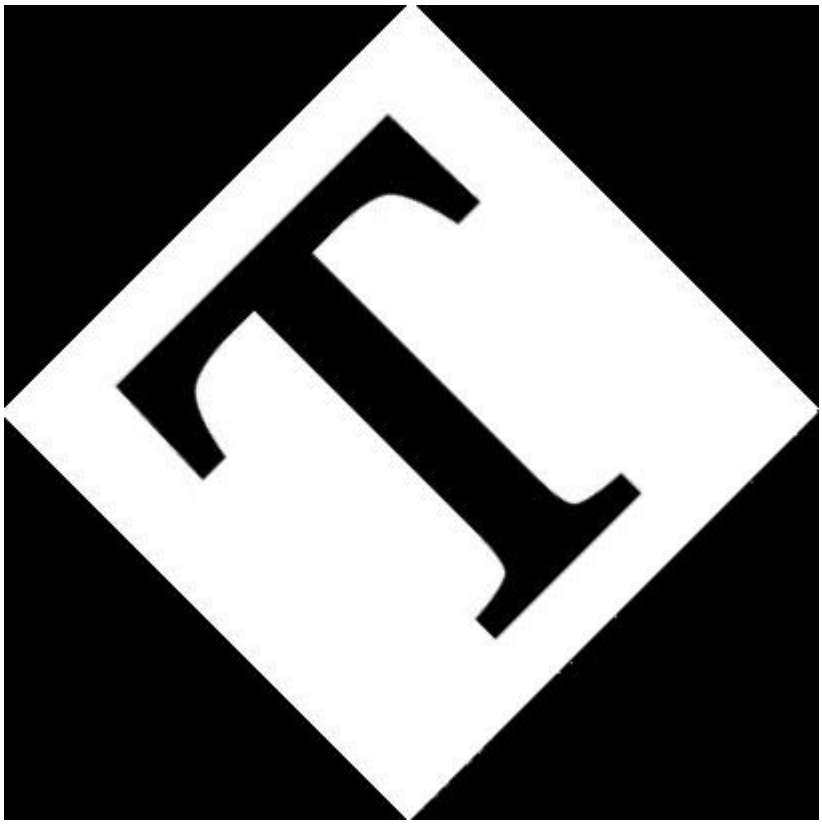

Figure 23: Rotated Image (45 degrees) - Bilinear Interpolation

8 TRANSLATION:

Figure 24: Translated Image

9 RESIZING/SCALING:

Figure 25: Original Image [512X512 pixels]

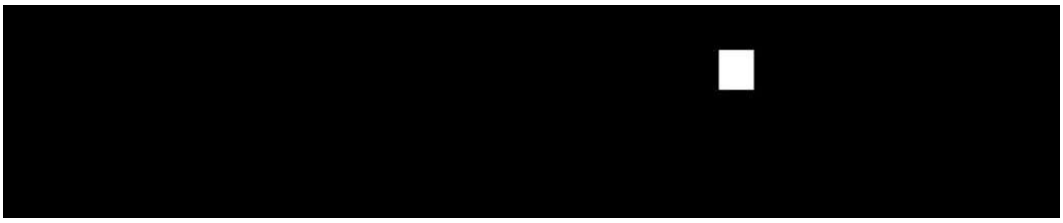

Figure 26: Resized Image (Horizontal: 2, Vertical: 0.25, Bilinear Interpolation) [1024X128 pixels]

(PSNR = 46.5902 dB)

Figure 27: Resized Image (Horizontal: 2, Vertical: 0.25, Nearest Neighborhood Interpolation) [1024X128 pixels]
(PSNR = 39.4299 dB)

10 SHEARING:

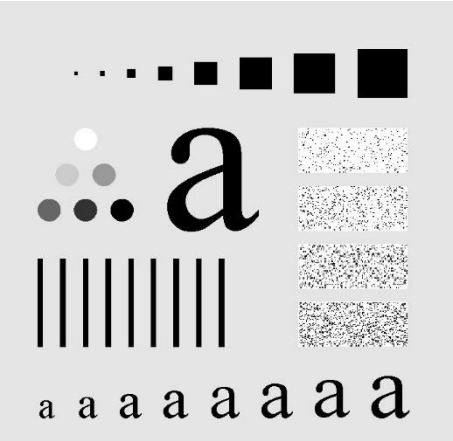

Figure 28: Original Image

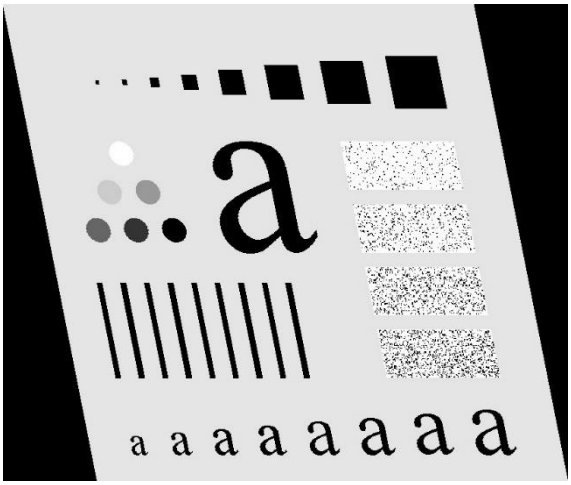

Figure 29: Horizontally Sheared (Bilinear Interpolation)

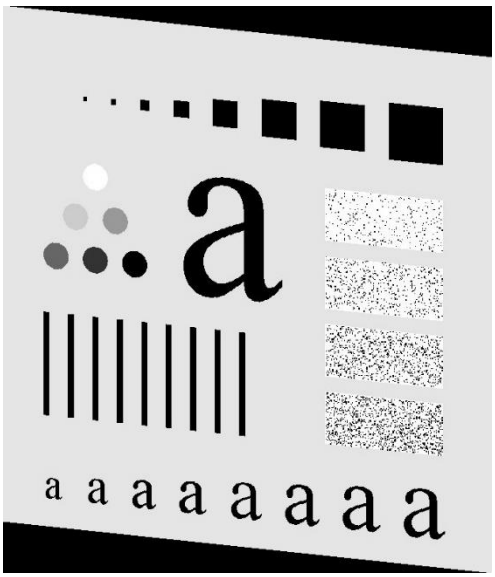

Figure 30: Vertically Sheared (Bilinear Interpolation)

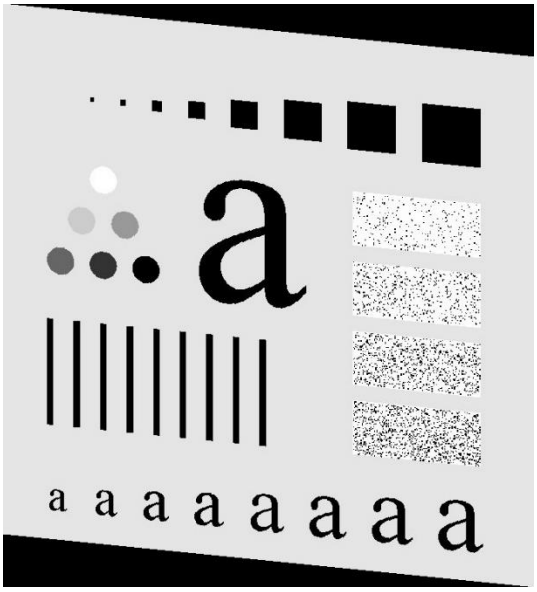

Figure 31: Vertically Sheared (Nearest Neighborhood Interpolation)

11 HISTOGRAM EQUALISATION:

Figure 32: Original Image

Figure 33: Transformed image (PSNR = 50.8795 dB)

12 HISTOGRAM MATCHING:

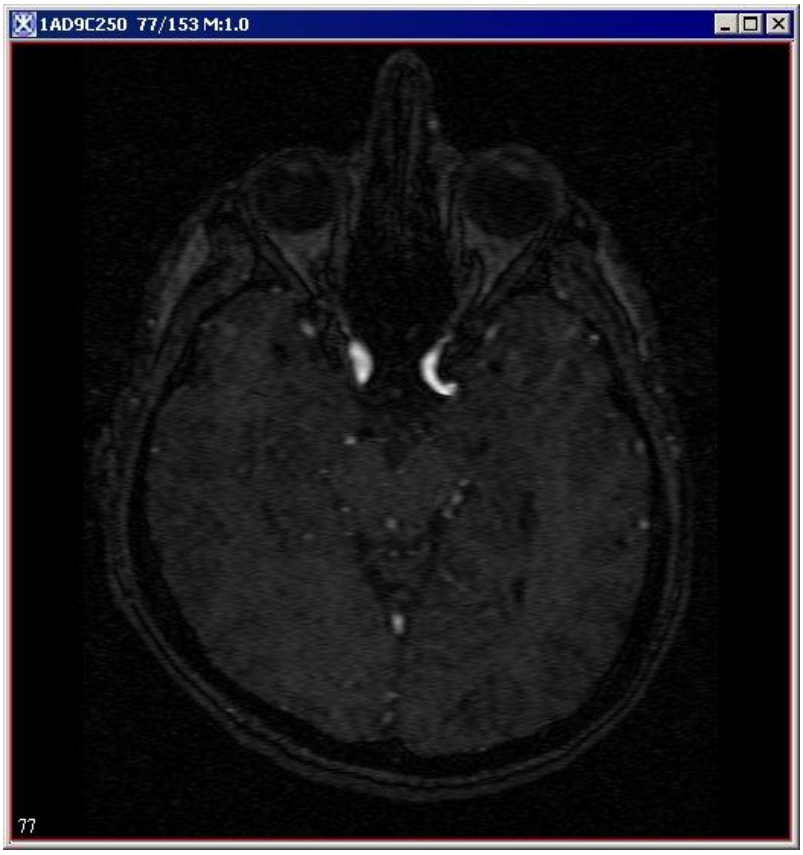

Figure 34: Original Image-1

Figure 35: Original Image-2

Figure 36: Image formed by Histogram Matching

13 ADAPTIVE HISTOGRAM EQUALISATION:

Figure 37: Original Image

Figure 38: Transformed Image

14 IMAGE RECONSTRUCTION USING TIE POINTS:

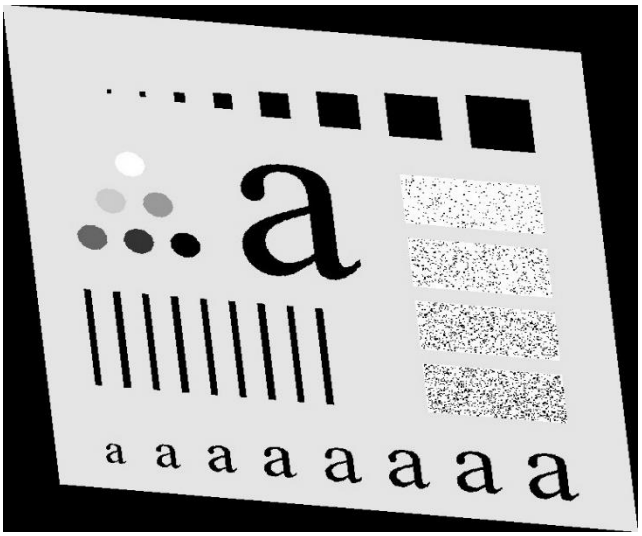

Figure 39: Original Sheared Image

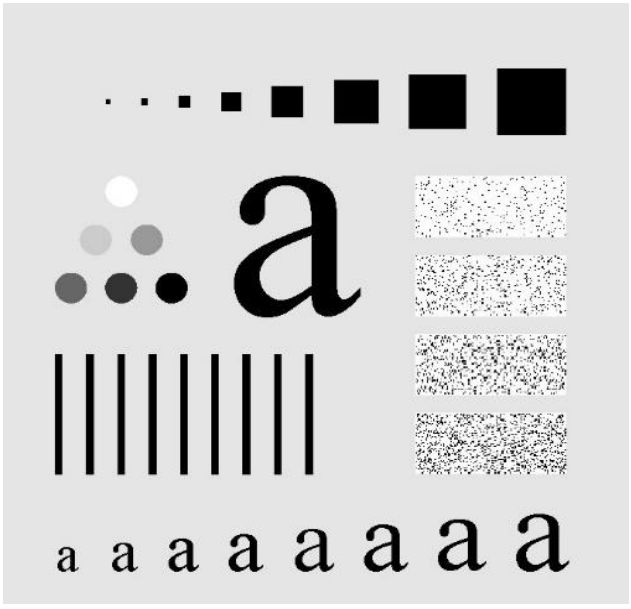

Figure 40: Desired un-sheared image

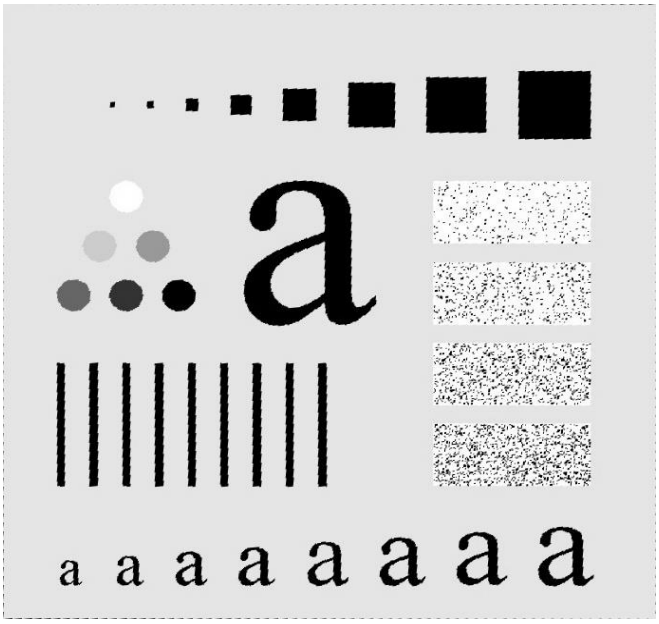

Figure 41: Transformed Image

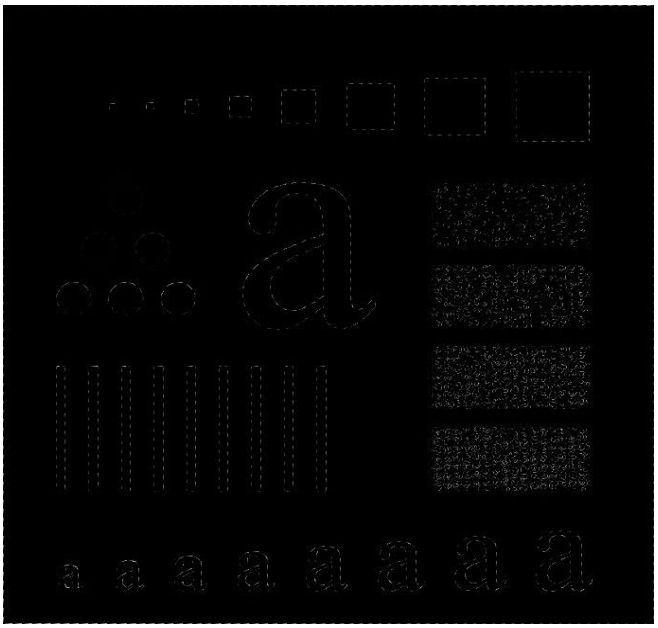

Figure 42: Difference of un-sheared original image and the image constructed using tie points