

EN2550 Fundamentals of Image Processing and Machine Vision

Assignment 01

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1 Point operations and spatial filtering

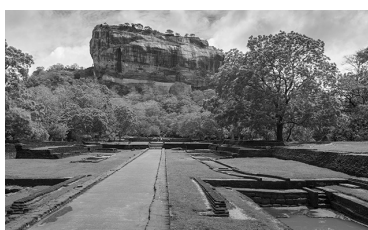


Figure 1: *Original image*

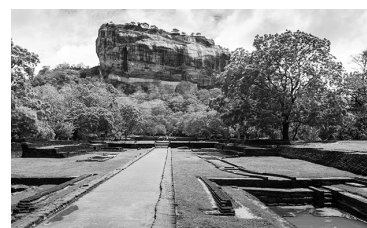


Figure 4: *Image after equalizing the histogram*

1.2 Intensity transformations

1.1 Histogram equalization

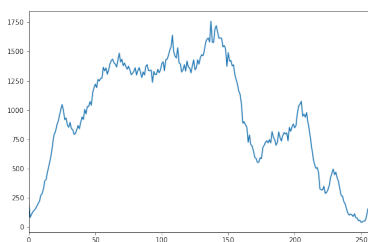


Figure 2: *Histogram of original image*

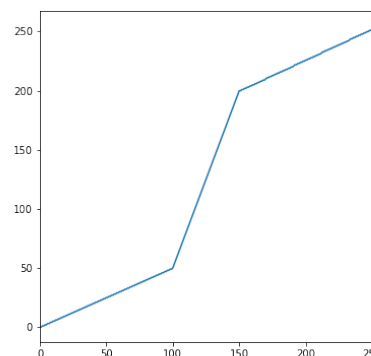


Figure 5: *Intensity transform function*

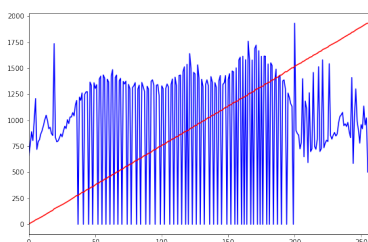


Figure 3: *Equalized histogram(blue) and cumulative(Red)*



Figure 6: *Image after applying intensity transform*

1.3 Gamma correction

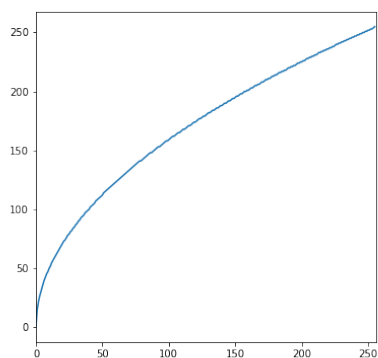


Figure 7: *Gamma function*

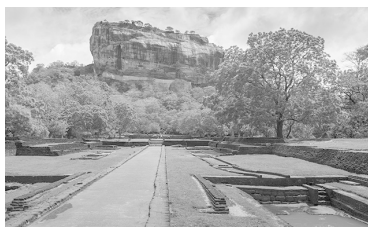


Figure 8: *Gamma corrected image*

1.4 Unsharp masking

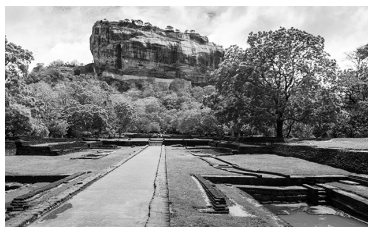


Figure 9: *Sharpened image*

1.5 Gaussian filtering

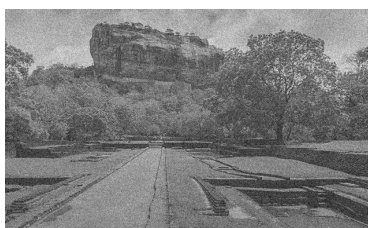


Figure 10: *Noisy image generated for filtering*

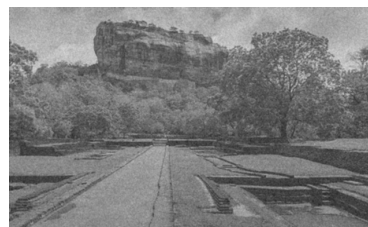


Figure 11: *Image after applying Gaussian filtering*

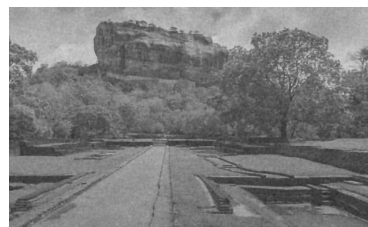


Figure 12: *Image after applying bilateral filtering*

1.6 Bilateral filtering details

1.7 Median filtering

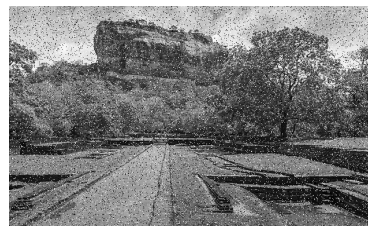


Figure 13: *Image with salt-pepper noise*

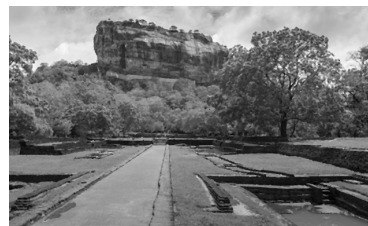


Figure 14: *Image after applying median filtering*

2 Connected component analysis

3 Image zooming