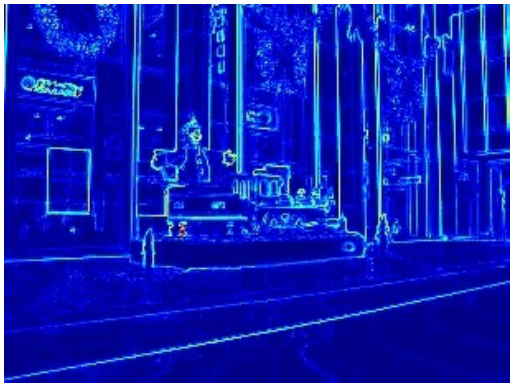
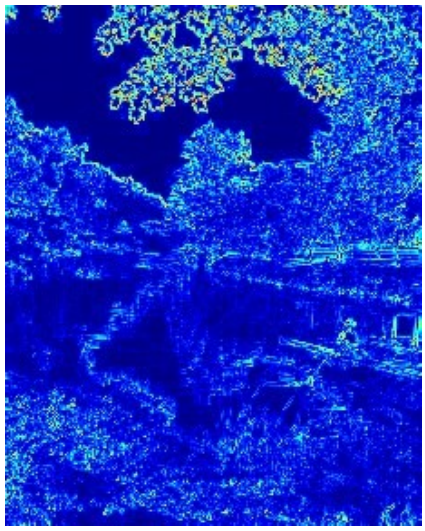
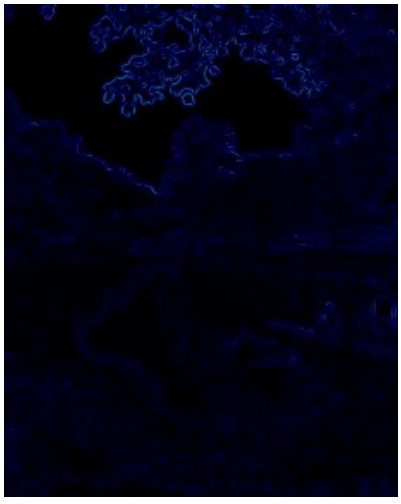
COL783: Digital Image Analysis
Assignment-3: Content Aware Image Resizing

Energy Funtions used:

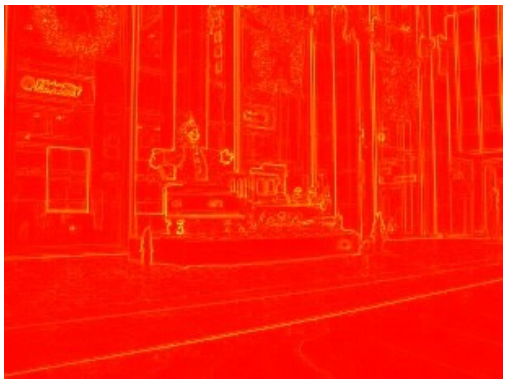
1. Successive Subtraction

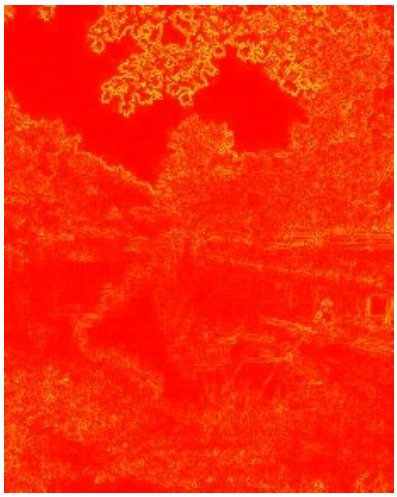




2. Sobel Operator based Derivative

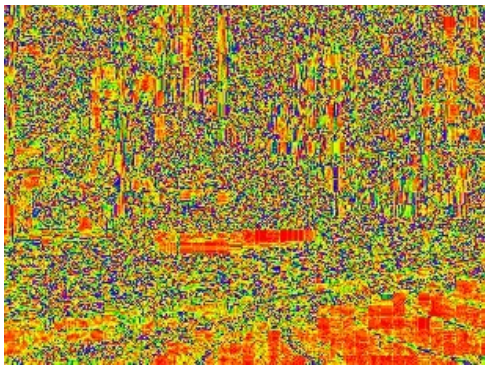



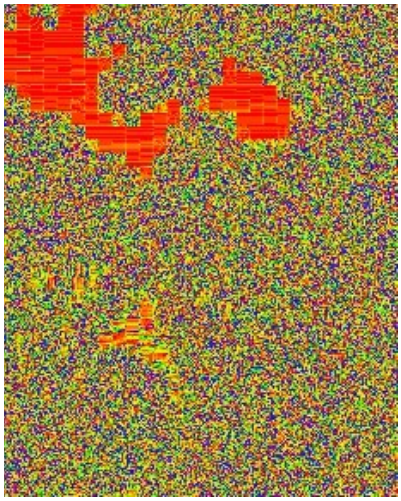

3. Entropy

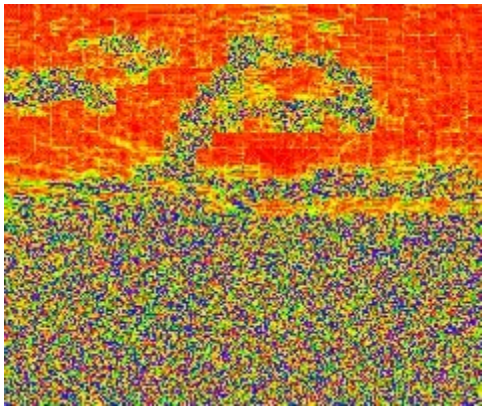




4. HOG







Images with Seams overlaid:

Number of Seams - 80

E1 Energy Function

Sobel E1 Energy Function

Entropy Energy Function

HOG Energy Function

We have observed that seams formed using Sobel operator based derivative gave the best results.
For seam based resizing and object removal, we have used Sobel based derivative as our energy function.

Image Enlargement:

Seams inserted - 50

Seams inserted – 100

2-Step Seam Insertion vs 1-Step Seam Insertion -

2-Step

1-Step

Image Reduction:

Vertical Reduction -

Seams removed - 50

Seams removed – 100

Horizontal Reduction -

Seams removed – 50

Seams removed – 100

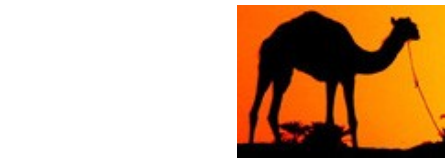
Vertical and Horizontal Reduction -

Vertical Seams removed – 100, Horizontal Seams removed – 50

Condensed Images Reduction produces artifacts -

Object Removal:

Fourier Correlation based -



Horizontal Seam Removal

Vertical Seam Removal
- Creates Artifacts

Generalized Hough Transform based -

Horizontal Seam Removal - Creates Artifacts

Vertical Seam Removal