Homework 2 - Computer Vision

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Part 1 - Histogram Equalization

The program is divided into five steps as follows:

Step 1 - Loading the original image

Step 2 - Calculating and showing the RGB histogram of the original image

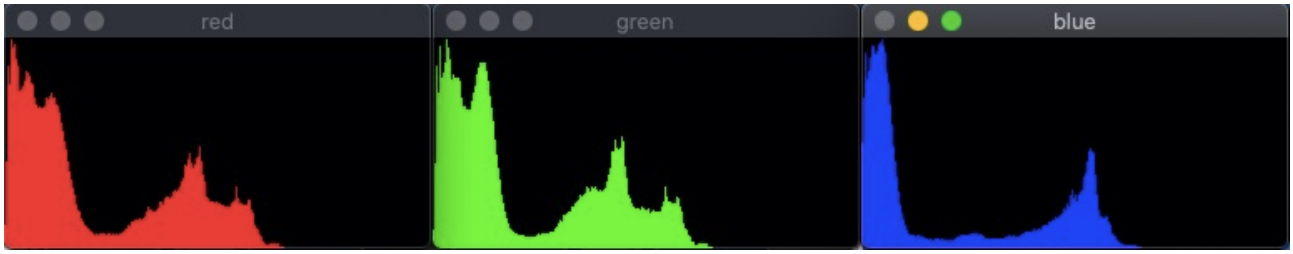
Step 3 - Equalizing the original image using the RGB Equalization

Step 4 - Caculating and showing the RGB histogram of the RGB equalized image

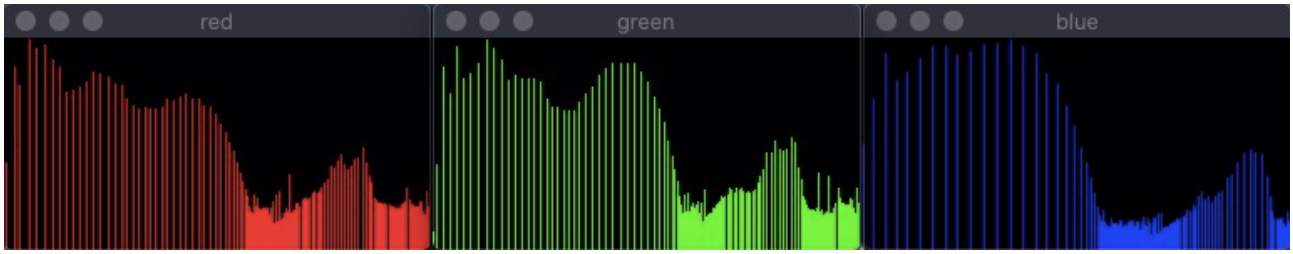
Step 5 - Equalize the original image using Luminance Equalization

Results

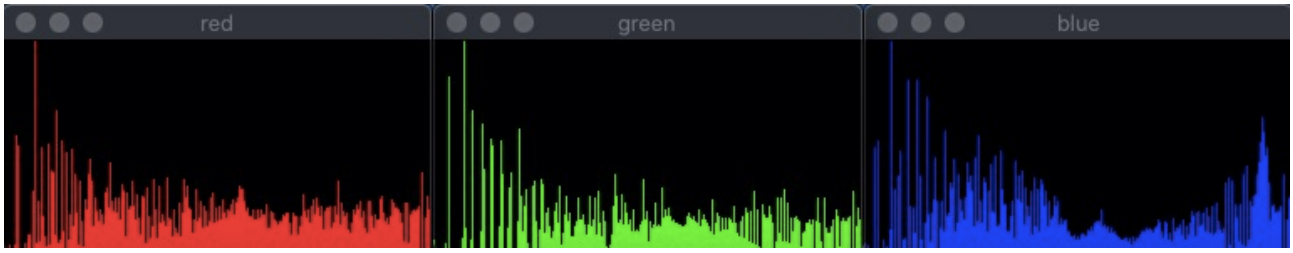
Original Image



RGB Equalized Image



Luminance Equalized Image



Part 2 - Image Filtering

The program is divided into 3 steps as follows:

Step 1: Apply median filter using one trackbar to adjust the kernel size.

Step 2: Apply gaussian filter using two trackbars to adjust the kernel size and sigmaX.

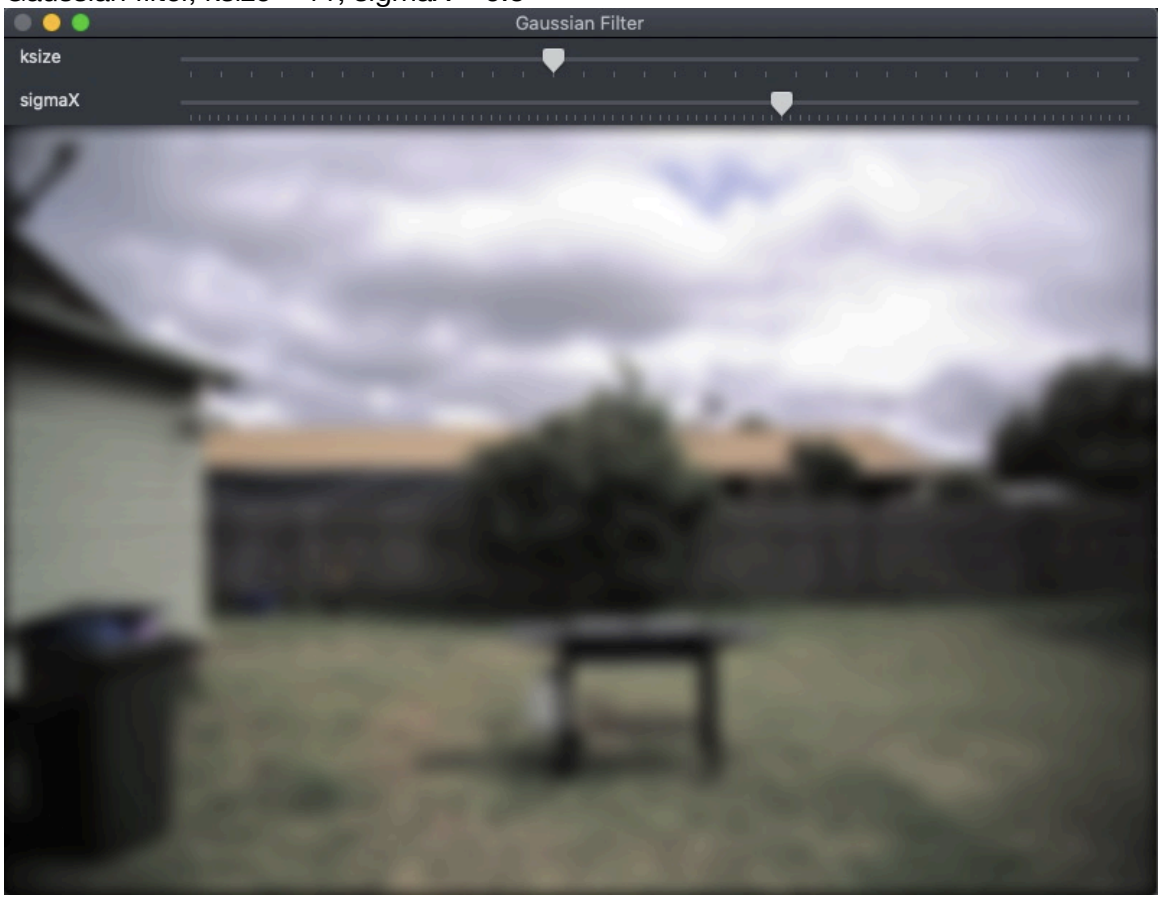
Step 3: Apply bilateral filter using two trackbars to adjust sigma space and sigma range.

The kernel size is fixed to 5.

Results

Median filter, ksize = 11

Gaussian filter, ksize = 11, sigmaX = 6.3



Bilateral filter, d = 5, sigma range = 2611, sigma space = 447