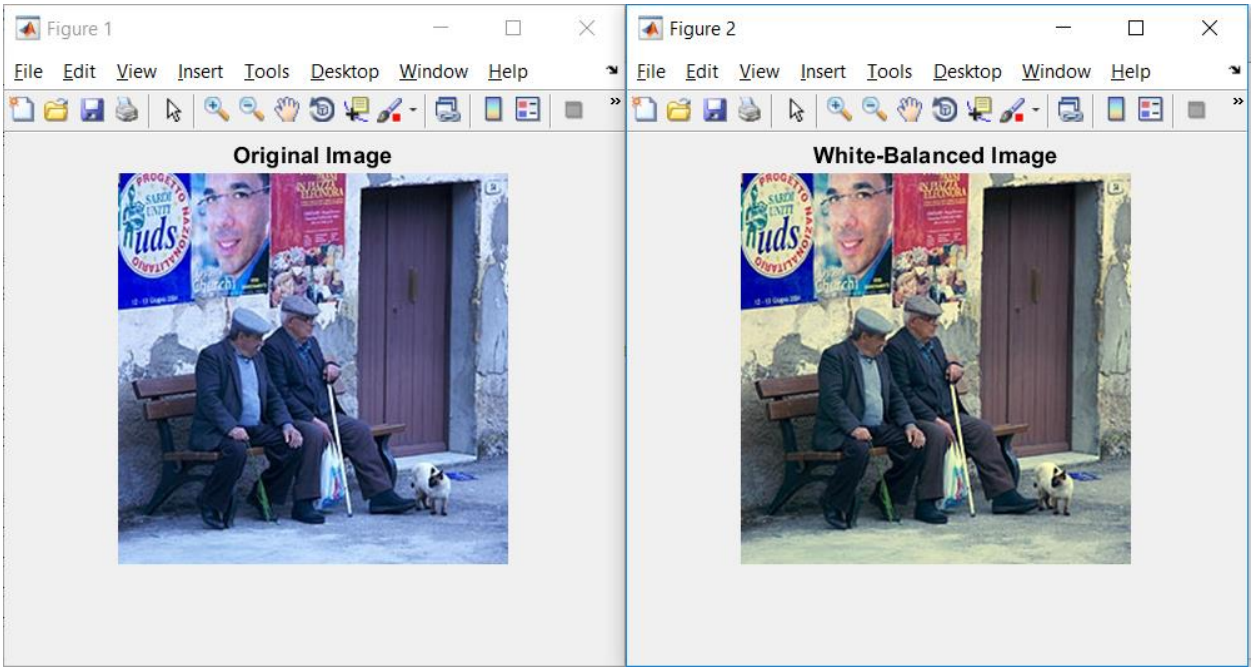
Thomas Jung/Computer Vision/Hw1

Matlab:



Matlab source code:

```
imgLoaded = imread('white_balance_example.png');

figure
imshow(imgLoaded,'InitialMagnification',100)
title('Original Image')

% Convert to gray so we can get the mean luminance.
grayImage = rgb2gray(imgLoaded);

% Extract the individual red, green, and blue color
channels.
redChannel = imgLoaded(:, :, 1);
greenChannel = imgLoaded(:, :, 2);
blueChannel = imgLoaded(:, :, 3);

% Obtaining mean value of each color
meanR = mean2(redChannel);
meanG = mean2(greenChannel);
meanB = mean2(blueChannel);
```

```
meanGray = mean2(grayImage);

% Make all channels have the same mean
redChannel = uint8(double(redChannel) * meanGray / meanR);
greenChannel = uint8(double(greenChannel) * meanGray /
meanG);
blueChannel = uint8(double(blueChannel) * meanGray /
meanB);

% Recombine separate color channels into a single, true
color RGB image.
rgbImage = cat(3, redChannel, greenChannel, blueChannel);

figure(2)
imshow(rgbImage)
title('White-Balanced Image')
```

Python:

Python Source Code:

```
# -*- coding: utf-8 -*-

import cv2 as cv
import numpy as np



def show(final):
    print('display')
    cv.imshow('Images', final)
    cv.waitKey(0)
    cv.destroyAllWindows()

# loading the image
img = cv.imread('C:\Users\PC\Desktop\spring 2018\comp vision\proj 1\white_balance_example.png')
# coloring the image
final = cv.cvtColor(img, cv.COLOR_BGR2LAB)

# obtaining avg color
avg_a = np.average(final[:, :, 1])
avg_b = np.average(final[:, :, 2])

for x in range(final.shape[0]):
    for y in range(final.shape[1]):
        l, a, b = final[x, y, :]
        # fix for CV correction
        l *= 100 / 255.0
        final[x, y, 1] = a - ((avg_a - 128) * (l / 100.0) * 1.1)
```

```
        final[x, y, 2] = b - ((avg_b - 128) * (l / 100.0) * 1.1)


final = cv.cvtColor(final, cv.COLOR_LAB2BGR)
final = np.hstack((img, final))


show(final)
cv.imwrite('result.jpg', final)
```