DA 2 Computer Vision (CSE 3017)

Simulate the following image processing tasks in MATLAB / Python and submit the results / metrics with the Codes

1. RGB image (I) → colour balancing (I_{11}) → RGB to gray (I_{12}) → Histogram equalization (I_{13})

2. RGB image (I) → RGB to gray (I_{21}) → introduce Gaussian noise (I_{22}) → Apply averaging filter (I_{23}) → Calculate MSE, PSNR in dB and SSIM between I_{21} and I_{23}

3. RGB image (I) → RGB to gray (I_{31}) → apply Sobel operator(I_{32}) and Canny operator (I_{33}) → For I_{33}, perform edge linking through Hough transform and display it on the original image (I_{34})

4. RGB image (I) → RGB to gray (I_{41}) → apply Harris corner detector (I_{42})

5. RGB image (I) → RGB to gray (I_{51}) → apply SIFT (I_{52}) and SURF (I_{53}) algorithms for feature extraction and perform matching.
   (Note: If you have more functions, you can submit output images alone.)