CS7GV1 Computer Vision
Lab 2

Please complete the following exercises using a Jupyter Notebook (*.ipynb). It is recommended that you use Google Colab. However, you may use any suitable IDE such as JupyterLab, Jupyter Notebook or Sypder.

Exercises

a. Perform a linear contrast stretch on the provided image so that the image values in the range 55 to 200 are stretched to occupy the whole 8-bit grayscale range. Please note that any intensities outside the range 0 to 255 should be appropriately clipped. This function is shown below in Figure 1.
b. Plot the histogram of the image before and after performing linear contrast stretching. Comment on the effect linear contrast stretching has on the image.
c. Create a gaussian filter with a range of variances (1, 5, 10, etc.) and display them using matplotlib-3D. Comment on the effect the variance has on the distribution of values in the gaussian filter.
d. Apply the range of gaussian filters to the image. Comment on the effect the gaussian filter's variance has on the blurring of the image.

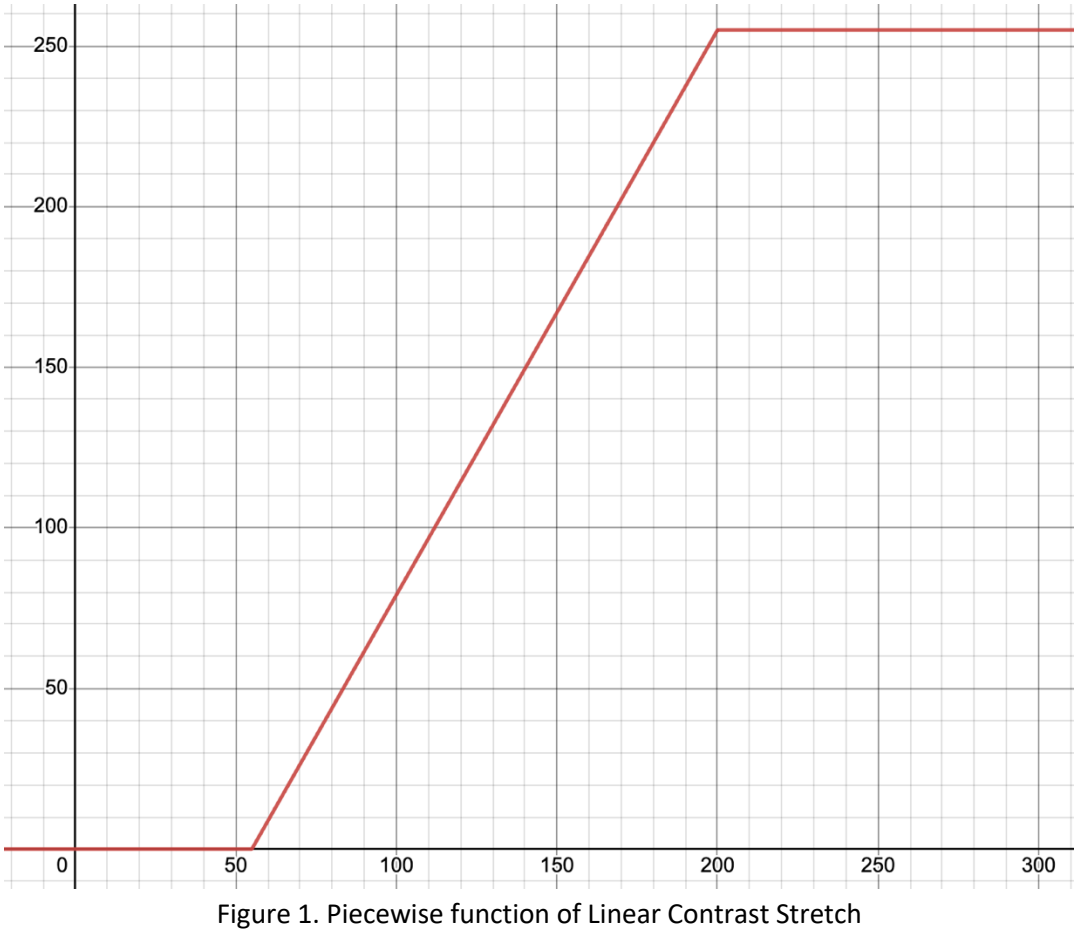

Figure 1. Piecewise function of Linear Contrast Stretch