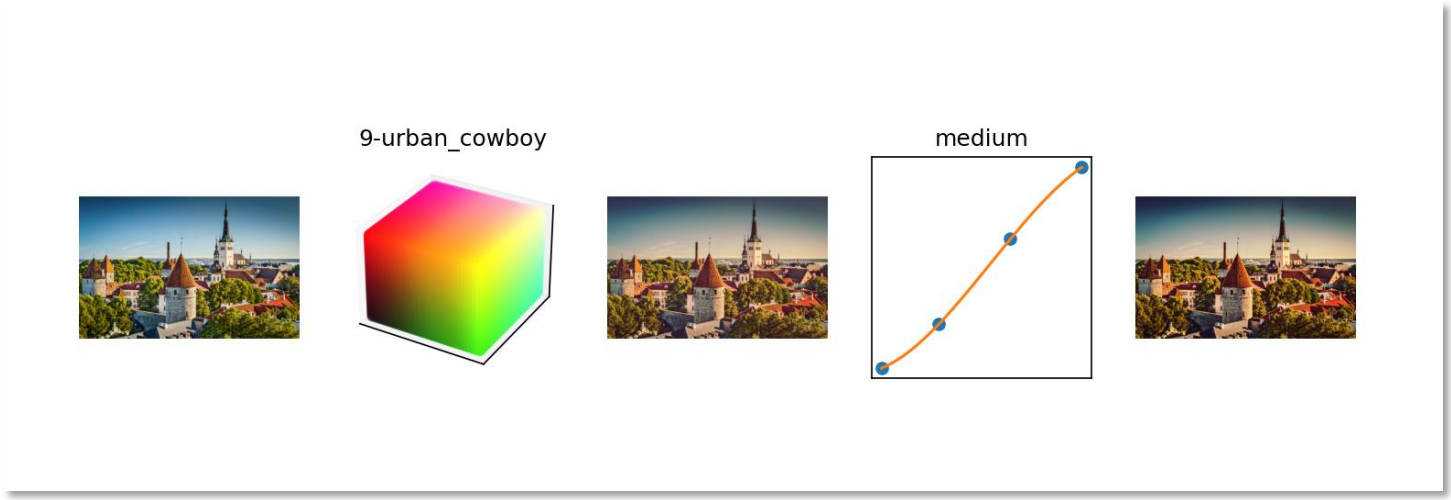
EECS6323 – Assignment 7: Color manipulation
Assigned: Mar 6 (Tu)
Due: Mar 15 (Fri) by 11.59 pm
Percentage of total grade: 10%

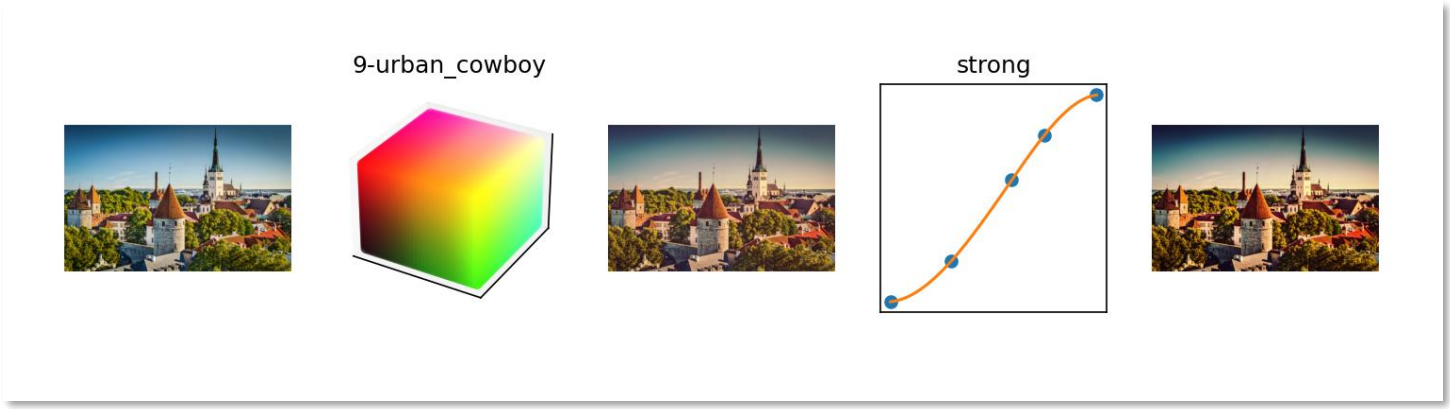
Objective
1. To apply 1D and 3D LUTs to an image
2. To interpolation a tone curve from knot points
3. To see how your camera modifies your image's colors

Provided to you.
1. Twelve (12) 3D CLUTs in .CUBE format
2. Knot points for tone curves in lecture notes
3. Two input images

How the program should work.
1. Select three input parameters
   a. Image file to be processed
   b. 3D LUT .cube file
   c. Tone curve to apply (light, medium, strong, none ['no change'])
2. Open the image and .CUBE file
3. Plot the image
4. Plot a 3D scatter plot of the cube files (the RGB values are the outputs of the 3D LUT)
5. Apply the LUT to the image and show the result
6. Interpolate the 1D LUT from the knot points
7. Plot the resulting tone curve
8. Apply the tone curve to each channel
9. Show the output image

Example output with different combinations





What to submit via e-class:
Two files
1. Your Python code (zip)
2. Video of your program running w/o audio (mp4).

Comments:
1. The assignment must be done in Python.
2. You are welcome to use ChatGPT.
3. Useful Python packages/functions:

pillow_lut
CubicSpline from scipy.interpolate
PIL