EE608 - Digital Image Processing

Assignment 2

Assigned Date: 8/02/2023

Due Date:11:59pm,14/02/2023

Problem 1: Image Zooming

Write a program to zoom an image by 1.5 times along each axis using the following techniques discussed (work with RGB Images) in class:
1. Nearest neighbor. (5)
2. Bilinear interpolation. (5)
Test your program using three of your favorite images. Comment on the quality of the two techniques and compare their computational complexity

Problem 2: Histogram

1. Write a function to compute the histogram of an image and plot the same. What is the modality of the histogram for the images mentioned above? (2)
2.What can you say about the histogram of a resulting image if we keep the MSB bits in the bitplane to 0? Plot and Observe? (2)
3. What can you say about the histogram of a resulting image if we keep the LSB bits in the bitplane to 0? Plot and Observe? (2)
4. Transmission is usually achieved through packets containing a start bit, a byte of information and a stop bit. Baud rate is a common measure for digital data transmission and is defined as number of bits transmitted per second. How much time would it take to transmit 512 x 512 grayscale image with intensity 0-255 over a 56K baud link? Similarly, calculate the time required to transmit the same image over a 3000K baud link (2)

Problem 3: Point Operations

Write a program/function to do the following:
1. Write a function to create the negative of an image (2)