Image Analysis and Processing

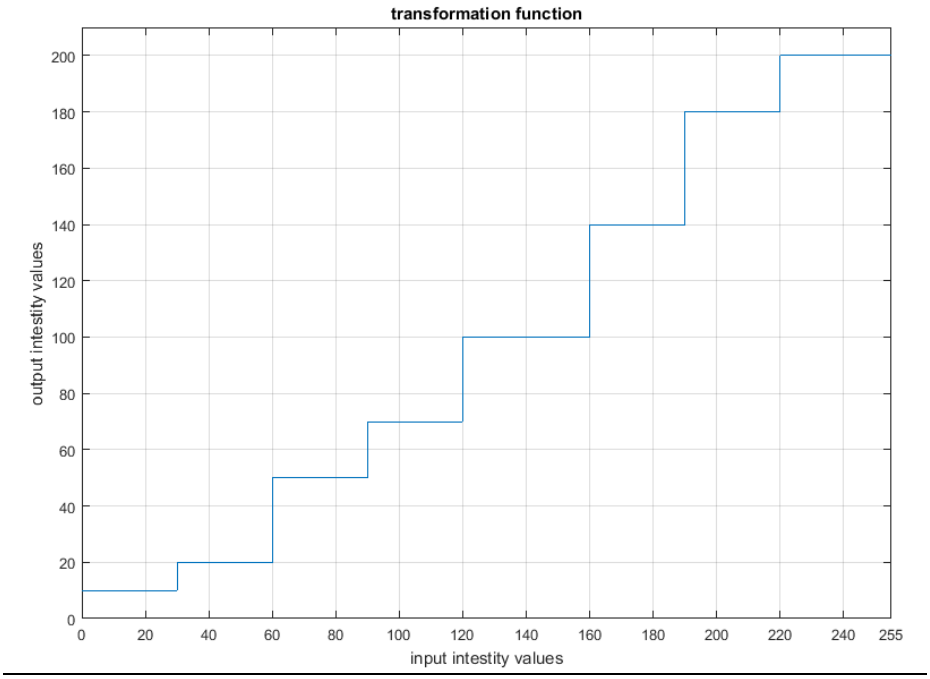
First set of Exercises

26/03/2021

It is critical to explain your choices and provide comments for the outputs (intermediate and final).

Exercise 1

a) Explain the impact of the following transformation function on a grayscale image, in terms of intensity values and brightness.
b) Verify your answer by a applying the transformation on an image of your choice (include input/output images in your answer)



Exercise 2

Propose a method for enhancing the image "**nature_dark_forest.jpg**" in terms of the perceived light and color.

Exercise 3

Propose a method for improving the image "**pollen-500x430px-96dpi.jpg**" in terms the perceived brightness.

Exercise 4

Propose a method for sharpening the image "**First-photo-of-the-moon-from-Chandrayaan-2_ISRO.jpg**".

Exercise 5

One combined spatial enhancement methods (e.g. arithmetic operations, gray level transformations, and/or sharpening spatial filters) to convert "**image_1**" to "**image_2**".

a) Try to guess the processing steps she adopted. [Note the dynamic range and brightness of the enhanced image, and the noise introduced.]

b) Propose a pipeline of processes with the aim of approximating "**image_1**" starting from "**image_2**".