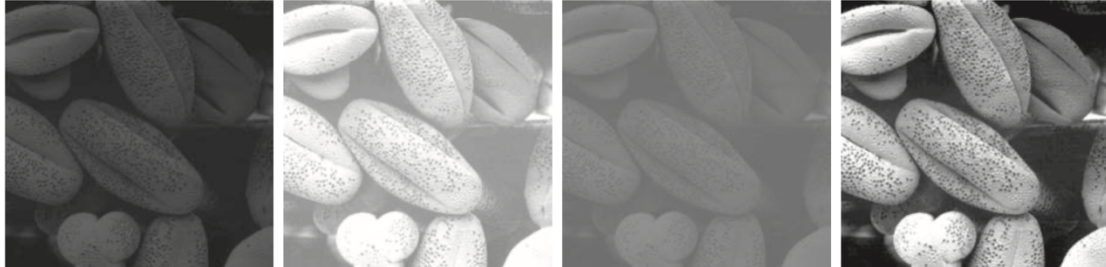# Homework 1: Histogram Equalization and Specification

1. Please prepare four images: (a) dark; (b) bright; (c) low contrast; (d) high contrast, like the following images.

(a) Describe how you generate your four images. Show the images together with the corresponding histograms.

(b) Find the transfer curves to enhance these images, show the results and histograms as well. Please take into account of the methods of contrast stretching and equalization and be sure to give the comparison and discussion.

2. Select one noon picture from the internet, for example,

https://www.google.com/search?q=quarter+moon&tbm=isch&ved=2ahUKEwi0u uXx6drvAhUNg5QKHa9_DNQQ2-cCegQIABAA&oq=quarter+moon&gs_lcp=CgNpbWcQAzICCAAyBggAEAcQHjIGCA AQBxAeMgYIABAHEB4yBggAEAcQHjIGCAAQBxAeMgYIABAHEB4yBAgAEB4yBAgA EB4yBAgAEB46BAgAEBM6CAgAEAcQHhATULvkAVj17QFgzvEBaABwAHgAgAF_iAG ZBpIBAzAuN5gBAKABAaoBC2d3cy13aXotaW1nwAEB&sclient=img&ei=npJkYLTzF4 2G0gSv_7GgDQ&bih=789&biw=1440&hl=zh-TW.

Most area of the noon is nearly dark because there is only dim light there. Enhance the selected image by using equalization and specification, compare the results and give a discussion.

Note:

(1) You can use c++, python, or any programming languages you prefer.

(2) Write a report, and compress it and your program to a single compressed file with your ID number as the file name. Upload to the server.

(3) The report should contain a description of your algorithms and methods.