**CECS 627**

**Project 1**

**Adaptive Enhancement**

The purpose of this project is to practice the following adaptive enhancement algorithms:

1. Histogram Equalization Applied to neighborhood sub-images with size = 5 x 5
2. Statistical Enhancement using neighborhood sub-images with size = 5 x 5

Apply the two methods to enhance the attached image Fig0326.tif.

Algorithm #1: the transformation of the intensity levels; *g(x,y) =T[f(x,y)]*will be adapted according to the cumulative distribution of the 5 x 5 pixel neighbors.

Algorithm #2: the transformation of the intensity levels is the following equation:

g(x,y) = *E*\*f(x,y); if [mean(x,y) < *k0*\*global mean] and *k1*\*global std < std(x,y) < *k2*\*global std]

= f(x,y); otherwise

Where *k0, k1, k2* are constants < 1, and *E* is a constant > 1. For example here are possible values *k0 = 0.4, k1=0.02, k2 = 0.4*, and *E = 4*.

Write a report with the enhanced image supported with your observations concerning the quality of the enhancement using the two algorithms.

Due: September 20, 2019