CoE 4TN4 Course Project (Phase II)
Image Interpolation and Enhancement

March 9, 2015

Tasks and Requirements

When displaying low-resolution images on high-resolution monitors, for example, watching standard definition TV programs on high definition TV sets, the viewers or players have to interpolate the missing pixels.

a Derive the bi-cubic image interpolation algorithm.

b Implement the bi-cubic image interpolation algorithm as efficiently as you can on YOUR OWN (no use of any image processing library or toolbox is allowed).

c Evaluate the interpolated images generated by your software in terms of contrast, and explain your observation(s).

d Enhance the contrast of the interpolated images the best you can.

e Does contrast enhancement of interpolated images generate any artifacts? If yes, why?

f Write a project report to document your algorithm development and experiments, and answer the above questions.

Notes:

• This is a team project. Students should work in a team of two members.

• Submit your project report together with your codes.

Due: midnight, April 7, 2015.