

Digital Image Processing

Homework Assignment #1

Due: 2:20pm, 10/13, 2016

Instructor : Prof. Yi-Ping Hung

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Requirement

1. Write a program for non-integer scaling of an image with two options:
 - Bilinear interpolation
 - Bicubic interpolation
2. Take a selfie of yourself, and apply the above image scaling program on your selfie (or part of your selfie, e.g., your right eye) with the scaling factors of 0.3, 3.0 and 18.
3. Compare the quality of the images obtained with bilinear interpolation and with bicubic interpolation.
4. Explain the method of bicubic interpolation, and compare its complexity with bilinear interpolation.

Language for Implementation

- C, C++, Python, JAVA or Matlab

(If you want to use other languages, please contact TAs. We need to make sure we can run your program!)

- openCV is a useful open library for image processing

Report

- For requirement 1, 2, you need to show
 - Which function you use or implement
 - How does your program work
 - How to use your program
- For requirement 3, 4, you need to provide
 - Result images for comparison
 - Explanation

Submission

- Please submit a .zip/.rar file to ceiba, containing
 - Project(source code and execution file)
 - Report(.pdf file)
- Late submission:
 - within 24 hours after its due will incur 20% penalty,
 - after 24 hours and within seven days of its due will incur 50% penalty, and
 - after seven days of its due will not be graded.

Note: One minute late is the same as 23 hours late.

DO NOT COPY OTHER'S HOMEWORK!!