CSC 365/665 Spring 2006
Image Processing Fundamentals

Professor: Torgersen

Office Phone: 758-5536

Office Hours: MW 3:00 – 4:00 and by appointment

Text: Digital Image Processing (second edition), by R. C. Gonzalez and R. E. Woods

Outline:

1. Overview of Application Areas
2. Digital Image Fundamentals
   (a) Human visual perception
   (b) Image acquisition / Sampling and quantization
   (c) Image representation
3. Image Enhancement
   (a) Spatial domain (Chapter 3)
   (b) Frequency (Fourier) domain (Chapter 4)
4. Image restoration (Chapter 5)
   (a) Forward modeling: image formation, noise models
   (b) Spatially invariant aberrations
      i. Inverse Filtering, Tikhonov regularization
      ii. Wiener Filtering
      iii. Conjugate gradient
   (c) Restoring phase diverse data sets (if time)
5. Color image processing (Chapter 6)
6. Wavelets and Multi-resolution processing (Chapter 7)
7. Image compression (Chapter 8)

Expectations:

1. Attendance
2. Practice problems
3. Communicate your thoughts and concerns

Grading: 3 exams (60%). Take home exercise/problem sets/programming projects (40%).