ECE418
Introduction to Image and Video Processing
Spring 17

Lecture 1

Lectures: Tu Th 12:30 - 1:50pm 2015 ECEB
Lab: Fr 1:30-5:30pm 57 Grainger
(sign up for 1 of 2 sessions)

Instructor: P. Moulin (pmoulin@illinois.edu) 310 CSL

Office Hours: We 10 - 11:30am (+ by appointment, send me email)

Teaching Assistant: XuanYao Zhang (xzhng120@illinois.edu)

Web Site: http://courses.engr.illinois.edu/ece418

Textbook: Instructor’s notes. The following books are on reserve in the Grainger Library:
M. Ghanbari, Video Coding - an introduction to standard codecs, IEE Telecommunications Series, 1999

Grading (subject to change)

Lab 25%
HW 10%  HW usually due on Thursdays
Midterm 1 15%
Midterm 2 15%
Final 35% or 20 %
Optional Project 0 % or 15%
1 Overview of the course

1. Multidimensional Signal Processing (∼ 5 lectures)
   Multidimensional Fourier Transform, sampling and filtering (including decimation and interpolation)

2. Human Visual Perception (∼ 3 lectures)
   Human Visual System, visual masking, noise visibility, color vision

3. Image Scanning and Display (∼ 2 lectures)
   Acquisition and Display of images (camera, digitizers, film, printers); sampling and quantization issues

4. Video Scanning and Display (∼ 3 lectures)
   Monochrome and Color TV, videoconferencing, videophone

5. Image Enhancement (∼ 4 lectures)
   Contrast and color adjustment, noise reduction, edge enhancement

6. Image Compression (∼ 4 lectures)
   How to reduce bit rate while maintaining acceptable quality

7. Video Compression (∼ 3 lectures)
   Role of Motion; compression techniques

8. Image Analysis (∼ 3 lectures)
   Edge Detection, Texture, Image Segmentation