Instructor: Shuai Huang 124 CSL
(huang816@illinois.edu)

Web Site: https://courses.engr.illinois.edu/ece418/sp2019/

Textbook: Instructor’s notes by Prof. P. Moulin.

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)

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<tr>
<th>Component</th>
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<td>Lab</td>
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<td>HW</td>
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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