Place:  Room 107, New Building, IIS, AS

Time:  09:00-12:00 Tue

Chair:  Dr. Wen-Huang Cheng  
Dr. Hwann-Tzong Chen  
Dr. Cheng-Te Li  
Dr. Wen-Hung Liao  
Dr. Chia-Wen Lin

Outline:
1. Introduction to Multimedia  
1.1. What is Multimedia?  
1.2. Overview of Multimedia Applications  
1.3. Multimedia Research Resources  
2. Multimedia Basics  
2.1. Graphics and Image Data Representations  
2.2. Color in Image and Video  
2.3. Fundamental Concepts in Video  
2.4. Basics of Digital Audio  
3. Multimedia Processing & Coding  
3.1. Video coding fundamentals  
3.2. Lossless Compression & Lossy Compression  
3.3. Transform Coding  
3.4. Motion Compensated Predictive Coding  
4. Multimedia Coding Standards  
4.1. JPEG, JPEG-2000  
4.2. H.261, H.263, MPEG-1, MPEG-2, MPEG-4, and H.264  
5. Social Network Basics  
5.1. An Introduction to Social Networks  
5.2. Properties and Models of Social Networks  
5.3. Centrality Analysis and Community Detection  
5.4. Information Diffusion in Social Networks  
6. Social Multimedia Analytics  
6.1. Sentiment, Opinion, Locations, and Multimedia  
6.2. Search and Recommendation in Social Media  
7. Machine Learning in Social Multimedia Analytics  
7.1. Unsupervised Learning  
7.2. Discriminative Models  
7.3. Generative Graphical Models  
8. Advanced Multimedia Processing  
8.1. Image Manipulation Techniques  
8.2. Interactive Multimedia Editing  

Textbook/Reference:

Office hours: by appointment
Grades:
- Class Participation (10%)
- Homework Assignments: (20%)
- Midterm Exam (30%)
- Final Project (40%)
  - Proposal: 10%
  - Demo: 20%
  - Report: 10%
  - Bonus: 3 points (for the best three demos)

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