Multimedia in Social Networks (MM)

Place: Room 107, New Building, IIS, AS / Delta Building, NTHU / TBA, NCCU

Time: Tue, 09:00am-12:00pm

Chair: Dr. Jun-Cheng Chen (Chair)
       Dr. Chia-Wen Lin
       Dr. Wen-Hung Liao
       Dr. Li Su
       Dr. Yan-Tsung Peng

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. Machine Learning and Deep Learning in Social Multimedia Analytics
   3.1. Machine learning Basics
   3.2. Deep Learning Basics
   3.3. Unsupervised/Semi-supervised/Supervised Learning, etc.
4. Multimedia Processing & Coding
   4.1. Video coding fundamentals
   4.2. Lossless Compression & Lossy Compression
   4.3. Transform Coding
   4.4. Motion Compensated Predictive Coding
   4.5. Multimedia Coding Standards
      4.5.1. JPEG, JPEG-2000
      4.5.2. H.261, H.263, MPEG-1, MPEG-2, MPEG-4, and H.264
5. Audio/Music Information Analysis
   5.1. Audio Signal Processing fundamentals
   5.2. Music Information Processing
   5.3. Deep Learning for Audio/Music Multimedia Analysis
6. Social Network Basics
   6.1. An Introduction to Social Networks
   6.2. Properties and Models of Social Networks
   6.3. Centrality Analysis and Community Detection
   6.4. Information Diffusion in Social Networks
   6.5. Social Multimedia Analytics
      6.5.1. Sentiment, Opinion, Locations, and Multimedia
      6.5.2 Search and Recommendation in Social Media
7. Advanced Multimedia Processing
   7.1. Image Manipulation Techniques
   7.2. Interactive Multimedia Editing

Textbook/Reference:
11. Selected research papers.

Office hours: by appointment
Grades:
- Exam 50%
- Final Project 50%

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<th>Topics/Brief Description</th>
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<td>2020/02/18</td>
<td>Introduction to Multimedia</td>
<td>Jun-Cheng Chen</td>
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<td>2020/02/25</td>
<td>Multimedia Basics (I)</td>
<td>Wen-Hung Liao</td>
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<td>Final-Project Proposal Explanation (Milestone I)</td>
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<td>Audio/Music Analysis in Multimedia (I)</td>
<td>Li Su</td>
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<td>2020/04/07</td>
<td>Visual Content Processing &amp; Coding</td>
<td>Chia-Wen Lin @ R629, Delta Building, NTHU</td>
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<td>2020/04/14</td>
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<td>Jun-Cheng Chen</td>
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<td>Yan-Tsung Peng</td>
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<td>Deep Learning for Computer Vision Applications (III)</td>
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<td>Social Multimedia Applications</td>
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<td>Final-Project Clinic (Milestone III)</td>
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<td>Polishing Up your Demo No Class</td>
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