Brooklyn College
Department of Computer & Information Sciences

CISC 7610 [*717.5X] Multimedia Databases

37½ hours plus conference and independent work; 3 credits

Multimedia data types and formats. Multimedia database design issues. Indexing and retrieval of text documents, audio files, images and video. Techniques and data structures for efficient multimedia similarity search. System support for distributed multimedia databases. Measurement of multimedia information retrieval effectiveness. Products, applications, and new developments

Syllabus:

Week 1:   Introduction to multimedia databases. Issues related to multimedia data types.

Week 2:   Review database approaches. Relational databases, especially SQL. Object-oriented databases.

Week 3:   Multimedia data and data formats. Perceptual issues.

Week 4:   Approaches to multimedia databases. Pros and cons of extended relational versus object-oriented multimedia databases.

Week 5:   Querying multimedia. Classification problem.

Week 6:   Modeling multimedia databases. Universal modeling language.

Week 7:   Using multimedia metadata. Metadata creation and extraction.

Week 8:   Multimedia database architectures and performance issues.

Week 9:   Distributed multimedia databases. Internet distribution. Delivery methods. Quality of service.

Week 10: Principles of content-based retrieval. Indexing methods. Minimizing false negatives and false positives.

Week 11: Approaches to indexing and querying text documents. Information retrieval.

Week 12: Image processing, analysis, and understanding, applied to multimedia databases.

Week 13: Continuous media processing and analysis. Storage and disk scheduling issues.

Week 14: Multimedia database applications.

Suggested Textbook:

B. Thuraisingham, Managing and Mining Multimedia Databases, CRC Press, 2001.

Bibliography:

1. L. Dunckley, <u>Multimedia Databases: An Object-Relational Approach</u>, Addison Wesley, 2003.
2. S. Khoshafian and A.B. Baker, <u>Multimedia and Imaging Databases</u>, Morgan Kaufman, 1996.
3. G. Lu, <u>Multimedia Database Management Systems</u>, Artech House, 1999.
4. T. Shih, <u>Distributed Multimedia Databases: Techniques and Applications</u>, IRM Press, 2002.
5. V.S. Subrahmanian, <u>Principles of Multimedia Database Systems</u>, Morgan Kaufmann, 1998.

Website Resources:

Managing Multimedia Databases (http://vision.ece.ucsb.edu/multimedia/)

Multimedia Databases in Perspective (http://www.informatik.uni-trier.de/
~ley/db/books/collections/ApersBH97.html

Multimedia Databases Through the Looking Glass (http://www.dbpd.com/vault/9705davd.htm)