

Rutgers The State University of New Jersey

Multimedia Information Systems

26:198:732

Fall 2015

Thursdays 10:00am - 12:50pm, 1 Washington Park, Room 202

Instructor : Prof. Vijay Atluri
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[New Brunswick Campus Information](#)

[Newark Campus Information](#)

Course Description: Recent advances in digital media technology and rapid growth of social media platforms where multimedia objects such as images, videos and music (audio), and mobile and geospatial data, are increasingly embedded in online social communities. As a result, multimedia has gained enormous potential in improving the traditional educational, professional, business, communication and entertainment processes. To be able to use this potential for transferring these processes into user-friendly multimedia applications, technology is required that can help us access, deliver, browse, search, enrich and share multimedia content. In particular, this course covers such topics as organizing multimedia content, physical storage and retrieval of multimedia data, Content-based Search and retrieval, creating and delivering networked and multimedia presentations, securing multimedia content and current research directions in this area. The main objective of the course is to introduce students different types of multimedia data, different techniques to store, manipulate, and retrieve multimedia data residing across global computer networks.

Text Book: There is no assigned text for this course. Class notes, chapters from the reference books and research papers should be used as the primary reference. All the class notes is made available on blackboard.

Reference Books:

1. V.S. Subrahmanian, Principles of Multimedia Database Systems, Morgan Kaufmann Publishers, 1998.
2. Elmasri and Navathe, *Fundamentals of Database Systems*, 6th Edition, Addison-Wesley
3. C. Faloutsos *Searching Multimedia Databases by Content*, Kluwer Academic Press, 1996.
<http://www.cs.cmu.edu/~christos/TALKS/07-denmark/book.pdf>
4. [Christopher D. Manning](#), [Prabhakar Raghavan](#) and [Hinrich Schütze](#), *Introduction to Information Retrieval*, Cambridge University Press. 2008.

Other Resources:

1. [ACM Special Interest Group Multimedia](#)
2. [The DBLP Bibliography](#) An Excellent source for the Research materials in the Database area
3. [Computer Science Research Literature Digital Library](#) in the Computer science area
4. ACM Multimedia Systems Journal
5. IEEE Transactions on Multimedia
6. Journal of Multimedia Tools and Applications
7. ACM Transactions on Information Systems
8. ACM Transactions on Database Systems
9. IEEE Transactions on Knowledge and Data Engineering
10. Journal of Multimedia Tools and Applications
11. IEEE Journal on Selected Areas of Communications
12. Proceedings of the ACM Multimedia Conference
13. IEEE Multimedia Conference
14. IEEE Computer
15. IEEE Networking
16. Communications of the ACM

Expected Work:

- Research Paper and Presentation 30%
- Class Discussions and Presentation 20%
- Mid-term Examinations 25%
- Final Examinations 25%

Tentative Schedule:

Sept 3

- Introduction to Multimedia Information Systems
- Overview of Databases
- Indexing

Sept 10

- Organizing Multimedia Content, Multidimensional Data Structures
- Multidimensional Data structures

Sept 17

- **Research Paper Topic and Abstract Due**
- Spatio-temporal, Moving Object Databases

Sept 24

- **Outline of the Research Paper is Due**
- Image Databases

Oct 1

- **List of References for your Research Paper is Due**
- Content Based Retrieval of Images

Oct 8

- Video Databases

Oct 15

- **Mid-term Examination**

Oct 22

- Text and Audio Databases

Oct 29

- Multimedia databases, and Physical Storage and Retrieval

Nov 5

- Multimedia Delivery

Nov 12

- **Final Research Papers are Due**

- Multimedia Content Protection

Nov 19

- Student paper presentations

Dec 3

- Student paper presentations

Dec 10

- Student paper presentations

Dec 17

- Final Examination