CSCI 3280
Introduction to Multimedia

(2025 Spring)

Computer Science & Engineering
The Chinese University of Hong Kong

Teaching Staff

Lecturer:

Prof. Cheng Yu (chengyu@cse.cuhk.edu.hk)

Office: SHB 919

Office hour: Thu 2:00-4:00pm (by appointment)

Tutors:

Zhang Jihai (jhzhang24@cse.cuhk.edu.hk)

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Office: SHB 913

Lectures and Tutorials

Lectures
- We 9:30AM-10:15AM Humanities Building 115
- Th 8:30AM-10:15AM SC L4

Tutorials
- We 10:30AM-11:15AM
- No tutorial for the first 2 weeks.
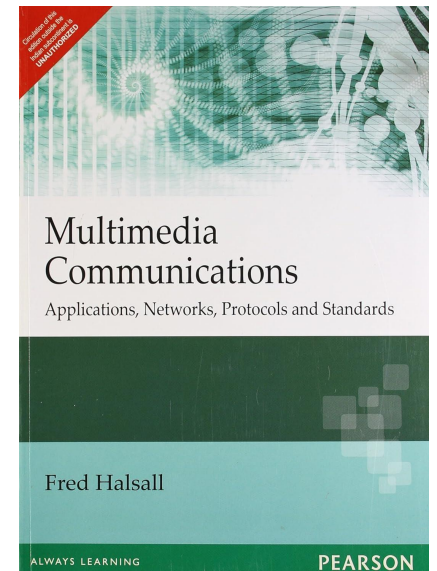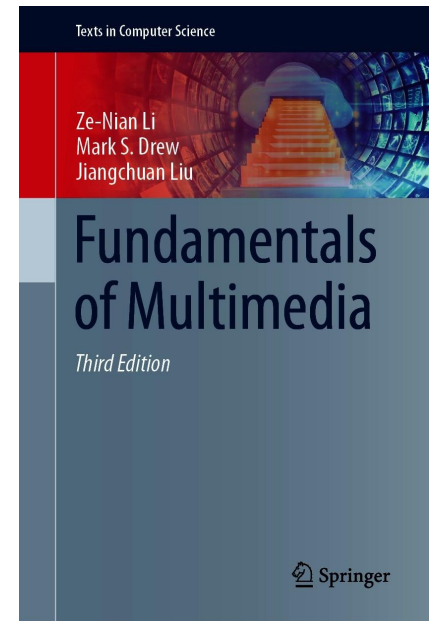- To be rescheduled next week.

Homepage: https://ltl3a87.github.io/CSCI3280-website/

Language: English

Course References

References: (In order of importance):

"Fundamentals of Multimedia"
by Ze-Nian Li and Mark S. Drew, Prentice Hall, 2004

– *"Multimedia Communication: Applications, Networks, Protocols and Standards"*
by Fred Halsall, Addison Wesley

– *"Digital Compression for Multimedia"*,
by Jerry D. Gibson, Tony Berger, David Lindbergh and Richard L. Baker, Morgan Kaufmann, 1998

– Technical papers, online document, ...

Grading

2 x 15% Two programming
          assignments

30% Project (phases 1 and 2)

40% Final Exam

Course Outline

Goal:

1) Multimedia representation, compression, storage and communication
2) How to build a multimedia system
3) Help your future research and career

Time	Content
Jan.8 - Jan.16	Introduction: 1) course overview; 2) multimedia applications; 3) media types; 4) challenges and research issues
Jan.22 - Feb.6	Text representation: basic representation, embedding and more
Feb. 12 - Feb. 26	Visual representation: image (2D & 3D), video and more

Course Outline

Time	Content
Feb.27 - Mar.20	Audio representation: digital audio, music, speech, etc.
Mar.26 - Apr.3	Data compression I: Huffman, Arithmetic, LZW, JPEG, etc
Apr.2 - Apr.10	Data compression II: video coding, AI for compression
Apr.16 - April.17	Multimedia storage, how to build a multimedia system

Not Covered

Storage Media (optional)

- – Magnetic media
- – RAID, Optical disks
- – Block placement and admission control

Network Communications (not covered)

- – You can take the course CSCI4430
- – Techniques for transferring huge data volume

Multimedia Models (not covered)

- – You can take related NLP, CV and Speech courses

Important Issues

- ◆ Course requirement: basic maths, programming
- ◆ Switch off all your phones before lectures & tutorials
- ◆ To respect the rights of your classmates, refrain from talking during the lectures & tutorials
- ◆ No copy (or similar program copies) or cheating is allowed.
- ◆ AI can only be used for project phase 1 & 2 development with clear declaration of used packages.