

Image Compression, Packet Video and Video Processing

September 14, 2009

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Text:

Video Processing and Communications by Yao Wang, Jorn Ostermann, Ya-Qin Zhang, Prentice Hall, 2002, ISBN 0-13-017547-1

Lecture	Topic	Date	Reading and Assignment
1	Introduction, Basics of Video	Sept 14, 2009	Chapter 1,2, H/W #1
2	Fourier Analysis of Video Signals and Frequency Responses of the Human Visual System	Sept 21, 2009	Chapter 3,4, H/W #2
	No Class	Sept 28, 2009	
3	Video Modeling	Oct 5, 2009	Chapter 5, H/W #3
4	Two Dimensional Motion Estimation – Part I - Fundamentals	Oct 12, 2009	Chapter 5 - 6
5	Two Dimensional Motion Estimation – Part II – Basic Techniques	Oct 19, 2009	Chapter 5 - 6, Project Proposals Due
6	Two Dimensional Motion Estimation – Part III – Advanced Techniques	Oct 26, 2009	Chapter 6, H/W #4
7	Fundamentals of Video Coding, Part I: Overview and Lossless Coding	Nov 2, 2009	Chapter 6
8	Fundamentals of Video Coding, Part II: Scalar and Vector Quantization	Nov, 9 2009	Chapter 8, H/W #5
9	Waveform Based Video Coding, Part I: Transform and Predictive Coding	Nov 16, 2009	Chapter 8, Project Status Reports Due
10	Waveform Based Video Coding, Part II: Video Coding	Nov 23, 2009	Chapter 9, H/W #6
11	Video Coding Standards	Nov 30, 2009	Chapter 9, 11
12	Image and Video Compression Role in Forensic Studies	Dec 7, 2009	Chapter 13, 14
13	Class Projects Presentations	Dec 14, 2009	Project Reports and presentations Due

Lecture notes will be supplemented by Xerox and PDF's of articles. Lecture notes, homework assignments and instructions can be downloaded from the Class web site: <http://webdev.apl.jhu.edu/~beser/525759>. Documents will be in Adobe Acrobat format (pdf). Print out the lecture notes before the class. Please notify Dr. Beser if you are not able to printout the notes.

Grading Policy: Homework 70%, Project (including proposal, status report, project presentation and report) 30%. No exams. All submittals will be softcopy and posted on the class web site. Report can be PDF based, Microsoft Word, or html. Supporting software should also be submitted.

Note on Homework Problems: Previous classes have complained about use of the homework problems in the text. I will mix the better problems with MATLAB

assignments. You should have access to either a Student Version of MATLAB or come into the computer lab to use the classroom kit.

Dates on the projects are fixed and not negotiable. There will be no late presentations with one exception. The school has explicitly asked that if you are ill (H1N1 flu) you should not come into class. I will waive your presence for the last presentation if you have a signed note from your doctor that you have H1N1. If you are out of town the last day, you should plan to give your presentation early. I will adjust the schedule accordingly. The Status Report is the quick look summary of your project (how it is going, problems, and redefinition of the problem statement. It is a chance for you to prepare the rough draft of the report early so that it does not interfere with your other classes.

Please test your e-mail path ASAP. E-mail a test message to Nick.Beser@jhuapl.edu so that I can confirm that I have your e-mail address. You are responsible for notifying me of any change to your address. Any e-mail questions that is address to me that are of interest to the class will be sent to your address. Any schedule changes will also be sent to that address.

Class Conduct. When classes get large, behavior problems can distract the class. I have a zero tolerance on behavior problems. If you need to leave the class before it is scheduled to end, please be courteous to your classmates and instructor. Please inform me if you need to leave early.