Winter 2010: ECE 241 Multimedia Compression
Course Project Requirements

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Overview:

A major portion of the grade for ECE 241 will depend on the course project and we provide a summary of the expectations for the course project here. The purpose of the project is to give the student the opportunity to investigate a particular standard, or aspects of a particular standard, in greater detail than will be covered in class. A secondary goal is to expose other students in the class to new results, ideas, and insights concerning particular multimedia compression standards.

As a consequence, the project will consist of a final presentation as well as a final written project report. Versions of the final presentation and the final project should be submitted electronically in Adobe pdf for distribution to the class by publishing them on the course web site. A more complete version of the report that includes, for example, matlab or C code, can be submitted to the instructor.

Project Coverage:

The topic of the project should be selected by the student as something the student hopes to find out more about, perhaps motivated by a possible research direction or by a hoped for job opportunity. The key point is that the topic is selected by the student because the student is motivated to learn more about the topic. The topic can be (1) theoretical, such as finding possible statements of fundamental performance limits of particular standards, (2) practical, such as evaluating the implementation complexity of a standard for a certain platform and application, (3) analytical, such as investigating perceptual distortion measures, transforms, or filter banks used in particular compression standards, (4) implementations, such as evaluating the performance of linear prediction or transforms for selected sources or evaluating the performance of lossless source coding methods on particular data sets. You can write your own code or you can use code available on the Internet, as long as there is some underlying principle you investigate with your own personal experiments. Your experiments can confirm or extend what is known. If you write your own code, you are encouraged to be realistic in your expectations of what can be done in the allotted time. An ambitious project that has no results due to incomplete or unfunctioning code is not acceptable. If you use code gleaned from the Internet, acknowledge where you got it and how you use it to achieve your goals.

Since many important standards and their particular advantages and performance will be presented in some detail in class, projects that are overviews of a standard are discouraged. Further, the project should not be a summary of information trivially available by a few searches on the Internet.

The Process:

The student should have a project idea by the end of the second week of class and send that idea to the Instructor via e-mail in as much detail as possible. The Instructor will respond with questions, suggestions, or approval of the topic.

The 5th week of class, the student should have a short two page report and 6 to 10 slide presentation on their project and progress to date. Some students will be selected randomly to present their topic in class. The Instructor and the class will provide feedback, suggestions, and questions. The Instructor will discuss how the project should go forward from this point.

The last week of class, each student will give a presentation of 10 to 15 minutes on their project to the class. The project will be graded based on effort, originality, difficulty, and completeness, as well as the presentations and the report.