

CS 556: COMPUTER VISION – FALL 2008

Instructor:

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Course Description:

The goal of computer vision is to develop algorithms for automatic interpretation of 3D world captured in a set of images or video. This course is an introduction to some of the fundamental concepts in vision, including: image formation; color; keypoint and edge detection; segmentation; perceptual grouping; texture; object recognition; and 3D scene reconstruction.

Class Goals:

This course is designed for graduate and senior undergraduate students interested in vision, graphics, artificial intelligence, or machine learning. It offers a broad introduction to the fundamental vision problems, and common vision theories and algorithms. Students will be able to acquire hands-on experience through implementing two homework assignments, and a final project on a vision topic that fits their individual interests. The project may be carried out in teams. Even those students who do not intend to pursue studying computer vision in the future will benefit from learning the algorithms and tools covered during this course, since these techniques are useful in many other areas.

Textbook:

“Computer Vision: A Modern Approach,” by D.A. Forsyth and J. Ponce, Prentice Hall, 2003, ISBN 0-13-085198-1

Grading:

Course project (60%) + HW 1 (20%) + HW 2 (20%)

Prerequisites:

There are no prerequisites for this course. However, students will be expected to be familiar with basic statistics, probability, calculus, and linear algebra. Good programming skills will be necessary for carrying out the course project.

