CSCI 574 – Computer Vision, Spring 2014

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Course Objective:

This course provides an overview of the field of Computer Vision. This has become a very broad field, so we will cover only portions of it.
We will follow (loosely) the textbook by Forsyth and Ponce, *Computer Vision, A Modern Approach*, 2nd Edition.

Prerequisites:

No special prerequisites are necessary, but it is imperative that you have

- Good Programming Skills (you should be comfortable with programming)
- Basic Math Skills:
  Algebra, Geometry, Probability, Numerical Analysis,…
- Knowledge of data structures (lists, trees, …)

Course Requirements:

You will be evaluated on exams, assignments and projects.

1 mid term exam	(20% of your grade) –
1 end term exam	(20% or your grade) –
2 non-programming assignments	(20% of your grade)
1 Programming project	(30% of your grade)
Attendance and participation	(10% of your grade)

Tentative set of lectures

Introduction	
Image Formation	CVMA 1, 2, 3
Filtering and Convolution	CVMA 4
Calibration	CVMA 1
Feature Extraction	CVMA 5
Segmentation and Grouping	CVMA 9, 10
Stereo	CVMA 7
Structure and Motion	CVMA 8
Dense Motion and Flow	CVMA 10.6
Range Image Analysis	CVMA 14
Recognition	CVMA 16-18

Textbooks:

Required textbook: Forsyth and Ponce, *Computer Vision, A Modern Approach*, 2nd Edition
See also

Szeliski, *Computer Vision: Algorithms and Applications (2010)*
Useful pointers available on the website http://szeliski.org/Book/

Hartley and Zisserman, *Multiple View Geometry in Computer Vision (2003)*

Academic Integrity

The USC Student Conduct Code prohibits plagiarism. All USC students are responsible for reading and following the Student Conduct Code, which appears in the SCampus. Although we encourage discussions among students, all work submitted for the class is to be done individually, unless an assignment specifies otherwise. Some examples of what is not allowed by the conduct code: copying all or part of someone else's work, and submitting it as your own; giving another student in the class a copy of your assignment solution; consulting with another student during an exam. If you have questions about what is allowed, please discuss it with the instructor. Violations of the Student Conduct Code will be filed with the Office of Student Conduct, and appropriate sanctions will be given.