CSE586/EE554: Computer Vision II

Spring 2015 Course Overview

Instructor: Dr. Robert Collins, email: rcollins@cse.psu.edu
Office: IST 354H  Office Hours: TR 12:30-2:00

Course Description: Introduction of advanced methods and algorithms commonly used in computer vision along with examples of how to apply them. Some topics covered in previous semesters include: mixture models and the EM algorithm; Monte Carlo methods; graphical models and belief propagation; Procrustes shape analysis; subspace methods (PCA/LDA/ICA); graph cuts and spectral methods.

Prerequisites: CMPEN/EE 454 Computer Vision I; Matlab programming; familiarity with basic concepts of linear algebra / matrices and probability theory is assumed.

Class Schedule: Tues, Thurs  9:45 -- 11:00, IST 113
Credits: 3


Grading:

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<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tr>
<td>Midterm Project</td>
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<td>Final Project</td>
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<td>Homework</td>
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<td>Written Critiques</td>
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<td>Oral Presentation</td>
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Midterm Project: 20% (1st programming project, assigned but with variations)
Final Project: 20% (2nd programming project, chosen by you)
Homework: 20% (math problems and “small” programming assignments)
Written Critiques: 30% (mini-review/summary of conference/journal papers)
Oral Presentation: 10% (10 min presentation of a technical paper)

Course Goals: We have two main goals: 1) Gaining practical knowledge in computer vision. This is achieved by focusing on applied vision problems, understanding the underlying math, choosing and implementing solution methods, and evaluating how well a solution is performing. 2) Developing skills for being a successful grad student / researcher. This is achieved through applied programming assignments/projects, reading research papers, technical writing (paper critiques) and giving an oral presentation.

Working Together: Homework and critiques are expected to be done individually. Projects can be done either individually or in teams, as you prefer. A more comprehensive project will be expected from a team than from an individual (a team effort is the sum of its parts).

Late Policy: There will be a penalty for turning in homework late (10 percent per day). Critiques are not allowed to be late, because they are intended to get you to read the papers and think about them before the day they are presented/discussed, so you can participate in the discussion.
**Academic Integrity:** Students (and teams in the case of projects) are expected to submit their own original work. For programming, standard and publicly available code libraries (such as simple signal processing or linear algebra libraries) may be used after seeking consent of the course instructor. Take a moment to look at the list of Penn State academic integrity violations listed at http://www.psu.edu/oue/aappm/G-9.pdf and **don’t do any of them.**

**Disabilities:** Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at http://equity.psu.edu/ods/. In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see http://equity.psu.edu/ods/guidelines/). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.