

## **BIL 722 - Advanced Computer Vision**

**Spring 2014**

### **Course Description**

This course is basically intended for students that want to acquire in-depth knowledge on computer vision research. Throughout the course, various trending research directions will be explored via the discussion of several conference and journal papers. The students are also expected to carry on research projects related to one of the open problems in vision.

### **Detailed Information**

**Instructor:** Nazlı İkizler-Cinbiş • [nazli@cs.hacettepe.edu.tr](mailto:nazli@cs.hacettepe.edu.tr) • tel: 297 7500 – 147

**Schedule:** Mondays at 13:00-16:00 in D5.

**Office Hours:** By appointment.

### **References:**

- Computer Vision: A Modern Approach (2nd Edition), by David A. Forsyth and Jean Ponce, 2012.
- Computer Vision: Algorithms and Applications, by Richard Szeliski, 2010.
- Conference and Journal papers (ICCV, CVPR, ECCV, NIPS, TPAMI, IJCV, etc)

**Webpage:** <http://web.cs.hacettepe.edu.tr/~nazli/courses/bil722/index.html>

### **Grading:**

- In-class presentations(21%)
- Response papers (10%)
- Demos (9%)
- Project (25%)
  - Progress (10%)
  - Final (15%).
- Final exam - final project report (35%)

**Communication:** All communications will be carried out through the Piazza system:  
<https://piazza.com/hacettepe.edu.tr/spring2014/bil722/>.

**Topic List:**

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- 17.02 Introduction
  - 24.02 Mid-level visual representations
  - 03.03 Segmentation
  - 10.03 Importance and Visual Saliency
  - 17.03 Holistic Scene Understanding
  - 24.03 Natural Language Description of Visual Content
  - 31.03 Action and Interaction Recognition
  - 07.04 Video Analysis and Tracking
  - 14.04 Recognition and Localization
  - 21.04 Progress report presentations
  - 28.05 Crowd Analysis and Egocentric Motion
  - 05.05 Misc
  - 12.05 Project final presentations
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**Project:** In the context of the course, the students are expected to carry out an in-depth project on computer vision. This project will involve the detailed analysis and implementation of a novel approach to a problem of computer vision.

**Academic Integrity:**

The students are expected to strictly adhere to the academic integrity policy of the Department, act honestly and respect the rights of the others in carrying out all academic assignments. Academic dishonesty, including cheating, fabrication and plagiarism will not be tolerated. Unless stated otherwise, all the work on the assignments must be carried out individually. While the discussions over the general concepts about the course are allowed, discussions related to a particular solution to a specific problem, (actual or pseudo) code sharing are strictly forbidden. Using assistance from the internet without providing proper citation is also considered as violation of the academic integrity. Note that, all the aforementioned violations to academic integrity policy are subject to disciplinary action.