CAP 4453: Robot Vision (3 units)
Fall 2016

Basic information:
- Lecture time: Tuesday and Thursday, 10:30AM—11:45AM
- Lecture place: HEC 0117
- Instructor: Boqing Gong
  - Email: bgong@crcv.ucf.edu
  - Office: HEC 214
  - Office house: Tuesday 2—3PM and by appointment

Course description:
The study of mechanical vision is one of the few areas of science which blends one’s intuition with formal methods. Vision (whether in humans or machines) is fundamentally a computational process. Visual processes for machines must be able to deliver the kinds of capabilities that humans have: scene recognition, motion processing, navigational abilities, and so forth. This course will begin by examining some of the elementary concepts in machine vision. Sub-processes to be examined include: edge detection, methods for obtaining shape information from images, object detection, and motion analysis. The student will also be exposed to unsolved problems in these topics, the solutions to which have very high technological pay-offs.

The workload consists of interesting reading, programming, tests, and a project. The class project gives the student intense exposure to one sub-area of machine vision. The students will be guided by the instructor in the choice of project and its execution.

This class is suitable for students in Computer Science and Engineering disciplines, and anyone else who wishes an introduction to machine vision.

Texts and materials:
- Textbook: none.
- All notes will be written on the board day-to-day and/or handed out in class. The student is responsible for taking good notes.
- Research papers published on top-notch computer vision conferences and journals. The electronic copies of the papers will be accessible through the UCF library (http://library.ucf.edu/).

Prerequisites and preparation:
- Recommended preparation: basic probability, statistics, linear algebra, calculus, optimization, and some programming languages (C/C++, Java, Python, etc.).
Exams and grading policy:
- 1 in-class test: 30%
- 3 programming assignments: 30%
- 1 project: 40%
- Midterm Exam: 10/13, 10:30—11:45AM
- Final exam period: 12/06, 10—12:50PM

Important dates:
- Aug 22nd, 2016: Classes begin
  Aug 25th, 2016: Last day to drop and request full refund
  Aug 26th, 2016: Add deadline on myUCF
- Oct 31st, 2016: Withdrawal deadline
- Please be referred to [http://calendar.ucf.edu/2016/spring](http://calendar.ucf.edu/2016/spring) for any updates

Statement on Academic Integrity:
The UCF Golden Rule ([http://goldenrule.sdes.ucf.edu/](http://goldenrule.sdes.ucf.edu/)) will be observed in the class. Plagiarism and Cheating of any kind on an examination, quiz, or assignment will result at least in an "F" for that assignment (and may, depending on the severity of the case, lead to an "F" for the entire course) and may be subject to appropriate referral to the Office of Student Conduct for further action. I will assume for this course that you will adhere to the academic creed of this University and will maintain the highest standards of academic integrity. In other words, don't cheat by giving answers to others or taking them from anyone else. I will also adhere to the highest standards of academic integrity, so please do not ask me to change (or expect me to change) your grade illegitimately or to bend or break rules for one person that will not apply to everyone.