

CSE 4392/6367 - Computer Vision - Spring 2009 - Syllabus

Joint undergraduate/graduate course:

CSE 4392 - Section 3
CSE 6367

Course web page: http://vlml.uta.edu/~athitsos/courses/cse6367_spring2009

Lecture times: Monday and Wednesday, 4:00pm-5:20pm

Classroom: NH 110

Optional Textbooks:

- Linda G. Shapiro and George C. Stockman, "Computer Vision", first edition (paperback), Prentice Hall, 2001.
An easier read, more accessible to computer vision novices.
- David A. Forsyth and Jean Ponce, "Computer Vision: A Modern Approach", first edition, Prentice Hall, 2002.

A more math-heavy reference, provides good theoretical coverage of several topics.

The course will not follow either textbook closely, and students are expected to heavily refer to class lectures and online class notes.

Instructor:

[Vassilis Athitsos](mailto:athitsos@uta.edu)

E-mail: athitsos@uta.edu

Office: NH 309

Office Telephone: 817-272-0155

Office hours: MW 5:30pm-6:30pm, TuTh 2:00pm-3:00pm.

Teaching assistants (GTAs):

Jyothi Keshavan

E-mail: [jyothikeshavan.vinjunur AT mavs DOT uta DOT edu](mailto:jyothikeshavan.vinjunur@uta.edu)

Office: NH 250

Office hours: MW 3:00pm-4:00pm, Fri 11:00am-12 noon.

Titus Abraham

E-mail: [titus_abraham AT hotmail DOT com](mailto:titus_abraham@hotmail.com)

Office: GACB 118

Office hours: MWF 1:00pm-2:00pm.

Course Description

Contents and Objectives:

This course introduces students to basic concepts and techniques in computer vision. Students successfully completing this course will be able to apply a variety of computer techniques for the design of efficient algorithms for real-world applications, such as optical character recognition, face detection and recognition, motion estimation, human tracking, and gesture recognition. The topics covered include image formation and camera models, linear filters, edge detection, stereo vision, image segmentation, feature extraction, object detection, object recognition, tracking, image/video databases. The course will be graded based on programming assignments, which must be solved in MATLAB, C, C++, or Java.

Prerequisites:

A strong programming background is assumed, as well as familiarity with linear algebra (vector and matrix operations). C++, Java, and Matlab will be the programming languages/environments used in the programming assignments. All students are expected to have passed the courses *Programming Languages* (CSE 3302) and *Theoretical Concepts* (CSE 3315) or an equivalent before attending this course.

Getting Access to Matlab:

Matlab software is available for purchase at the [UTA Bookstore](#). Make sure to ask for it on the SECOND floor, as they may be out of stock on the first floor (each floor has its own stock). You should purchase the student version of Matlab. It costs \$100, and it has all the necessary packages needed for this course. As of 01/22/2009 (last time we checked) the bookstore had a sufficient stock. If you have any problems purchasing Matlab from the bookstore, let the instructor know immediately by e-mail.

An alternative to purchasing your own copy of Matlab is to use the computer lab at NH 231. All computers in that lab have the student version of Matlab, and all packages required for this course. That lab is open to all UTA students (use your UTA Net ID to log in), and has the following hours:

Monday -Friday	8:00 am-12:00 am
Saturday	9:00am-12:00am
Sunday	12:00pm-12:00am

Additional Course Materials:

Students should ensure they have access to Matlab, including Matlab's image processing toolbox, as described above. Additional course materials, such as lecture notes and assignments, will be available electronically on the course web page. Changes and corrections, if any, will also be announced by e-mail to the course mailing list.

Assignments and Project:

There will be one programming assignment due Wednesday of each week at 11:59pm, starting Wednesday of the third week (February 4), and ending Wednesday April 29. Solutions must be submitted by e-mail to the instructor and the GTAs. These programming assignments will constitute 75% of the course grade.

There will also be a final programming project, that will constitute 25% of the grade. The final programming project will be due on Wednesday, May 13, at 11:59pm. The instructor will provide a

project topic, but students will also have the option (if they obtain the instructor's approval) to choose their own topic. Project topics and progress timelines must be chosen by Monday, April 6. Students who have not obtained the instructor's approval for a different project by April 6 will do the project suggested by the instructor. After April 6, weekly progress reports by all students will be due weekly (by e-mail to the instructor and the GTAs), each Monday at 11:59pm, until the project is submitted.

Any late submission (for an assignment or a project) will incur a penalty of 20% of the assignment (or project) points, plus an additional 20% for each full 24 hours between the deadline and the actual submission time. No extensions will be given, except for well-documented medical (or otherwise serious) emergencies, in which case extensions will be granted at the sole discretion of the instructor, and according strictly to UTA guidelines.

Grading

Grading will be based 75% on weekly programming assignments, and 25% on a programming project. The final programming project will be due on Wednesday, May 13, at 11:59pm.

Any late submission (for an assignment or a project) will incur a penalty of 20% of the assignment (or project) points, plus an additional 20% for each full 24 hours between the deadline and the actual submission time.

University Policies and Services

Drop Policy:

The standard UTA drop policy applies to this course.

Americans With Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

Faculty members are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)

Student Support Services Available:

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.