

COURSE-Hybrid Synchronous
COMPUTER VISION-COSC 4356
Tuesday-Thursday 2:00-3:20 PM in COB 211

Instructor: Arun Kulkarni, Ph.D. Professor of Computer Science
Office: COB 315.07
Office Hours: M-W: 11:30 AM -1:00 PM
Email: akulkarni@uttyler.edu

TEXTBOOK: Richard Szeliski (2022) Computer Vision: Algorithms and Applications, Springer, 2nd Edition,

ADDITIONAL REFERENCES: Kulkarni, A. D. (2001). Computer Vision and Fuzzy Neural Systems. Prentice Hall PTR, Upper Saddle River, NJ.

PRE-REQUISITES: Structured Programming language, Linear algebra background

Course Description

The course will introduce techniques in computer vision. Computer vision deals with extracting meaningful descriptions of physical objects from images or a sequence of images. Computer vision is used in many applications such as machine inspection, fingerprints recognition, military reconnaissance, robot vision, character recognition, medical image diagnosis, and data mining. The course will provide an overview of a computer vision system and describe algorithms for implementing various stages of a computer vision system. Various methods including statistical approach, deep learning, Convolution Neural Networks (CNN), fuzzy inference systems will be discussed. MATLAB toolboxes will be used for on-hand experience.

Tentative time allotment for the course will be as follows:

Topic	Hours
Introduction	3
Computer Vision Overview	3
Image acquisition	3
Pre-processing Techniques	6
Feature Extraction	6
Supervised Classification	6
Unsupervised Classification	6
Convolution Neural Networks	6
Applications	3

EVALUATION:

90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

SCHEDULE

		Evaluation
Test 1	Thursday, February 15, 2024	70 %
Test 2	Thursday, April 4, 2024	
Final Exam	Tuesday, April 30, 2024	
Assignments		25%
Assignment 1	Thursday, Feb 8, 2024	
Assignment 2	Thursday, Feb 29, 2024	
Assignment 3	Thursday, Mar 21, 2024	
Assignment 4	Thursday, Apr 25, 2024	
	Attendance & Class Participation	5%

Academic Dishonesty: You are expected to do your own work. You may assist each other with general concepts, but direct assistance with a particular assignment or any attempts to gain an unfair academic advantage will not be tolerated. Cheating is considered a serious academic offense both by the department and the University. It may result in a failing grade from this course for all parties involved. The instructor reserves the right to ask you to explain any assignment that you turn in to judge if the work is yours.

Disabilities: If you have a disability, including a learning disability, for which you request an accommodation, please contact the Student Services Center located in the University Center, Room 282. The telephone number is 566-7079 (TDD 565-5579) so that the appropriate arrangements may be made.