

**Spring 2018**  
**ECEN 5283 Computer Vision**  
**MWF 10:30 AM-11:20 AM, ATRC103**

**Dr. Guoliang Fan, ES 406 (Office)**

Tel: (405) 744-1547    Email: [glfan@okstate.edu](mailto:glfan@okstate.edu)

WWW: <http://www.vcipl-okstate.org/glfan/>

- Office Hour:** Monday/Wednesday afternoon or by appointment (via email). Please feel free to post your question on the discussion board in the online classroom system (also send an email to me about your post).
- Prerequisites:** Graduate standing or ECEN 4763/5763/5793 Digital Image Processing. Students are encouraged to take those courses first.
- Textbooks:** *Computer Vision: A Modern Approach*  
Authors: David Forsyth and Jean Ponce  
Publisher: Prentice Hall    ISBN: 0-13-085198-1
- Class Description:** Introduction to the basic concepts and tools in computer vision. First, an introduction to low-level vision, including image formation, edge detection, feature extraction, texture analysis. Then mid-level vision that includes clustering and segmentation. High-level vision including object recognition using principal component analysis (PCA) and video analysis by hidden Markov models (HMMs).
- Class Projects:** There will be seven computer projects assigned during the semester. Each will involve Matlab programming and PPT-based documentation with detailed experimental results and discussion. Students are allowed to discuss the projects amongst themselves. However, the program and report must be an individual effort. Plagiarism will not be tolerated. All materials including the report and Matlab source codes should be submitted online by the due date via the On-line Classroom system.
- Project 1: Geometric camera calibration  
Project 2: Edge detection and its applications  
Project 3: Texture classification  
Project 4: Clustering for image segmentation  
Project 5: Object detection  
Project 6: Face recognition using PCA  
Project 7: Hidden Markov models
- Literature Review:** There will be one literature review during the pre-final week. Each student will be assigned a recent technical paper with the source code in the area of computer vision and prepare a 15 minute oral presentation for the class. Some experimental results are needed by using the available source code.

<b>Grading:</b>	Semester grades will be based on the overall class performance.		
	Class Project	75%	(85% for distance learning students)
	Literature Review	15%	
	Class Attendance	10%	
<b>Drop &amp; Add:</b>	The instructor will follow the departmental guidelines for drops and adds. Consult the course schedule book or Helen Daggs (744-9915) in ES 202 for more information.		
<b>Online Access:</b>	Online classroom system ( <a href="http://online.okstate.edu">online.okstate.edu</a> ) will be the major instruction tool for this class. Please make sure you have the access to it.		
<b>Academic Dishonesty &amp; Misconduct:</b>	Cheating on projects will not be tolerated. You need cite all references in your reports. Violations will be handled in compliance with the guidelines established by the Office of Student Conduct. The instructor will give a maximum penalty of an “F!” course grade in such situations.		
<b>Disability:</b>	If a member of the class feels that he/she has a disability and needs special accommodations of any nature whatsoever. I will work with you and the University Office of Disable Student Services (326 Student Union) to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise me of any such disability and desired accommodations at the earliest possible time – on the first day of class if possible.		