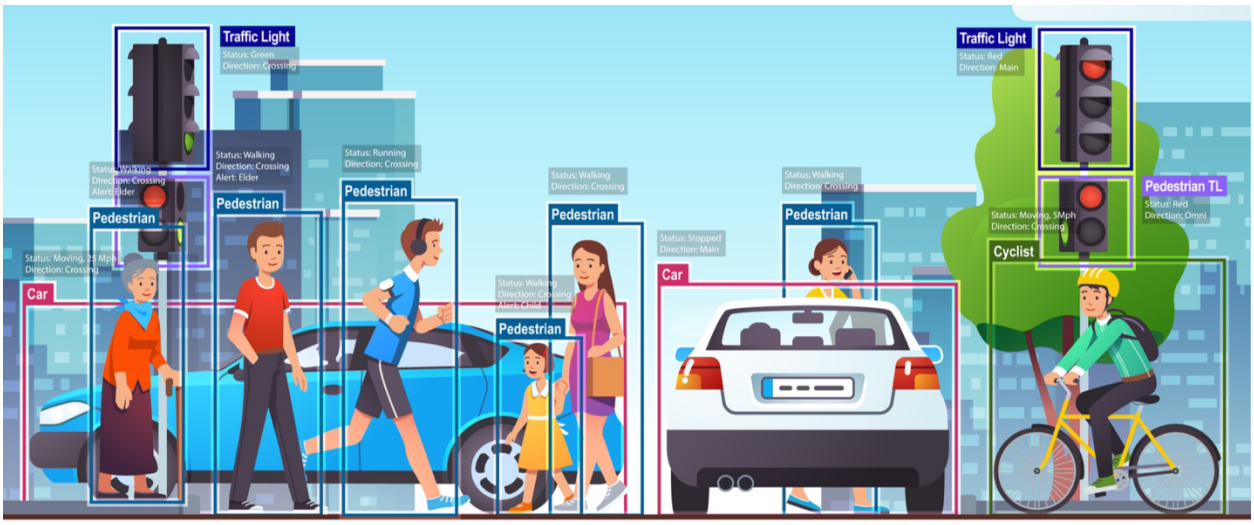



# CMPS 3660/6660 - Computer Vision

## Contact Details

- **Instructor**: Dr. Zhengming Ding
- **Office location:** 402A Stanley Thomas Hall
- **Email:** zding1@tulane.edu [Feel free to reach me by email if you have any questions.]
- **Class Time:** 09:30AM - 10:45AM Tuesday & Thursday
- **In-Person Location:** ST 302
- **Office Hours:** 2:00PM - 3:30PM Tuesday & Thursday or by email appointment

## Course Description

### Learning Goals:

This computer vision course is mainly designed for undergraduate and graduate students majoring/minoring in computer science. It covers core topics in image/video understanding, such as object detection/recognition/tracking (with applications in face detection, gesture detection, pose detection), image segmentation (saliency detection, semantic segmentation, co-segmentation), image enhancement (super-resolution, image recovery), visual relationship mining (spatial relationship, kinship), 3D reconstruction, image generation, optical flow, and video segmentation. It will also touch several advanced computer vision topics, such as multi-view image clustering, image captioning, image generation from the text, and visual question & answering. This course goals and objectives include

- Understand the basic concepts of computer vision and key problems in computer vision.
- Understand the principles of visual descriptors discovery, and gain insight into the state-of-the-art visual descriptors.
- Master the usage of popular visual descriptors and techniques.
- Apply the learned techniques/tools to complex computer vision problems in real-world.

## Textbook [Recommended]

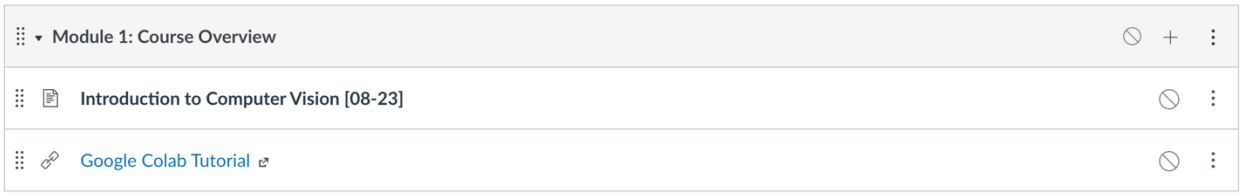
Readings will be assigned from the following textbook (available online for free):

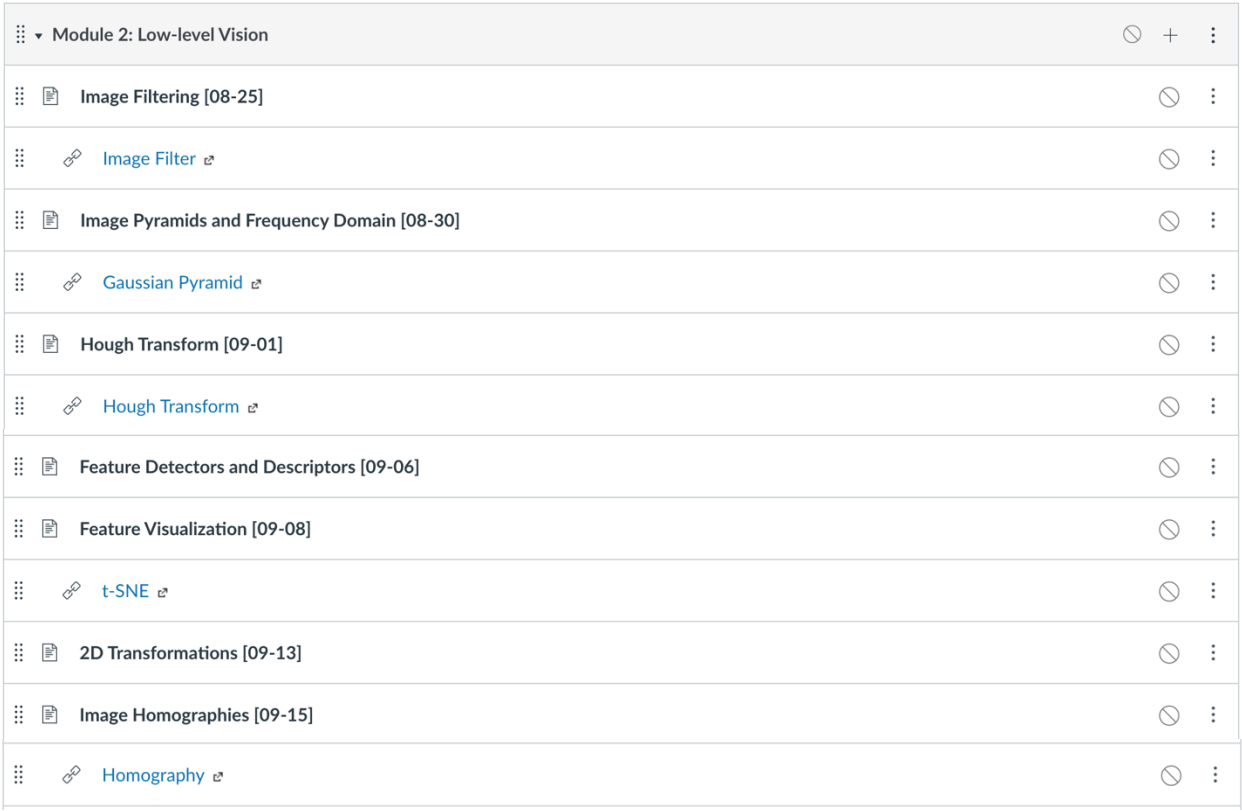
- **Computer Vision: Algorithms and Applications**, by Richard Szeliski. https://szeliski.org/Book/

Additional readings will be assigned from relevant papers. Readings will be posted on the website. The following textbooks can also be useful references for different parts of the class, but are not required:

- **Computer Vision: A Modern Approach**, by David Forsyth and Jean Ponce.
- **Deep Learning for Vision Systems**, by Mohamed Elgendy.

## Course Details






## Evaluation

Your final grade will be made up from:

- Six Assignments (60%).
- Course Project (35%).
- Class participation (5%).

**[Note that some questions are different for undergraduate/graduate levels]**

**Assignments:** Assignments will require implementing a significant computer vision algorithm. Some of them will also have a small theory component relevant to the implementation. Programming will be done in Python.

**Project**: TBD