

Orientation

TJ CV Officers

September 12, 2018

1 Introduction

Welcome to Computer Vision Club! Here, members learn the theory and applications of computer vision and computer graphics, sharpen their skills through competitions, and conduct computer vision research. We meet every Wednesday B block in Room 202.

2 Officers

- Sponsor: Dr. Gabor
- Captains: George Tang, Neal Bayya
- Teaching Coordinators: Alexey Didenkov, Jacob Consalvi

If you have any questions, feel free to email us at tjcomputervision@gmail.com or message the officers via Facebook.

3 Lectures

In the fall, we will mainly focus on human and computer vision theory, such as the camera model, feature extraction, object detection, and motion. In the spring, we will explore broader, more complex topics such as AI-based image processing, computational photography, and computer graphics. At the end of the year, we will have a few lectures on the most recent advances in vision and graphics and conclude with guest lectures.

The lecture schedule is listed below. Over the course of the year, it may change. Always check the website for the latest version.

Date	Lecture
9/12/18	Orientation
The Basics	
9/26/18	The Camera Model
10/3/18	Transformations
10/17/18	Intro to OpenCV
Image Processing	
10/24/18	Edge Detection
10/31/18	Image Segmentation
-	Image Pyramids and Quad Trees
Visual Recognition	
-	Anomaly Detection
-	Linear Classification Models
-	Deep Learning
-	Convolutional Neural Nets 1
-	Convolutional Neural Nets 2
Motion & Stereo Vision	
-	Optical Flow
-	Range Imaging
-	Structure From Motion
-	3D Reconstruction
Computational Photography	
-	Denoising
-	Superresolution
-	Deblurring
-	Haze Removal
-	Image Stitching
Computer Graphics	
-	Intro to Rendering
-	Illumination
-	Acceleration Structures
Recent Advances	
Guest Lectures	

4 Competitions

4.1 In-House

We host weekly in-house competitions through Kaggle Classroom to reinforce the lectures. Competitions can be accessed along with the respective lectures on the website. Each competition begins the day of the lecture and ends at 11:59:00 PM the following Tuesday. Participants are ranked. Rankings will factor into officer eligibility for next year.

4.2 Kaggle Contests

Kaggle is a data science competition platform open to the public. There are many contests directly involving computer vision, and many more where using computer vision techniques can greatly increase your performance. They are a great learning experience.

5 Research

Computer Vision Club encourages its members to pursue research in vision and graphics and participate in science fair competitions. The officers have extensive experience in research and are veterans of competitive programming. Whether if you're new to research/looking to add vision and graphics to your projects/wanting to formalize your research, we are happy to help.

Throughout this year, TJCVC will be working on bringing more research/learning opportunities outside of school, including helping members publish their work (TJ's own Computer Journal and others) and hosting after-school seminars.

6 First Day Signup

Please make sure you sign up for our mailing list. Click the *Join Us* button at: **<https://activities.tjhsst.edu/computervision>**. The website also contains lectures, links to competitions, rankings, and additional resources.