COMPUTER VISION FOR BEGINNERS

Overview

Computer Vision is defined as a field of study that seeks to develop techniques to help computers "see" and understand the content of digital images such as photographs and videos. This course will cover the basics of Image processing, Neural networks and other important topics which come under CV. Python will be used as the programming language throughout this course. Image processing will be done using OpenCV library whereas Keras framework will be used for deep learning.

Prerequisites

- Basic knowledge of Python
- Basic knowledge of ML/DL (if possible)

Course coverage

Session no.	Topics to be covered
1	Introduction to CV, Colab, Numpy, Matplotlib, OpenCV, Keras Basic operations on images using OpenCV
2	Click Events, Bitwise Operations, Colour detection, Thresholding
3	Morphological transformations, Image Smoothing, Image Gradience, Edge detection
4	Contours, Motion detection and tracking
5	Face Detection using Haar Cascades (OpenCV)
6	Introduction to Neural Networks in CV
7	More about Neural Networks
8	Face detection using CaffeModel (OpenCV), MTCNN
9	Object detection using YOLO (Project)

Duration

Two sessions per week for about 4- 5 weeks. Each session will be about 1 hour long.

Grading Scheme

Grading will be based on:

- Attendance
- Assignments
- Final Project (Object Detection using YOLO)

Members

- Aprameya Dash
- Aakash Chandra

Mentor

- Feyaz Baker