AI Courses by OpenCV
COMPUTER VISION I

Module 1 : Getting Started with OpenCV

1. Introduction to computer vision
2. Basic image operations
3. Mathematical operations on images
4. Sunglass filter : A simple application
5. Bitwise operations
6. Image Annotation
7. QR code detection

Module 2 : Video IO and GUI

1. Video IO using HighGUI
2. Keyboard as input device
3. Using the mouse for image annotation
4. Adding trackbar controller to your OpenCV application

Module 3 : Binary Image Processing

1. Thresholding
2. Erosion / Dilation
3. Implementing morphological operations from scratch.
4. Opening and Closing
5. Connected Component Analysis
6. Contour Analysis
7. Blob Detection
8. Coin Detection

Module 4 : **Image Enhancement and Filtering**

1. Color Spaces
2. Color Transforms
3. Image Filtering
4. Image Smoothing
5. Image Gradients
6. Autofocus Application

Module 5 : **Advanced Image Processing and Computational Photography**

1. Hough Transforms
2. High Dynamic Range Imaging
3. Seamless Cloning
4. Image Inpainting

Module 6 : **Geometric Transforms and Image Features**

1. Affine Transform
2. Homography
3. Image Features
4. Feature Matching
5. Image Alignment
6. Creating Panoramas
7. Finding known objects in an image
8. Selfie Application 1:

   - Instagram Filters
   - Blemish Removal
   - Green Screening

Module 7 : **Image Segmentation and Recognition**

1. Image segmentation using GrabCut
2. Introduction to AI
3. Object Detection
4. Image Classification

Module 8 : **Video Analysis**

1. Motion Estimation using Optical Flow
2. Object Tracking
3. Kalman Filtering
4. Meanshift and Camshift

Module 9 : **Deep Learning with OpenCV**

1. Image Classification
2. Object Detection
3. Face Detection
4. Human Pose Estimation
5. Selfie Application

   - Skin smoothing
   - Sunglass filter

6. Document Scanner
7. Detection and Tracking