COMPUTER VISION WITH OPENCV

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Number of days - 3
Number of DEMOs - 14

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Highlight of Course :
- **Introduction to OpenCV**
- **Image Processing**
- **Image Segmentation**
- **Videos**
- **Object Detection**
- **FACE**

Prerequisites:
basic knowledge of Python.

Description of Course :
Computer Vision is one of the most interesting areas of the Artificial Intelligence field.
This program will help you to start your Computer Vision journey.
Participant will learn about
- **Basic Python packages for computer vision**
- *How can a computer understand what happens in an image or a video?*
- *Object detection and Tracking*
- *Playing with face*

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Day 1

Introduction to OpenCV
- **Introduction to OpenCV**
- **Image basics with Numpy**
- **Open an Image with Matplotlib**
- **Get familiar with RGB channels**
- **Differences between Matplotlib and OpenCV**

DEMO - Reading, writing and displaying images
DEMO - Colour Spaces
DEMO - OpenCV HSV, RGB and Channels

Day 2

Image Processing

- **Introduction to Image Processing**
- **TransforResize & Flip an Image**
- **Draw Shapes on an Image**
- **Event Choices for the Mouse**
- **Transformations, Affine And Non-Affine**
- **Image Translations and Rotations**
- **Scaling, Resizing and Cropping**
- **Arithmetic Operations**
- **Bitwise Operations, Blurring and Sharpening**

DEMO - Translations
DEMO - Translations
DEMO - Scaling, re-sizing and interpolations
DEMO - Cropping
DEMO - Different Operations and Sharpening

Image Segmentation

- **Segmentation and Contours**
- **Sorting and Matching Contour Shapes**
- **Line Detection Game**
- **Circle Detection**
- **Blob Detection**

DEMO - Sorting Contours
DEMO - Matching Contours Shape

Day 3

Videos
- **Basics of Videos**
- **Video Capture**

Object Detection

- **Object Detection Overview**
- **Feature Description Theory**
- **Finding Corners**
- **SIFT, SURF, FAST, BRIEF & ORB**

DEMO - Finding Corners
DEMO - Face & Eye Detection

Object Detection - Face and Eye Detection
- **HAAR Cascade Classifiers**
- **Face and Eye Detection**
- **Face Detection**
- **Hand Gesture**

DEMO - Merging Faces

Object Tracking
- **Filtering by Colour**
- **Background Subtraction and Foreground Subtraction**
- **Using MeanShift**

DEMO - Background Subtraction

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