ONLINE

IMAGE PROCESSING 5 DAYS WORKSHOP

INTRODUCTION TO THE COURSE | CORE IMAGE OPERATIONS AND POINT PROCESSING

SPEAKER

Thakshila Thilakanayake

BSc. Engineering Hons, MPhil (Reading)

Free Courses

- Python Programming Basics
- Python Object Oriented Programming
- Introduction to Machine Learning
- Introduction to Deep Learning

Beginners Courses

- Advanced Python 5 Days Workshop
- Image Processing 5 Days Workshop

Intermediate Level Courses

- Machine Learning 5 Days Workshop

Advanced Courses

- Deep Learning and Neural Networks 10 Days Workshop

Introduction to the Course

- The course is specially designed for the beginner and intermediator level employees, undergraduates, students and developers interested in learning and practicing Image Processing and Computer Vision.
- This course covers the fundamentals of Image Processing and Computer Vision to the advanced concepts with practical applications where ever necessary
- The practical sessions will be based on the applications which use Python Programming Language, Scikit-Learn, Numpy, Pandas and OpenCV software platforms.
- The course contains 5 Live Lectures, 5 Practical Sessions and 1 Pre-recorded Lecture Series.
- All the Live Lectures, study materials, codes and assignments will be available in www.edxcope.com

Method of Conduct

Per day, there will be a 3 hour Online Live Lecture, 1 hour Practical

1. Online Live Lecture (3 hours/Day) – Weekdays 7:00PM-10:00PM
    - interactive session, where you can directly ask questions, clarify doubts and discuss
2. Practical Session (1-hours/Day) – Pre-recorded Video after the lecture
    - Materials will be available in GitHub and the link will be provided in due course
    - Video will be uploaded to edxcope.com
3. Extra Day – DAY 00
    - Pre recorded Lecture series for Python Basics and Modules

DAY	Lecture
DAY 01 Core Image Operations and Point Processing	• Color Spaces and Color Space Transformations • Geometric Transformation • Image Thresholding • Image/Video Loading • Contour Operations • Image Histograms
DAY 02 Neighborhood Operations and Feature Extraction	• HSV color space and Color Segmentation • Kernels and Feature Extraction • Image Smoothing • Canny Edge Detection/ Hough Line Transformation • Morphological Operations
DAY 03 Video Processing	• Background Subtraction Methods • Mean Shift and Cam Shift Methods for Object Tracking • Optical Flow for Object Tracking
DAY 04 Object Detection, Stereo Vision 3D Reconstruction	• Camera Calibration and Pose Estimation • Stereo Imaging and Disparity Maps • Stereo Vision for Depth Approximation • Introduction to Haar like Features • Haarcascade Classifiers for Object Detection
DAY 05 Applied Image Processing in Machine Learning Applications	• Introduction to Supervised Machine Learning and Classification Problems • Histograms of Gradients (HOG) Features • Introduction to Machine Learning Pipelines • Neighborhood Operations for Object Segmentation • Non Maximum Suppression
DAY 00 Python Basics and Introduction to Modules	• Part 1 - Setting Up the Environment Configuration • Part 2 - Python Programming Essentials • Part 3 - Python Modules

Certificate

All the participants are eligible to obtain a participating certificate upon the successful completion of the course.

The certificate is offered through EdXcope by Global Eye International (Pvt) Ltd.

GEI is a Registered Private Limited Company in Sri Lanka providing Consultation, Training and Knowledge Partner in International Certification

Payments

Payment

1. The total course fee is 5,000LKR (All Inclusive)
2. The total course fee should be paid on the 2nd day of the course.
3. Participant can request for an extension of deadline through the Lecturer

1. Online Payment (Through Website)

Online Payments should be done through the verified and secured online payment gateway integrated in www.edxcope.com

2. Manual Payment (Bank Deposit)

If are having difficulties in making the payment through the online payment gateway, you can make a bank deposit to the following account

0012 5002 0984
H.M.G.M. Herath
Sampath Bank
Fort Branch

After making the payment please send the deposit slip to 0773396977.

Resource Personnel

Thakshila Thilakanayake

B.Sc. Engineering (Hons), MPhil (Reading)

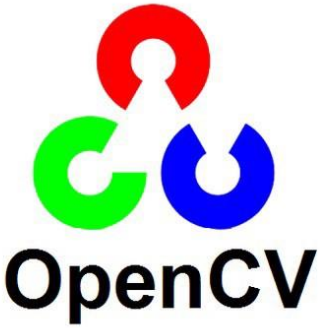
A passionate educator, trainer and developer in the fields of Robotics, Data Science, Machine Learning and Deep Learning with several years of demonstrated experience, who guides the community with the latest research findings and technologies in the subjective fields. Currently conducting workshop, courses and cooperate training sessions in several institutes.



Press the icons to navigate

Tools

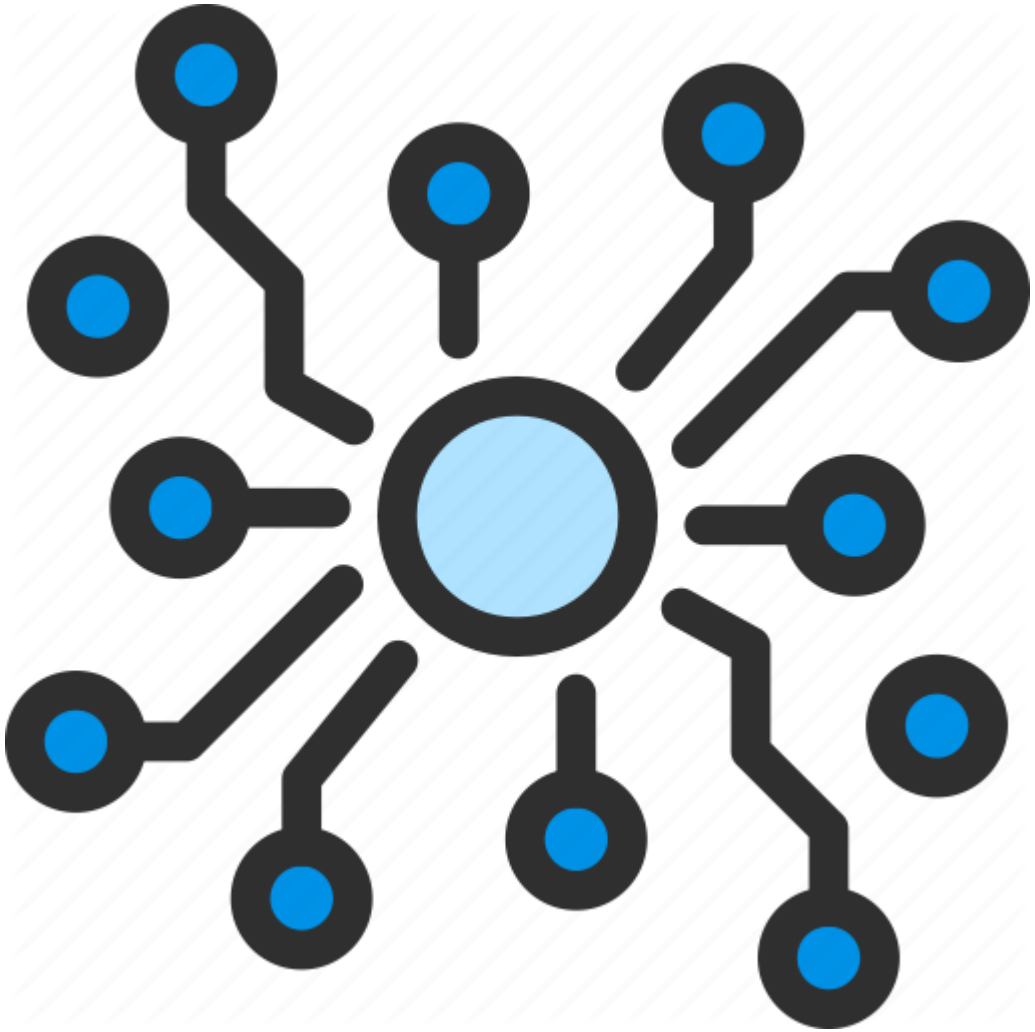
- Programming Language: Python
- Modules used: Scikit Learn, OpenCV, Numpy, Matplotlib
- Development Environment: Anaconda Navigator (Jupyter Notebook)



References

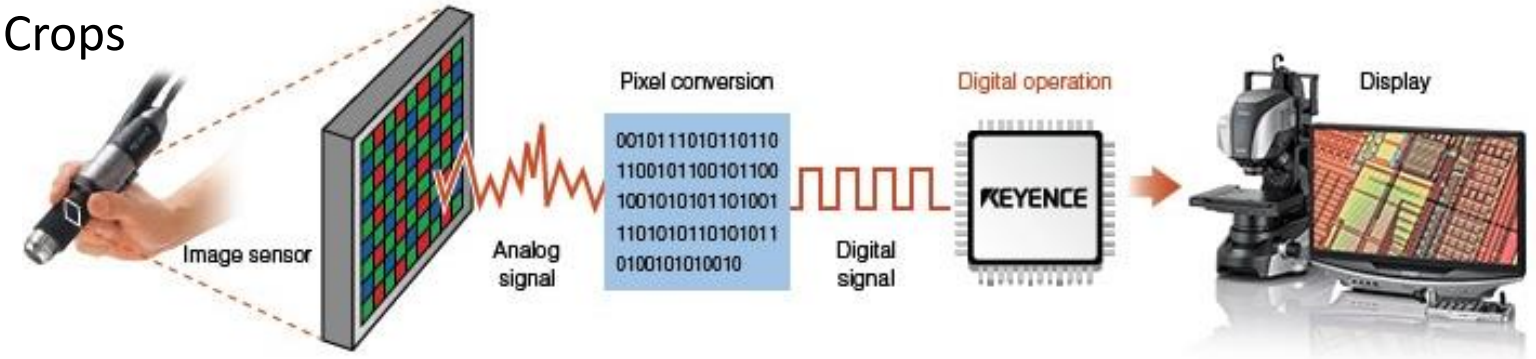
1. Digital Image Processing, 4th Edition, 2018, Rafael C. Gonzalez
2. Image Processing and Acquisition using Python (2nd ed.) Ravishankar Chityala, Sridevi Pudipeddi
3. Hands-On Image Processing with Python: Expert techniques for advanced image analysis and effective interpretation of image data Paperback 2018 by Sandipan Dey

Let’s Get Started

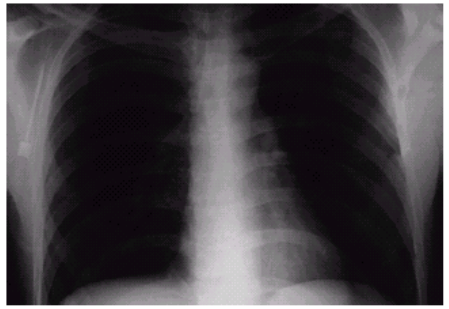


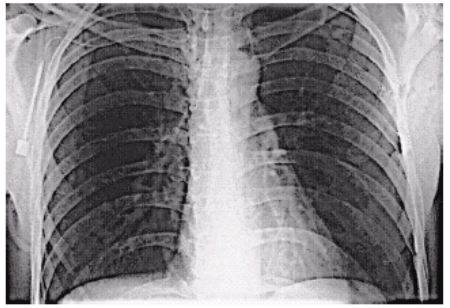
Introduction to Image Processing

- Digital image processing is the use of a digital computer to process digital images through an algorithm.
- Applications,
    - Medical Imaging
    - Forensic Sciences
    - Industrial Automation
    - Earth Resource analysis
    - Geographical Mapping
    - Prediction of Agricultural Crops
    - Weather Forecasting
    - Natural Disaster Analysis
    - Space Imaging



Applications





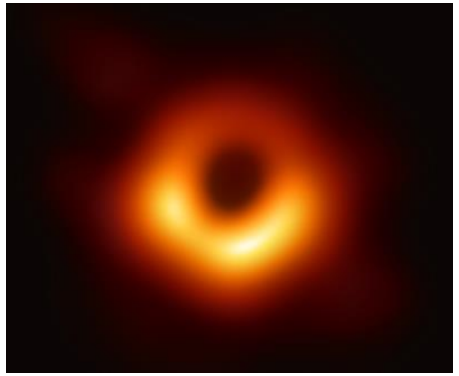
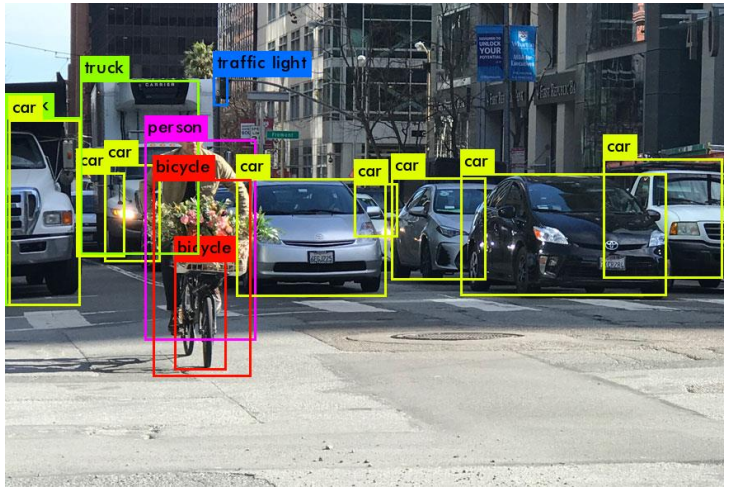
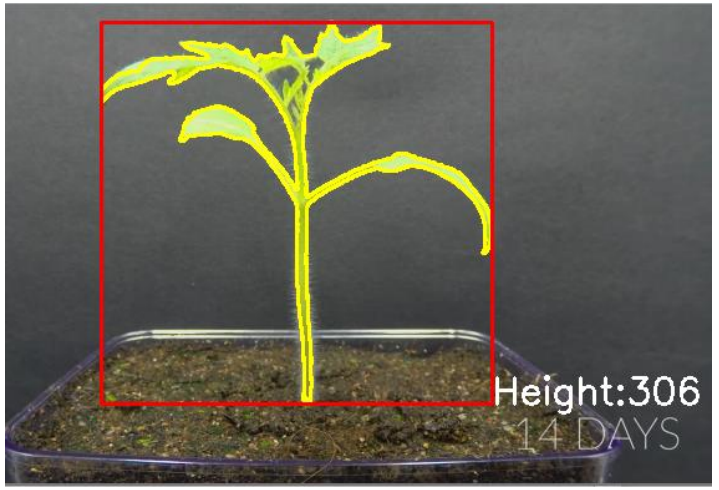


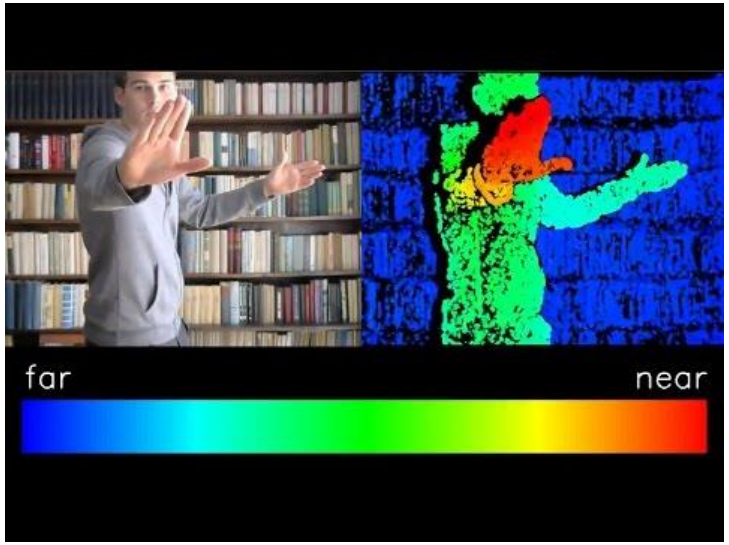
Image Enhancement



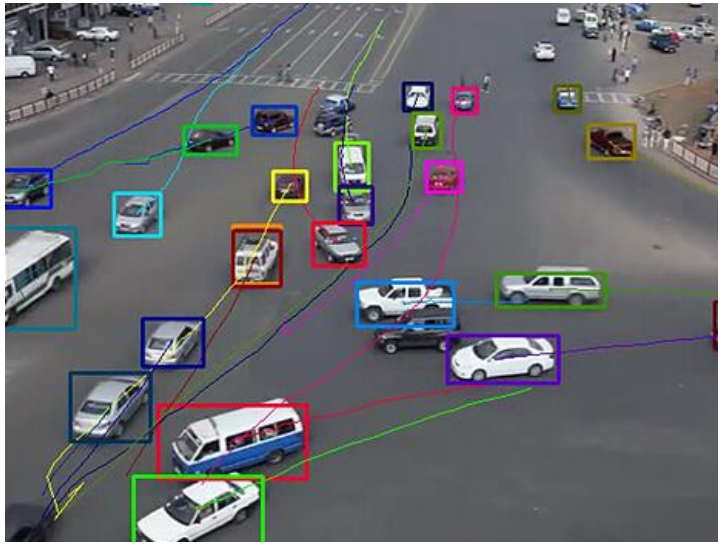
Object Detection



Segmentation



Stereo Vision – Depth Calculation



Object Tracking


OpenCV
scikit
learn
TensorFlow
K
Keras