Image Processing Using Python

Python is a widely used general-purpose, high level programming language. Python work more quickly and integrate your systems more effectively.

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image.

There are two types of methods used for image processing namely, analogue and digital image processing. Analogue image processing can be used for the hard copies like printouts and photographs. Image analysts use various fundamentals of interpretation while using these visual techniques. Digital image processing techniques help in manipulation of the digital images by using computers. The three general phases that all types of data must undergo while using digital technique are pre-processing, enhancement, and display, information extraction.

Digital Image Processing

Digital Image Processing means processing digital image by means of a digital computer. We can also say that it is a use of computer algorithms, in order to get enhanced image either to extract some useful information.

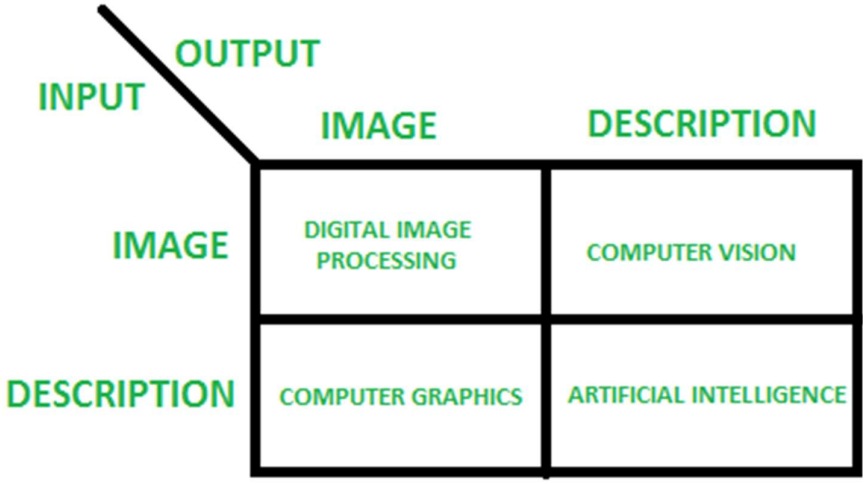
These Python libraries provide an easy and intuitive way to transform Digital images and make sense of the underlying data.

- Scikit-image
- NumPy
- SciPy
- PIL/Pillow
- OpenCV-Python
- Tensorflow
- Yolov3
- SimpleCV
- Mahotas
- SimpleITK

Image processing basically includes the following three steps:

1. Importing the image via image acquisition tools;
2. Analysing and manipulating the image;
3. Output in which result can be altered image or report that is based on image analysis.

Overlapping Fields with Image Processing



Applications of Digital Image Processing

Some of the major fields in which digital image processing is widely used are mentioned below

- Attendance system
- Image sharpening and restoration
- Medical field
- Remote sensing
- Transmission and encoding
- Machine/Robot vision
- Colour processing
- Pattern recognition
- Video processing
- Microscopic Imaging
- Others