WORKSHOP PROPOSAL

"Image Processing Using MATLAB"

Submitted by: -

E2MATRIX

(An ISO 9001:2008 Certified Company)

The Value of Trust

Return on Influence

"Join hands for long relations because trust matter"

Digital image processing is the use of computer algorithms to perform image processing on digital images. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Since images are defined over two dimensions (perhaps more) digital image processing may be modeled in the form of multidimensional systems.

Digital Processing techniques help in manipulation of the digital images by using computers. As raw data from imaging sensors from satellite platform contains deficiencies. To get over such flaws and to get originality of information, it has to undergo various phases of processing. The three general phases that all types of data have to undergo while using digital technique are Pre-processing, enhancement and display, information extraction.
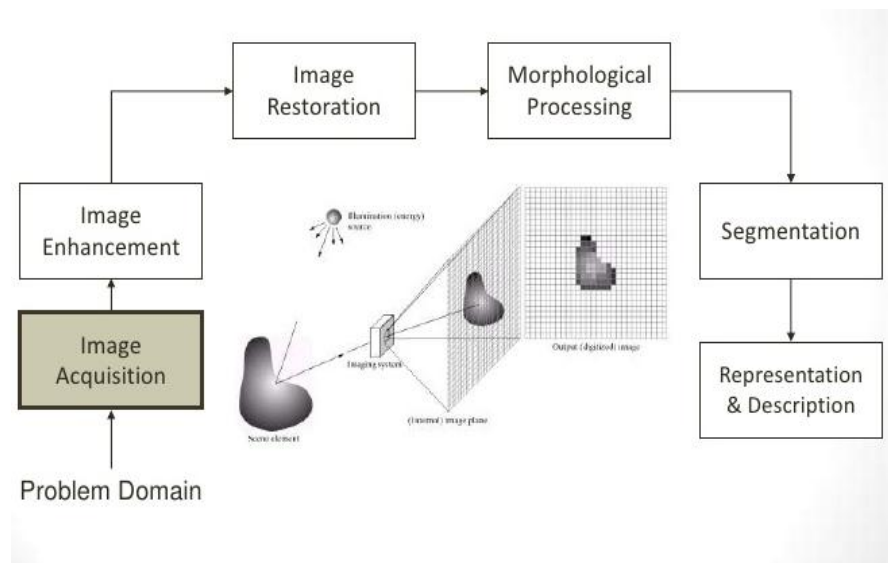
The main purpose of this "Hands-on Training on Image Processing using Matlab" is to create awareness and enrich knowledge for research scholars, faculty and students in the area of Image Processing.

1-DAY WORKSHOP

Working with Images:

Objective: Understand different image types available in IMAGE PROCESSING, and how they can be read into IMAGE PROCESSING.

1. Image types
2. Supported IMAGE PROCESSING data types for representing images
3. Binary Images
4. Grayscale images
5. Index Images
6. RGB images
7. Importing and exporting images in IMAGE PROCESSING
8. Finding image pixel values
9. Calculating image statistics
10. Converting image formats

TIME DURATION: 4 hours

COST: 200/- PER STUDENT

2- DAYS WORKSHOP

Module 1: Working with Images

Objective: Understand different image types available in IMAGE PROCESSING, and how they can be read into IMAGE PROCESSING.

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2. Supported IMAGE PROCESSING data types for representing images
3. Binary Images
4. Grayscale images
5. Index Images
6. RGB images
7. Importing and exporting images in IMAGE PROCESSING
8. Finding image pixel values
9. Calculating image statistics
10. Converting image formats

Module 2: Image Enhancement Techniques:

Objective: Enhance image characteristics by adjusting the Image intensity and isolating a region of interest,

1. Adjusting image intensity
2. Histogram stretching
3. Histogram equalization
4. Using arithmetic functions to enhance images
5. Correcting lens distortion

TIME DURATION: 4 hours/day

COST: 300/- PER STUDENT

3-DAYS WORKSHOP

Module 1: Working with Images

Objective: Understand different image types available in IMAGE PROCESSING, and how they can be read into IMAGE PROCESSING.

1. Image types
2. Supported IMAGE PROCESSING data types for representing images
3. Binary Images
4. Grayscale images
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7. Importing and exporting images in IMAGE PROCESSING
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Module 3: Filtering Images

Objective: Understand how block processing works: implement spatial-domain and frequency-domain filters and use filtering techniques to reduce the effects of unwanted distortions.

1. Defining filtering
2. Filtering process
3. Performing filtering
4. Filtering applications: smoothing, edge detection, and sharpening
5. Region-of-interest processing
6. Specific applications of filtering

Module 4: Feature Extraction and Segmentation

Objective: Extract image features and measurements using different segmentation methodologies.

1. Isolating image features using thresholding
2. Performing morphological segmentation
3. Creation of structuring elements
4. Erosion and dilation
5. Measurement of region properties
6. Reconstructing images and object
7. Segmenting images based on texture

TIME DURATION: 4 hours/day

COST: 500/- PER STUDENT