



Webinar

CUTM, PKD

Image Processing to Computer Vision

Date: 11th August 2020

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Co-ordinator:

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No. of Participants: 169

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About the Session:

This session gives a brief introduction about the Image Processing Technologies and Computer Vision with the statistical properties. These properties can be used to compare the images. Here, discusses the details of all statistical properties of images such as entropy, skewness, kurtosis, Grey Level Co-occurrence Matrix etc. as well as various texture extraction methods. This session provides an introduction to computer vision including image acquisition and image formation models, radiometric models of image formation, image formation in the camera, image processing concepts, concept of feature extraction and selection for pattern classification/recognition etc.

Objectives:

- To introduce image processing on computer vision
- To introduce different statistical properties
- To understand the texture extraction methods

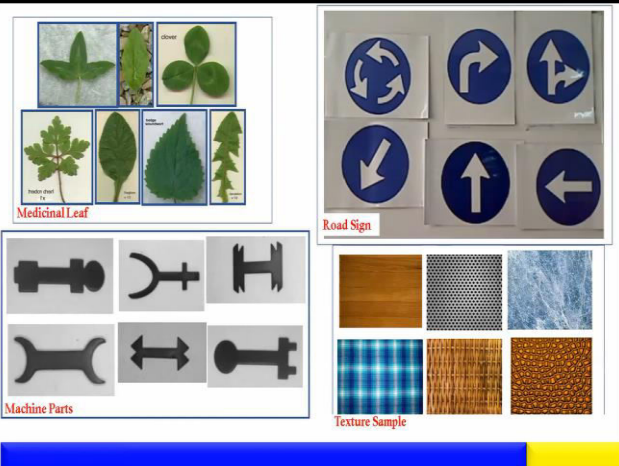
Outcome:

It could be utilized for finding the similarities and dissimilarities of images. Also, it can be used for finding the good and bad images with the classification.

Photographs of the event:

11th August 2020

Introduction to Image processing on computer vision with statistical properties.



Statistical Texture Feature Extraction Method

Texture features are extracted based on the **Statistics of Geometrical Properties of Connected Regions in a Sequence of Binary Images**. Method consist of two important steps:

Step 1: To decompose a texture image into a set of binary images

Step 2: For each binary image, geometrical attributes such as the number of connected regions and their irregularity are statistically considered

Construction of a Stack of Binary Image

The image I thresholded with a threshold value α , $\alpha \in \{1, 2, 3, \dots, n-1\}$
 $f_b(x, y; \alpha)$ denotes the binary image obtained with a threshold value α .

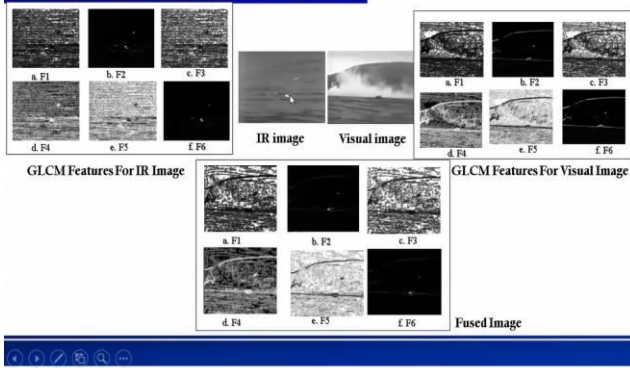
$$f_b(x, y; \alpha) = \begin{cases} 1 & \text{if } f(x, y) \geq \alpha \\ 0 & \text{otherwise} \end{cases}$$

From a given original image there are $n-1$ different binary images

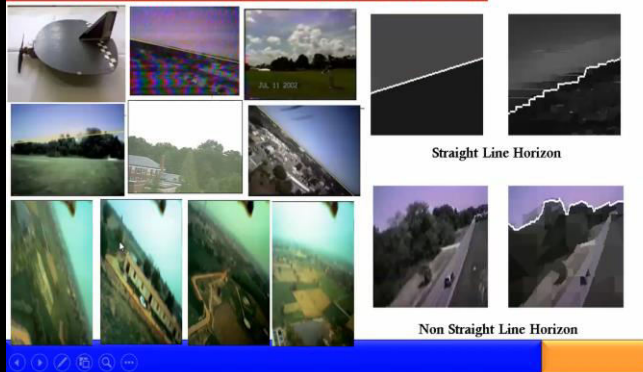
i.e. $f_b(x, y; 1), f_b(x, y; 2), f_b(x, y; 3), f_b(x, y; 4) \dots f_b(x, y; n-1)$.
 The set of binary images is termed as **Binary Stack**



Fusion of Multi Sensor Images - Texture GLCM



TEXTURE FOR HORIZON DETECTION FOR MICRO AIR VEHICLE STABILIZATION





WEBINAR ON

Image Processing to Computer Vision

11th August 2020

Organised by :

**Centurion University of Technology and Management
in Collaboration with Center of Data Science &
machine learning**

Resource Person
Dr. Jharna Majumdar

Coordinator: **Dr. Sujata Chakravarthy**
Prof. & Head CSE, SoET

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Figure 2: Brochure of the event

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