Overview of Image Processing

IEEE MVSR WIE Affinity Group has organized a technical webinar on "Overview of Image Processing" on 08th May 2020. The main idea of this webinar was to help the students for their professional advancement and to introduce Image Processing.

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Session details:

Date: 08th May 2020.

Time: 11:00am-12:00pm.

No. of faculty and students attended: 119
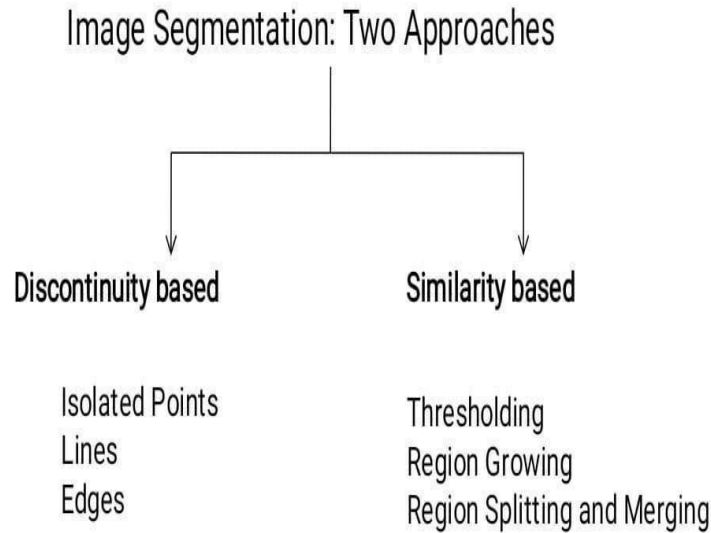
   (IEEE & Non-IEEE together)

Ms. R. Ramya Sri, Chairperson, IEEE MVSR SB has started the session by welcoming the attendees and introduced the speakers DR.Y.Padma Sai, Professor and Head of ECE Department of VNR VJIET, Chair WIE Affinity Group IEEE Hyderabad Section.

The lecture has started with an Overview of various forms of data and also about signals. And then introduction of image processing, and the field that deals with image representation were keenly discussed.

And then later on, The Image Transfer Protocol was discussed, where both the actions performed on the sender side and the recipient side were explained.
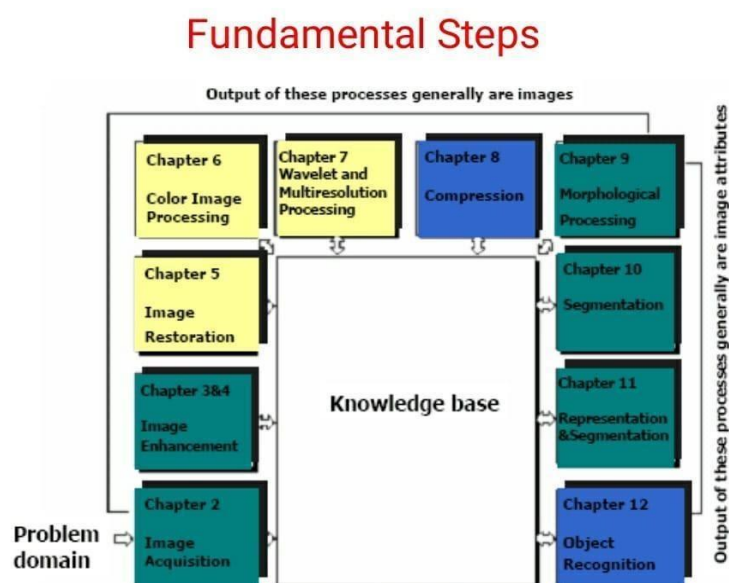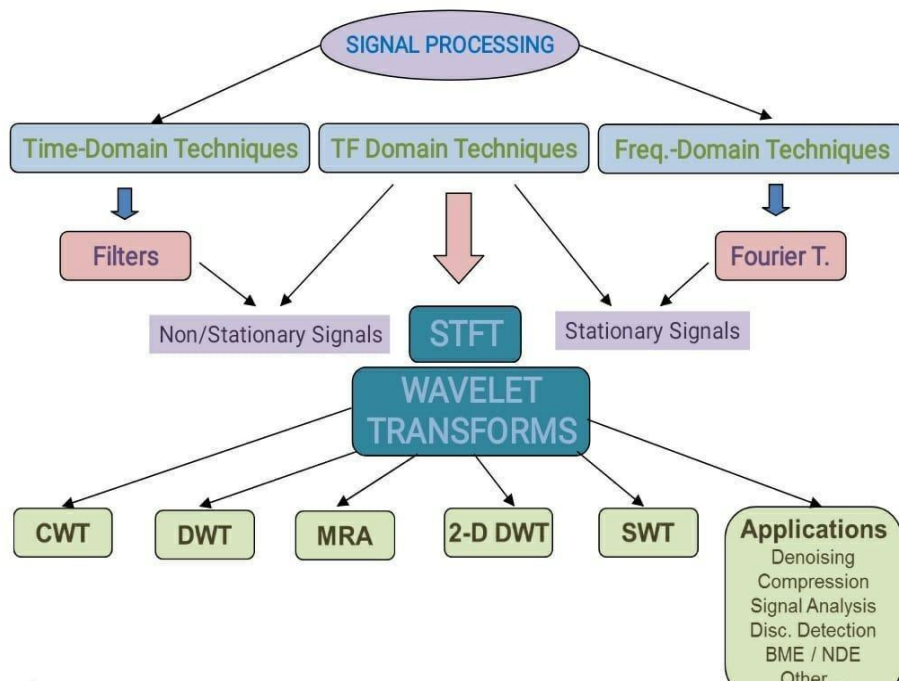

The speaker discussed about the fundamental steps required in image processing and also about the two approaches that are implemented for the segmentation of images. She detailed about the Isolated points, lines, edges, Threshold and other sub topics of the Image Segmentation process.

Image Segmentation: Two Approaches

Discontinuity based

Similarity based

Isolated Points
Lines
Edges

Thresholding
Region Growing
Region Splitting and Merging

Approaches of image segmentation

And then moving on to signal processing, the speaker explained various forms of it and also the filters that are applicable. She briefed about the stationary and non-stationary signals, and the applications and implementations of signal processing in real life were discussed. She also encouraged the participants to give some examples based on their understanding.

SIGNAL PROCESSING

Time-Domain Techniques | TF Domain Techniques | Freq.-Domain Techniques

Filters

Non/Stationary Signals

STFT

Stationary Signals

Fourier T.

WAVELET TRANSFORMS

CWT | DWT | MRA | 2-D DWT | SWT | Applications
Denoising
Compression
Signal Analysis
Disc. Detection
BME / NDE
Other

The speaker discussed different sampling methods i.e., fine sampling and coarse sampling under Non-uniform sampling method. For which the below example was cited.

Future Scope of image processing has discussed:

And some of the examples from the session are stated below.

- The satellite applications programs of the future will be based on extensive research in the area of imaging.
- In production automation
- In Biomedical and other health-care applications
- Disaster management

The key points that are inferred for the session are:

- The processing of images is faster and more cost-effective.
- One needs less time for processing, as well as less film and other photographing equipment. It is more ecological to process images. No processing or fixing chemicals are needed to take and process digital images.
- Digital image processing plays a vital role in enhancement of poor-quality images. Especially data obtained from Automated Image Acquisition Systems, which is in the digital form, can best be utilized with the help of digital image processing.

The session is concluded by the speakers by answering the queries raised by attendees.

At the end, Vote of thanks is given by Ms. Ramya sri, Chair, IEEE MVSR SB and thanked management, SBC and all the participants.

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