Report

Talk

On

"Dimensionality Reduction for Image Recognition"

IEEE Signal Processing Society Chapter of Gujarat Section

Signal and Image Processing (SiP) Club

Electronics and Communication Engineering Department

Sarvajanik College of Engineering and Technology, Surat

Organizers:

IEEE Signal Processing Society, Chapter Gujarat Section

IEEE Gujarat Section

Electronics and Communication Engineering Department, SCET

Date: 30/11//2018

Venue: AV Room EC Dept. SCET

Speaker: [1] Dr. Suman K. Mitra (Chair, SPS Chapter, IEEE GS, and Professor and Dean, DAIICT)
        [2] Dr. Purvi Koringa (Senior Project Associate, DAIICT)

Coordinators:
Dr. Maulin M. Joshi, Professor, SCET
Dr. Chirag N. Paunwala, Professor, SCET

Signal and Image processing club, Electronics and Communication Dept., SCET and IEEE Signal Processing Society Chapter of Gujarat Section organized a talk on "Dimensionality Reduction for Image Recognition" in Sarvajanik College of Engineering and Technology, Surat. The talk was delivered by Dr. Suman K. Mitra (Chair, SPS Chapter, IEEE GS, and Professor and Dean, DAIICT) and Dr. Purvi Koringa (Senior Project Associate, DAIICT).

Dr. Suman Mitra holds PhD in Computer Science from Indian Statistical Institute Calcutta and is MSc and BSc in Statistics from Calcutta. He is a senior member of IEEE also working as an associate editor of IET, Image Processing and IJIG, World Scientific. His domain of research encapsulates Image Processing, Computer Vision, Pattern Recognition, Data Analytics, Bayesian Learning and Estimation and Digital Image Watermarking. He has 2 US Patents registered under his name and has been working for many research projects sponsored by various reputed funding bodies. He also has more than 110 publications in various reputed Book Chapters, Journals and Conferences. Dr. Purvi Koringa is a Senior Project Associate in DAIICT. Her PhD research work focused on Dimensionality Reduction.

Image Processing consists of different stages such as Image acquisition, image Pre-Processing, Feature Extraction, Similarity Matching and obtain the resultant images. Image Acquisition is the process of acquiring a digital image database which consists of n number of images. The Pre-processing stage involves filtering, normalization, segmentation, and object identification. The output of this stage is a set of significant regions and objects. In the Feature extraction stage, visual information such as color and texture is extracted from the images and saves them as feature vectors in a feature vector database. One of the major problems is the large number of features extracted which requires large amount of memory and computation power. To overcome this problem, dimension reduction algorithms are utilized. These algorithms extract only essential features from the feature vector database and store them as reduced feature vector database. Thus the output of feature extraction stage is a reduced set of features which best describes the image. The techniques such as PCA, LDA, ICA, LPP, ELPP, ONPP, MNOPP and CS-ONPP were explained for dimensionality reduction. The results were shown in order to compare pros and cons of all techniques.

The main goal was to provide direction to the UG/PG researchers and the faculties in the domain Machine learning and Image Processing and understand the cumbersome mathematical modelling for the system. Around 100 enthusiastic UG/PG scholars and faculties from EC, Electrical, IC, IT, MCA, CO department SCET and SVNIT participated in the talk.

It was truly an effective session with thorough teaching, learning and understanding qualities. Some snapshots have been appended below as a glimpse of workshop.