

Sessional Courses

Sessional 1

CSE 905C PR: Machine Learning and Image Processing Lab

Credit:2

Course Outcomes (CO):

- i. Develop hands-on experience in using computers to process images and solve various real world problems.
- ii. Develop skills using programming languages for realization and implementation of image processing problems.

Syllabus:

Understanding about different types of Digital images; Conversion between image data types; Basics of image display; Arithmetic Operations; Histogram Analysis; Neighborhood Processing; Image Geometry; The Fourier Transform of an image; Image Segmentation, Edge Detection; Morphological Operation; Color Image Processing; Image Compression; Wavelet Analysis; K-means, Fuzzy C-Means, Logistic Regression, Cross-validation, K-nearest neighbours, Modified K-nearest neighbours, Principal component analysis, naïve Bayesian classifier, Support Vector Machine, Decision Trees, Artificial Neural Networks, a brief introduction to Deep learning tools.

References Book:

1. “Digital Image Processing using Matlab”, Rafael C. Gonzalez, Richard E. Woods, Steven Eddins.
2. “Mastering in Matlab”, Duane C. Hanselman. Pearson Education.
3. Deron A., Hands-on Machine Learning with Scikit-learn and Tensorflow, O’Reilly
4. Practical Machine Learning for Computer Vision by Valliappa Lakshmanan, Martin Görner, Ryan Gillard