

Summer School Schedule

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| July 04, 2011 | |
| 09:30 - 10:00 Hrs | Inauguration |
| 10:15 - 11:45 Hrs | Image Processing - 1 (Speaker: Sukhendu Das) Image representation, filtering, convolution FFT, Scale space Edge and corner detection |
| 11:45 - 13:15 Hrs | Pattern Analysis - 1 (Speaker: P. J. Narayanan) Bayesian Classification Linear classifier, Perceptron Non Linear classification (MLP) |
| 14:00 - 15:00 Hrs | Pattern Analysis - 2 PCA Image Features: Color, Texture, Shape |
| 15:00 - 16:00 Hrs | Image Processing - 2 (Speaker: Bhabatosh Chanda) Overview CBIR |
| July 05, 2011 | |
| 9:00-11:00 Hrs | Feature Extraction (Speaker: Anurag Mittal) Invariance and Goals, Edge and Corner Detection, Harris corner, Shape Context, Geometric Blurr, MSER, LBP |
| 11:15-13:45 Hrs | Detectors and Descriptors (Speaker: Anurag Mittal) Scale Space, SIFT, SURF, GIST, HoG, Variations:PCA-SIFT etc. Libraries: binary from lowe, code from vlfeat etc. |
| 14:30-17:30 Hrs | Classifier/ML - 1 (Speaker: C V Jawahar) Problem of Pattern Classification, NN, Bayesian interpretations, SVMs: Objective and Optimization, SVMs: Soft and Hard, SVMs: Linear, Kernels, SVMs: Implementation, complexity, challenges, Random Forest, Libraries to familiarize: libsvm, svmlight etc. |
| July 06, 2011 | |
| 9:00-11:30 Hrs | Bag of Words/Feature Model (Speaker: Santanu Chaudhury) Text IR and Motivation, Textons and Vocabulary construction schemes, Naive Bag of Words (with SIFT), Dense and Sparse SIFT, Spatial Pyramid: (Beyond Bag of Words), PHOW, PHOG, Success Stories (eg. VideoGoogle) |
| 12:30-15:00 Hrs | Image-Level Classification (Speaker: Anoop Namboodiri) Caltech and Image classification, Object category, Scene Classification, Role of Context, MKL and Feature fusion |
| 15:15-18:15 Hrs | Object Detection (Speaker: C V Jawahar) Object Localization and Detection, Sliding Window Search, Efficiency and Challenges, Case Studies (Face Detection, Human Detection), (Haar, HoG, Integral Image, Cascade of Classifiers), Beyond Sliding Windows, OpenCV Face Detection |
| July 07, 2011 | |
| 09:00-11:30 Hrs | Semantic Indexing (Speaker: Santanu Chaudhury) Text IR: (Topic models, TD matrix, TFIDF etc.), LSI and SVD pLSA, LDA, Applications in Recognition, Retrieval, Annotation |
| 13:00-15:00 Hrs | Classifier/ML - 2 (Speaker: P S Sastry) Kernel Techniques, Adaboost, Structured Prediction, Latent SVM Applications |
| July 08, 2011 | |
| 10:00-12:00 Hrs | Large Scale Retrieval Systems (Speaker: Hiranmay Ghosh) Query expansion, Inverted Index, Vocabulary Tree, Approx Nearest Neighbour, KD Trees, LSH |
| 13:00-15:00 Hrs | Action Recognition (Speaker: Sumantra Dutta Roy) Human action, activities, data sets, MHI etc. (Simple features), Dynamic models, HMMs, Probabilistic reasoning, Simultaneous Tracking and Recognition |