**FeatureExtraction(dataDir, svmResultDir)**

This function will extract the features from the training images, also train the SVM for frame classification. After that testing is done from the rest of the images which are not in the training set. The training results will be saved and classification results will be shown in plot. 7 types of feature extraction can be done by this function. The type of feature extraction is set into the code, by uncommenting the method that you want and commenting the rest you can get the training and classification results. To obtain different training results, the function should be run separately. Eg PHOW feature extraction method is chosen here:

conf.featMethod = 'phow';

%conf.featMethod = 'dsift';

%conf.featMethod = 'sift';

%conf.featMethod = 'phow\_dsift';

%conf.featMethod = 'phow\_sift';

%conf.featMethod = 'dsift\_sift';

%conf.featMethod = 'phow\_dsift\_sift';

**INPUTS:**

1. dataDir is the directory of object frames which is obtained from ImageExtraction function, eg: ‘C:\Users\Matti\Downloads\LOST\017\017\_2013-07-23\_11-00-01’
2. svmResultDir is the directory which the training results will be save into for the further use such as track classification.

\*make sure keep all the training results in the same directory

**OUTPUTS:**

The output of this function is saved in svmResultDir in the following format: ‘model\_CAT\_PHOW\_DSIFT.mat’

In this directory: ‘C:\Users\Matti\Desktop\FYP Code\DataSet for Training\SVM Result’

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1. **getImageDescriptor\_DSIFT.m**
2. **getImageDescriptor\_PHOW.m**
3. **getImageDescriptor\_SIFT.m**

These three function are used inside the FeatureExtraction function. Make sure too keep the in the same directory.

**\*Feature Extraction, Training of SVM and ‘FRAME CLASIFICATION’ is done in FeatureExtraction function, however the ‘TRACK CLASSIFICATION’ is done in a separate function. To classify the tracks, you need the SVM training results, extracted object frames and track info text file.**