**Objective:**

The codes are used to verify the performance of the scale selective extended local binary pattern (SSELBP) on the classification accuracy on the database of KTH-TIPS (under KTH\_TIPS directory).

**Key functions and variables:**

----- SSELBP\_Feature\_Extraction.m

Test the performance of SSELBP on texture classification.

1. Sampling scheme
   1. Variable “scheme” specifies a set of radii for sampling locations;
   2. Variable “lbpPointsSet” denotes a set of the number of sampling points on each circle;
   3. Variable “mapping” defines a mapping strategy and we use “riu2” here.
2. Features and labels
   1. Variable “mrelbp\_tests”: each row contains the histogram feature and label for each test image; the last column represents class labels;
   2. Variable “mrelbp\_trains”: each row contains the histogram feature and label for each training image; the last column represents class labels;
   3. Variable “fd\_scale” represents the feature dimension for each scale.

----- SSELBP\_KTHTIPS.m

Extract SSELBP features for each predefined (P, R) at each scale in the scale space.

----- distMATChiSquare.m

Calculate a distance matrix based on the chi-square distance.

1. Distance matrix denoted by variable “DM”.

----- ClassifyOnNN.m

Record the classification accuracy for each trial using nearest neighbor classifier.

1. Variable “numSamples\_class” denotes the number of samples for each class;
2. Variable “numtrain\_class” stands for the number of training samples for each class;
3. Variable “numClass” defines the number of class;
4. Variable “train\_idx” and “test\_idx” define the indices for random partitions between training samples and testing samples
5. Variable “accuracySSELBP” stores the classification accuracy for 100 partition trails;
6. Variables “CA\_mean” means the average classification for each testing scheme.

**Results:**

For each row in “scheme”, we can obtain one distance matrix “DM” and applied the NNC classifier with chi-square distance to classify the texture images. We obtained classification accuracies (CA) for 4 radii in the Table “CA Results\_20160529.xlsx”. The results including CA for each testing scheme, the mean CA, and the standard value of CA.

The feature matrices under a serious of testing schemes are placed under the Dropbox directory … \Dropbox (GhassanGT)\Yuting\Big\_and\_Data\Research\Trial\Texture representation\MMSP2016\Test\_KTH-TIPS\_201605280743pm\_3radii\MRELBPcode\MRELBPresult. The Dropbox link is <https://www.dropbox.com/sh/6bvu266lsi0biev/AACYt8IJaHN3jhLdzYkIrf2La?dl=0>.