CODE OVERVIEW

MODEL

Purpose: Classify scenes according to their texture content (or stereotypical output of V1-like filters). Note: This code uses kmeans from the unofficial netlab toolbox for Matlab (available online). Or, adapt code to use Matlab's new built-in kmeans function.

Gaussfilter.m
result = gaussfilter(image)
Convolves image with 36 filters at 6 orientations, 3 scales and 2 phases that have an aspect ratio of 3:1; e.g. gaussfilter(I, 'penguin'), I = imread('penguin','jpg')

Train_pretextons.m
Compute the image-dependent textons

Train_textons.m
Compute scene textons across all images in training set

Compute_texprint.m
Take any image, computes filter responses and classifies the texton content (histogram) of the image, using trained textons. (analogous to a fingerprint).

Compute_match.m
Computes the chisquared distance and best match between images according to their texton content or texprints.

Trained_data folder contains the 100 textons (or typical 36 filter response distribution learned across the training set).