**READ ME**

GABOR

* Run\_Gabor\_current.m is the parent code which calls all other functions for further processing.

Feature Extraction Steps

* **GT\_ComputeGaborIR\_Frontal** - Call this function to extract the features from ground truth ROI of IR Frontal Facial image (Malignant, Precancerous and Normal subjects).
* **GT\_Gabor\_HMFeatures\_between\_lt\_and\_rt\_Frontal**  - Call this function to concatenate all the subject specific features in a single Matrix.
* **AgeAdjust\_GT\_ComputeGaborIR\_Frontal**- Call this function to extract the features from ground truth ROI of IR Frontal Facial image (Normal subjects with age greater than 30).
* **AgeAdjust\_GT\_Gabor\_HMFeatures\_between\_lt\_and\_rt\_Frontal** Call this function to concatenate all the subject specific features in a single Matrix.
* **GT\_ComputeGaborIR\_Profile**- Call this function to extract the features from ground truth ROI of IR Profile Facial image (Malignant, Precancerous and Normal subjects).
* **GT\_Gabor\_HMFeatures\_between\_lt\_and\_rt\_haralic\_Profile**- Call this function to concatenate all the subject specific features in a single Matrix.
* **AgeAdjust\_GT\_ComputeGaborIR\_Profile**- Call this function to extract the features from ground truth ROI of IR Profile Facial image (Normal subjects with age greater than 30).
* **AgeAdjust\_GT\_Gabor\_HMFeatures\_between\_lt\_and\_rt\_Profile**- Call this function to concatenate all the subject specific features in a single Matrix.
* **AROI\_ComputeGaborIR\_Frontal** - Call this function to extract the features from automated ROI of IR Frontal Facial image (Malignant, Precancerous and Normal subjects).
* **AROI\_Gabor\_HMFeatures\_between\_lt\_and\_rt\_Frontal-** Call this function to concatenate all the subject specific features in a single Matrix.

Storing Extracted Features

Features are stored in the folder **GaborFeatures\_HM\_allScale**

**Path:** Multiresolution\GaborFeatures\_HM\_allScale

Classification Steps

* **run\_Gabor\_libsvm\_Full:** Call this function to call the sub function to classify the extracted features of patients (Malignant/ Premalignant) versus Normal using SVM classifier and store the results in specified directory.

Subroutines called-

**libsvm\_scaleselect ( )** – Call this function to classify the extracted features of patients (Malignant/ Premalignant) versus Normal using SVM classifier. We report the average of 5-fold cross validation accuracy as our final accuracy. For each fold, randomly exclusive four-fifth of the data is used for training and the remaining one-fifth is used for testing. For a particular fold, 1/4th of the training data is reserved for validation.

* **run\_Gabor\_libsvm\_AgeAdjust:** Call this function to call the sub function to classify the extracted features of patients (Malignant/ Premalignant) versus age adjusted Normal (>30 years) using SVM classifier and store the results in specified directory.

Subroutines called-

**libsvm\_scaleselect ( )** – Call this function to classify the extracted features of patients (Malignant/ Premalignant) versus Normal using SVM classifier. We report the average of 5-fold cross validation accuracy as our final accuracy. For each fold, randomly exclusive four-fifth of the data is used for training and the remaining one-fifth is used for testing. For a particular fold, 1/4th of the training data is reserved for validation.

Storing Classification Results

Classification results are stored inside the folder **Gabor Results as .mat files**

**Path:** Multiresolution\Classification\libsvm-3.20\matlab\GaborResults

**Results calculated on ground truth are stored in the path:** Multiresolution\Classification\libsvm-3.20\matlab\GaborResults\GTROI

**Results calculated on ground truth are stored in the path:** Multiresolution\Classification\libsvm-3.20\matlab\GaborResults\AROI