

# Feature Extraction Algorithms for Produce Classification

This is the readme file for the Matlab scripts.

## Getting Started

The code has 3 main script and 4 folders.

**Dataset** folder has the image of the 22 categories of produce.

**Functions** folder regroup all the necessary function to correctly run the main script.

**Matlab data** folder contains saved features of the Dataset to reduce computational time.

## Prerequisites

The required toolbox of Matlab :

Image Processing Toolbox

Statistics and Machine Learning Toolbox

Computer Vision System Toolbox

## Run the script

## Recognition system

To run the automatic produce recognition system run `main.m`.

Choose an image under the folder `Pictures with combined produce`.

The system has pre-load the trained classifier using Gabor features and Color features.

To use Superpixel with active contour segmentation method instead of k-means clustering please uncomment line 46 of `main.m` and comment line 47.

## Training the classifier

To train the classifier and get the accuracy of each classifier using 5-fold cross-validation, run `trainingModel.m`.

If you want to use the saved extracted features enter `'yes'`, if you want to re-extract every features enter `'no'`. Please not that extracting all the features is time consuming (it may take up to 1 hour).

At the end the table with each classifier using different features is shown.