576 Multimedia Final Project  
  
Object:  
1. To write a program to take numerous images, videos and put them together into a hierarchical set of collages  
2. To design an interface that can help browse through this in a visually efficient manner.

Solution:

We use OpenCV as our basic application because OpenCV provides some of libraries that can analyze images or video.   
  
1.SIFT(Scale-Invariant Feature Transform)  
SIFT is an algorithm in computer vision to detect and describe local features in image.

We use SIFT to analyze pictures with similar key points and put decide to put some pictures together if their similarity has above the similarity value.

2. Histogram Calculation

Histogram can keep count not only of color intensities, but also of whatever image features that we want to measure. It divides every image into small planes and segment our range in subparts. Then, we can use this information to analyze the similarity with each image.

3.Face Detection  
Human Face Detection is very popular in computer vision area. There are already some algorithm to analyze human key feature. In OpenCV, we use Haar-cascades classifier to detect faces in every image.

Route:   
First we detect every image that has face then put it into one category. Then, we apply the SIFT to divide reset images into different class. Finally, we use histogram to analyze each class and group the images that has similar histogram.

Interface:   
We use OpenCV’s function to create interface by generating different sub-window . First there will be 3 big categories which is face-detection, other classes, images that can’t be group. If you click face-detection class, it will show up images that have face on it; further, if you click on the image, it will pop out a bigger size image that you clicked. In other classes, there will be different categories shown by critical image in that category. You can also go into different categories by clicking and see the image in that category. Last, if you want to go back to previous level, just push “q” to go back.

Libraries:  
opencv\_core249d.lib

opencv\_imgproc249d.lib

opencv\_highgui249d.lib

opencv\_ml249d.lib

opencv\_video249d.lib

opencv\_features2d249d.lib

opencv\_calib3d249d.lib

opencv\_objdetect249d.lib

opencv\_contrib249d.lib

opencv\_legacy249d.lib

opencv\_flann249d.lib