Documentation

Description of the project

ExtractFeature

Function: Extract features from given dataset and save as training data and testing data in xml format.

all the modifications are in myfeatures.cpp and myfeatures.h:

- **calcHistHSV2:** calculate the HSV histogram based on [1]
- **CalcDyrAndInc:** calculate the dynamic range and intensity contrast in [2]
- **CalcDofFeat*:** The largest sharpness of local blocks and the variance of these sharpnesses for deep of field feature of the photo
- **calcSubblockInfo:** detect the subject block by canny operation and compute the Fraction, average edge energy[3], blur, sharp, average value*, HSV histogram of subject block.

TrainSVM

Function: train a SVM model to filter out bad photos and test its performance.

Useful information:

ExtractFeature:

- because we split the dataset into 5 part, 4 for training and 1 for testing, so there are 5 training sets and 5 testing sets
- put paths of all the images in imgPath.txt, one line per image.
- all the features will be saved in “trainDataAllx.xml” and

“testDataAllx.xml”
- all the path of photos will be split and saved into “trainImgx.txt” and “testImgx.txt”

TrainSVM

- the program will load the data in xmls saved by previous program
- the filtered dark or overexposure photos will be saved in the **“darkImages”** folder
- the bad but predicted as good photos will be saved in the **“falseNeg”** folder
- the good but predicted as bad photos will be saved in the **“falsePos”** folder
- just the same as **“truePos”** and **“trueNeg”** folder
- the SVM model will be saved as **“SVM_model.(time).xml”**
- the test result is saved in “result.txt”, the format is as follows:

trainingset	**#TPT**	**#TPF**	**#FPT**	**#FPF**	**precision**	**recall**	**F-score**
1~5	xxx	xxx	xxx	xxx	xxx	xxx	xxx

Reference


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[1] Chengyu Wu, Xiaoying Tai, "Image Retrieval Based on Color and Texture", Fo
urth International Conference on Fuzzy Systems and Knowledge Discovery (FSKD 2
007).
[2] Tian Xia, Tao Mei, Gang Hua, Yong-Dong Zhang, Xian-Sheng Hua,"Visual quali
ty assessment for web videos", J. Vis. Commun. (2010), doi:10.1016/j.jvcir.201
0.06.
[3] Wong, L.-K. & Low, K.-L. (2009), Saliency-enhanced image aesthetics class
prediction., in 'ICIP' , IEEE, , pp. 997-1000 .
*: This feature is designed by ourselves.
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