OpenCV Lib

Generated by Doxygen 1.8.11

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Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

Chapter 3

Class Documentation

3.1 CamCtrl Class Reference

```
#include <CVLib.h>
```

Public Member Functions

- CamCtrl ()
- void opnCam (int CamIndex=-1)

  Open camera and display frame.
- void saveVideo (CvCapture ∗pCapture_n, char ∗FilePath_n)

  Save frames in camera captureed frame.

3.1.1 Constructor & Destructor Documentation

3.1.1.1 CamCtrl::CamCtrl ( )

3.1.2 Member Function Documentation

3.1.2.1 void CamCtrl::opnCam (int *CamIndex* = `-1`)

Open camera and display frame.

Parameters

CamIndex	Camera index

3.1.2.2 void CamCtrl::saveVideo (CvCapture ∗ *pCapture_n*, char ∗ *FilePath_n*)

Save frames in camera captureed frame.

Parameters

pCapture↩ _n	Video ptr
FilePath_n	Save path

The documentation for this class was generated from the following files:

- /Users/Leakey/git/CVLib/CVLib/CVLib.h
- /Users/Leakey/git/CVLib/CVLib/CVLib.cpp

3.2 KNNClass Class Reference

```
#include <CVLib.h>
```

Public Member Functions

- KNNClass (int k_n=5, int SmpClass_n=5, int ClassQuty_n=200, int SmpSize_n=400)
- ∼KNNClass ()
- void setK (int n)

  Set K number.
- void setThresA (int n)

  Set threshold.
- void setThresB (int n)

  Set threshold.
- void setSmpSize (int n)

  Set sample data's size.
- void setSmpClass (int n)

  Set sample data's classes.
- void setClassQuty (int n)

  Set number of data in each class.
- void setFilePath (char ∗FilePath_n)

  Set root folder path.
- float classify (char ∗FilePath_n)

  Classify a pic.
- void selfTest (char ∗FilePath_n, int TestClass, int Max)

  System test.
- void loadData (char ∗FilePath_n, int SmpClass_n, int ClassQuty_n)

  Load local data.
- void enhceData (char ∗SrcFilePath_n, char ∗DstFilePath_n, int SmpClass_n=5, int ClassQuty_n=20)

  Copy data to increase sum number of data.

3.2.1 Constructor & Destructor Documentation

3.2.1.1 KNNClass::KNNClass (int *k_n* = 5, int *SmpClass_n* = 5, int *ClassQuty_n* = 200, int *SmpSize_n* = 400)

3.2.1.2 KNNClass::∼KNNClass ( )

3.2.2 Member Function Documentation

3.2.2.1 float KNNClass::classify (char ∗ *FilePath_n*)

Classify a pic.

Parameters

FilePath↩ _n	Pic path

Returns

Class of pic

3.2.2.2 void KNNClass::enhceData (char ∗ *SrcFilePath_n*, char ∗ *DstFilePath_n*, int *SmpClass_n* = 5, int *ClassQuty_n* = 20)

Copy data to increase sum number of data.

Parameters

SrcFilePath↩ _n	Data path
DstFilePath↩ _n	Copyed data path
SmpClass_n	Number of copyed sample classes
ClassQuty_n	Number of copyed data in each class

3.2.2.3 void KNNClass::loadData (char ∗ *FilePath_n*, int *SmpClass_n*, int *ClassQuty_n*)

Load local data.

Parameters

FilePath_n	Data path
SmpClass↩ _n	Number of sample classes
ClassQuty↩ _n	Number of data in each calss

3.2.2.4 void KNNClass::selfTest (char ∗ *FilePath_n*, int *TestClass*, int *Max*)

System test.

Parameters

FilePath↩ _n	Root folder path
TestClass	Number of sample classes
Max	Number of data in each class

3.2.2.5 void KNNClass::setClassQuty (int *n*)

Set number of data in each class.

Parameters

n	Number of data in each calss

3.2.2.6 void KNNClass::setFilePath (char ∗ *FilePath_n*)

Set root folder path.

Parameters

FilePath_n	Root folder path

3.2.2.7 void KNNClass::setK (int *n*)

Set K number.

Parameters

n	Number

3.2.2.8 void KNNClass::setSmpClass (int *n*)

Set sample data's classes.

Parameters

n	Number of sample classes

3.2.2.9 void KNNClass::setSmpSize (int *n*)

Set sample data's size.

Parameters

n	Data size(width=heigh)

3.2.2.10 void KNNClass::setThresA (int *n*)

Set threshold.

Parameters

n	Threshold

3.2.2.11 void KNNClass::setThresB (int *n*)

Set threshold.

Parameters

n	Threshold

The documentation for this class was generated from the following files:

- /Users/Leakey/git/CVLib/CVLib/CVLib.h
- /Users/Leakey/git/CVLib/CVLib/CVLib.cpp

3.3 ObjectCnt Class Reference

```
#include <CVLib.h>
```

Public Member Functions

- ObjectCnt ()
- ∼ObjectCnt ()
- int cntObjects (char ∗pFilePath)

  Load a pic and count objects.
- int cntObjects (IplImage ∗pSrcImg)

  Count objects in image.
- IplImage ∗ cntPrePrs (IplImage ∗pSrcImg)

  Pre-Process image.
- void objPrtPara ()

  Print para.

3.3.1 Constructor & Destructor Documentation

3.3.1.1 ObjectCnt::ObjectCnt ( )

3.3.1.2 ObjectCnt::∼ObjectCnt ( )

3.3.2 Member Function Documentation

3.3.2.1 int ObjectCnt::cntObjects (char ∗ *pFilePath*)

Load a pic and count objects.

Parameters

pFilePath	Pic path

Returns

Number of object

3.3.2.2 int ObjectCnt::cntObjects (IplImage ∗ *pSrcImg*)

Count objects in image.

Parameters

pSrcImg	Image ptr

Returns

Number of object

3.3.2.3 IplImage ∗ ObjectCnt::cntPrePrs (IplImage ∗ *pSrcImg*)

Pre-Process image.

Parameters

pSrcImg	Image ptr

Returns

Processed image

3.3.2.4 void ObjectCnt::objPrtPara ( )

Print para.

The documentation for this class was generated from the following files:

- /Users/Leakey/git/CVLib/CVLib/CVLib.h
- /Users/Leakey/git/CVLib/CVLib/CVLib.cpp

Chapter 4

File Documentation

4.1 /Users/Leakey/git/CVLib/CVLib/CVLib.cpp File Reference

```
#include "CVLib.h"
```

Functions

- void findX (IplImage ∗SrcImg, int ∗Min, int ∗Max)

  Find the first and last effective pixel in image.
- void findY (IplImage ∗SrcImg, int ∗Min, int ∗Max)

  Find the first and last effective pixel in image.
- CvRect findMinRect (IplImage ∗SrcImg)

  Get a pic's min non-empty pixel region.
- IplImage ∗ cvGetSubImage (IplImage ∗SrcImg, CvRect Roi)

  Crop image from a ROI.
- IplImage ∗ prePrs (IplImage ∗SrcImg, int W_n, int H_n, int Mode)

  Prepress a pic, get a min binary region. 1 for turn pixel into ∼.
- IplImage ∗ resizeImg (char ∗FilePath_n, CvSize Size_n)

  Resize pic into setted size.
- void showImg (int TA, int TB)

  Display image in window with para threshold setted.
- void min_Trackbar (int Threshold)

  Set threshold, also as a callback func.
- void max_Trackbar (int Threshold)

  Set threshold, also as a callback func.
- void getThreshold (IplImage ∗pSrcImg, int ∗TA, int ∗TB)

  Create a window to display image and modify threshold.
- void getThreshold (char ∗FilePath_n, int ∗TA, int ∗TB)

  Create a window to display image and modify threshold.
- void findRegion (IplImage ∗SrcImg, int ∗x, int ∗y, int Flag)

  Find the pixel region for a binary pic.
- void findXRange (IplImage ∗SrcImg, int ∗Min, int ∗Max, int Flag)

  Find the first and last effective pixel in image.
- void findYRange (IplImage ∗SrcImg, int ∗Min, int ∗Max, int Flag)

Find the first and last effective pixel in image.

- IplImage ∗ picStcer_sub (IplImage ∗ImgA, IplImage ∗ImgB, int mode)

  Stitching pics simply.
- IplImage ∗ picStcer (IplImage ∗SrcImgQue[ ], int lenth, int mode)

  Stitching pics simply.
- IplImage ∗ autoStcer (IplImage ∗SrcImgQueen[ ], int lenth)

  Stitching pics with feature matching.
- void InsertSort (unsigned char a[ ], int count)

  Sort algorithm.
- void showImg (int TA, int TB, int pKnlSize, int pErode, int pDilate)

  Create a window to display image and modify paras.
- void setTa (int Threshold)

  Set threshold.
- void setTb (int Threshold)

  Set threshold.
- void setKnlSize (int pKnlSize)

  Set kernel size.
- void setErode (int pErode)

  Set erode times.
- void setDilate (int pDilate)

  Set dilate times.

Variables

- IplImage ∗ GrayImg
- IplImage ∗ CannyImg
- IplImage ∗ ExpImg

4.1.1 Function Documentation

4.1.1.1 IplImage∗ autoStcer (IplImage ∗ *SrcImgQueen[ ],* int *lenth*)

Stitching pics with feature matching.

Parameters

SrcImgQueen	Image ptrs array
lenth	Sum width/heigh

Returns

Stitched image

4.1.1.2 IplImage∗ cvGetSubImage (IplImage ∗ *SrcImg,* CvRect *Roi*)

Crop image from a ROI.

Parameters

SrcImg	Image ptr
Roi	ROI

Returns

Croped image

4.1.1.3 CvRect findMinRect (IplImage ∗ *SrcImg*)

Get a pic's min non-empty pixel region.

Parameters

SrcImg	Image ptr

Returns

Min non-empty pixel region

4.1.1.4 void findRegion (IplImage ∗ *SrcImg,* int ∗ *x,* int ∗ *y,* int *Flag =* `1`)

Find the pixel region for a binary pic.

Parameters

SrcImg	SourceImage
x	X pos
y	Y pos
Flag	White/Black background,1 for white, 0 for black

4.1.1.5 void findX (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max*)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First X pos
Max	Last X pos

4.1.1.6 void findXRange (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max,* int *Flag =* `1`)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First X pos
Max	Last X pos
Flag	White/Black background,1 for white, 0 for black

4.1.1.7 void findY (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max*)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First Y pos
Max	Last Y pos

4.1.1.8 void findYRange (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max,* int *Flag =* `1`)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First Y pos
Max	Last Y pos
Flag	White/Black background,1 for white, 0 for black

4.1.1.9 void getThreshold (IplImage ∗ *pSrcImg,* int ∗ *TA,* int ∗ *TB*)

Create a window to display image and modify threshold.

Parameters

pSrcImg	Image ptr
TA	Threshold A
TB	Threshold B

4.1.1.10 void getThreshold (char ∗ *FilePath_n,* int ∗ *TA,* int ∗ *TB*)

Create a window to display image and modify threshold.

Call a window and show a pic to ensure the threshold for binary a pic.

Parameters

pSrcImg	Image path
TA	Threshold A
TB	Threshold B

4.1.1.11 void InsertSort (unsigned char *a[ ],* int *count*)

Sort algorithm.

Parameters

a	Char array
count	Lenth of char array

4.1.1.12 void max_Trackbar (int *Threshold*)

Set threshold, also as a callback func.

Parameters

Threshold	Threshold needed

4.1.1.13 void min_Trackbar (int *Threshold*)

Set threshold, also as a callback func.

Parameters

Threshold	Threshold needed

4.1.1.14 IplImage∗ picStcer (IplImage ∗ *SrcImgQueen[ ],* int *lenth,* int *mode*)

Stitching pics simply.

Parameters

SrcImgQueen	Image ptrs array
lenth	Sum width/heigh
mode	Vertical/Horizontal, 1 for vertical, 0 for horizontal

Returns

Stitched image

4.1.1.15 IplImage∗ picStcer_sub (IplImage ∗ *ImgA,* IplImage ∗ *ImgB,* int *mode*)

Stitching pics simply.

Parameters

ImgA	Image ptr A
ImgB	Image ptr B
mode	Vertical/Horizontal, 1 for vertical, 0 for horizontal

Returns

Stitched image

4.1.1.16 IplImage∗ prePrs (IplImage ∗ *SrcImg,* int *W_n,* int *H_n,* int *Mode =* `1`)

Prepress a pic, get a min binary region. 1 for turn pixel into ∼.

Parameters

SrcImg	Image ptr
W_n	Expectant width
H_n	Expectant heigh
Mode	White/Black background

Returns

Processed image

4.1.1.17 IplImage∗ resizeImg (char ∗ *FilePath_n,* CvSize *Size_n*)

Resize pic into setted size.

Parameters

FilePath↩ _n	Pic path
Size_n	Expectant height∗width

Returns

Resized pic

4.1.1.18 void setDilate (int *pDilate*)

Set dilate times.

Parameters

pDilate	Dilate times

4.1.1.19 void setErode (int *pErode*)

Set erode times.

Parameters

pErode	Erode times

4.1.1.20 void setKnlSize (int *pKnlSize*)

Set kernel size.

Parameters

pKnlSize	Kernel size(width=heigh)

4.1.1.21 void setTa (int *Threshold*)

Set threshold.

Parameters

Threshold	Threshold

4.1.1.22 void setTb (int *Threshold*)

Set threshold.

Parameters

Threshold	Threshold

4.1.1.23 void showImg (int *TA*, int *TB*)

Display image in window with para threshold setted.

Parameters

TA	Threshold A
TB	Threshold B

4.1.1.24 void showImg (int *TA*, int *TB*, int *pKnlSize*, int *pErode*, int *pDilate*)

Create a window to display image and modify paras.

Parameters

TA	Threshold A
TB	Threshold B
pKnlSize	Kernel size
pErode	Erode times
pDilate	Dilate times

4.1.2 Variable Documentation

4.1.2.1 IplImage∗ CannyImg

4.1.2.2 IplImage∗ ExpImg

4.1.2.3 IplImage∗ GrayImg

4.2 /Users/Leakey/git/CVLib/CVLib/CVLib.h File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <fstream>
#include <iostream>
#include <cv.h>
#include <ml.h>
#include <math.h>
#include <highgui.h>
#include "opencv2/highgui/highgui.hpp"
#include "opencv2/stitching/stitcher.hpp"
#include <opencv2/opencv.hpp>
#include <imgproc/imgproc.hpp>
```

Classes

- class CamCtrl
- class KNNClass
- class ObjectCnt

Macros

- #define VERTICAL 1
- #define HORIZONTAL 0

Functions

- IplImage ∗ resizeImg (char ∗FilePath_n, CvSize Size_n)

  Resize pic into setted size.
- IplImage ∗ cvGetSubImage (IplImage ∗SrcImg, CvRect Roi)

  Crop image from a ROI.
- void InsertSort (unsigned char a[ ], int count)

  Sort algorithm.
- CvRect findMinRect (IplImage ∗SrcImg)

  Get a pic's min non-empty pixel region.
- void findRegion (IplImage ∗SrcImg, int ∗x, int ∗y, int Flag=1)

  Find the pixel region for a binary pic.
- void findXRange (IplImage ∗SrcImg, int ∗Min, int ∗Max, int Flag=1)

  Find the first and last effective pixel in image.
- void findYRange (IplImage ∗SrcImg, int ∗Min, int ∗Max, int Flag=1)

  Find the first and last effective pixel in image.
- void findX (IplImage ∗SrcImg, int ∗Min, int ∗Max)

  Find the first and last effective pixel in image.
- void findY (IplImage ∗SrcImg, int ∗Min, int ∗Max)

  Find the first and last effective pixel in image.
- IplImage ∗ prePrs (IplImage ∗SrcImg, int W_n, int H_n, int Mode=1)

  Prepress a pic, get a min binary region. 1 for turn pixel into ∼*.*
- void getThreshold (char ∗FilePath_n, int ∗TA, int ∗TB)

  Call a window and show a pic to ensure the threshold for binary a pic.
- void min_Trackbar (int Threshold)

  Set threshold, also as a callback func.
- void max_Trackbar (int Threshold)

  Set threshold, also as a callback func.
- void getThreshold (IplImage ∗pSrcImg, int ∗TA, int ∗TB)

  Create a window to display image and modify threshold.
- void showImg (int TA, int TB)

  Display image in window with para threshold setted.
- IplImage ∗ picStcer (IplImage ∗SrcImgQueen[ ], int lenth, int mode)

  Stitching pics simply.
- IplImage ∗ autoStcer (IplImage ∗SrcImgQueen[ ], int lenth)

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- IplImage ∗ picStcer_sub (IplImage ∗ImgA, IplImage ∗ImgB, int mode)

  Stitching pics simply.
- void showImg (int TA, int TB, int pKnlSize, int pErode, int pDilate)

Create a window to display image and modify paras.

- void setTa (int Threshold)

  Set threshold.
- void setTb (int Threshold)

  Set threshold.
- void setKnlSize (int pKnlSize)

  Set kernel size.
- void setErode (int pErode)

  Set erode times.
- void setDilate (int pDilate)

  Set dilate times.

4.2.1 Macro Definition Documentation

4.2.1.1 #define HORIZONTAL 0

4.2.1.2 #define VERTICAL 1

4.2.2 Function Documentation

4.2.2.1 IplImage∗ autoStcer (IplImage ∗ *SrcImgQueen[ ]*, int *lenth*)

Stitching pics with feature matching.

Parameters

SrcImgQueen	Image ptrs array
lenth	Sum width/heigh

Returns

Stitched image

4.2.2.2 IplImage∗ cvGetSubImage (IplImage ∗ *SrcImg*, CvRect *Roi*)

Crop image from a ROI.

Parameters

SrcImg	Image ptr
Roi	ROI

Returns

Croped image

4.2.2.3 CvRect findMinRect (IplImage ∗ *SrcImg*)

Get a pic's min non-empty pixel region.

Parameters

SrcImg	Image ptr

Returns

Min non-empty pixel region

4.2.2.4 void findRegion (IplImage ∗ *SrcImg,* int ∗ *x,* int ∗ *y,* int *Flag =* `1`)

Find the pixel region for a binary pic.

Parameters

SrcImg	SourceImage
x	X pos
y	Y pos
Flag	White/Black background,1 for white, 0 for black

4.2.2.5 void findX (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max*)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First X pos
Max	Last X pos

4.2.2.6 void findXRange (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max,* int *Flag =* `1`)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First X pos
Max	Last X pos
Flag	White/Black background,1 for white, 0 for black

4.2.2.7 void findY (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max*)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First Y pos
Max	Last Y pos

4.2.2.8 void findYRange (IplImage ∗ *SrcImg,* int ∗ *Min,* int ∗ *Max,* int *Flag =* `1`)

Find the first and last effective pixel in image.

Parameters

SrcImg	Image ptr
Min	First Y pos
Max	Last Y pos
Flag	White/Black background,1 for white, 0 for black

4.2.2.9 void getThreshold (char ∗ *FilePath_n,* int ∗ *TA,* int ∗ *TB*)

Call a window and show a pic to ensure the threshold for binary a pic.

Create a window to display image and modify threshold.

Parameters

FilePath↩ _n	Image path
TA	Threshold A
TB	Threshold B
pSrcImg	Image path
TA	Threshold A
TB	Threshold B

Call a window and show a pic to ensure the threshold for binary a pic.

Parameters

pSrcImg	Image path
TA	Threshold A
TB	Threshold B

4.2.2.10 void getThreshold (IplImage ∗ *pSrcImg,* int ∗ *TA,* int ∗ *TB*)

Create a window to display image and modify threshold.

Parameters

pSrcImg	Image ptr
TA	Threshold A
TB	Threshold B

4.2.2.11 void InsertSort (unsigned char *a[ ],* int *count*)

Sort algorithm.

Parameters

a	Char array
count	Lenth of char array

4.2.2.12 void max_Trackbar (int *Threshold*)

Set threshold, also as a callback func.

Parameters

Threshold	Threshold needed

4.2.2.13 void min_Trackbar (int *Threshold*)

Set threshold, also as a callback func.

Parameters

Threshold	Threshold needed

4.2.2.14 IplImage∗ picStcer (IplImage ∗ *SrcImgQueen[ ],* int *lenth,* int *mode*)

Stitching pics simply.

Parameters

SrcImgQueen	Image ptrs array
lenth	Sum width/heigh
mode	Vertical/Horizontal, 1 for vertical, 0 for horizontal

Returns

Stitched image

4.2.2.15 IplImage∗ picStcer_sub (IplImage ∗ *ImgA,* IplImage ∗ *ImgB,* int *mode*)

Stitching pics simply.

Parameters

ImgA	Image ptr A
ImgB	Image ptr B
mode	Vertical/Horizontal, 1 for vertical, 0 for horizontal

Returns

Stitched image

4.2.2.16 IplImage∗ prePrs (IplImage ∗ *SrcImg,* int *W_n,* int *H_n,* int *Mode* = `1`)

Prepress a pic, get a min binary region. 1 for turn pixel into ∼.

Parameters

SrcImg	Image ptr
W_n	Expectant width
H_n	Expectant heigh
Mode	White/Black background

Returns

Processed image

4.2.2.17 IplImage∗ resizeImg (char ∗ *FilePath_n,* CvSize *Size_n*)

Resize pic into setted size.

Parameters

FilePath_n	Pic path
Size_n	Expectant height∗width

Returns

Resized pic

4.2.2.18 void setDilate (int *pDilate*)

Set dilate times.

Parameters

pDilate	Dilate times

4.2.2.19 void setErode (int *pErode*)

Set erode times.

Parameters

pErode	Erode times

4.2.2.20 void setKnlSize (int *pKnlSize*)

Set kernel size.

Parameters

pKnlSize	Kernel size(width=heigh)

4.2.2.21 void setTa (int *Threshold*)

Set threshold.

Parameters

Threshold	Threshold

4.2.2.22 void setTb (int *Threshold*)

Set threshold.

Parameters

Threshold	Threshold

4.2.2.23 void showImg (int *TA,* int *TB*)

Display image in window with para threshold setted.

Parameters

TA	Threshold A
TB	Threshold B

4.2.2.24 void showImg (int *TA,* int *TB,* int *pKnlSize,* int *pErode,* int *pDilate*)

Create a window to display image and modify paras.

Parameters

TA	Threshold A
TB	Threshold B
pKnlSize	Kernel size
pErode	Erode times
pDilate	Dilate times

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