catarob Documentation

Release

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novembre 09, 2013

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GETTING START WITH CATAROB

1.1 What?

Catarob is a GUI granulometric analysis from images based on segmentation.

1.2 Why?

Following a need to perform the knowledge of the Rhone (river) bed. A catamaran-teleoparated has been acquired. It consists of reflex camera.

1.3 Summary

Catarob is a python package coming up with grain size from image at large. It split in 3 sub-packages : #. *core* : the core functions of the package #. *gui* : the graphical user interface which which use core functions #. *lib* : several functions useful for the core sub-package

1.4 Build instructions (Linux)

Compilation is ensured by Python distutils tools.

You will need the following tools :

- Python version 2.7 or later with the distutils package.
- Python library matplotlib, numpy, scipy, pymorph, mamba image

Todo

Add setup.py and configure it

1.5 Authors, Copyright & License

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CHAPTER

TWO

CATAROB PACKAGE

2.1 Subpackages

2.1.1 catarob.core package

Submodules

catarob.core.base module

Created on 22 aoÃ»t 2013

@author: thomas

class catarob.core.base.**AutoSlots**
Bases: type

Define slot in each class (earn memory)

catarob.core.base.**auto_adapt_to_methods**(*decorator*)

catarob.core.base.**opened**(**args*, ***kwds*)

catarob.core.base.**opened_w_error**(**args*, ***kwds*)

catarob.core.base.**singleton**(*cls*)

catarob.core.base.**stdout_redirected**(**args*, ***kwds*)

catarob.core.base.**typedef_control**(**args*, ***kwargs*)
Check paramters' type of each input of function

catarob.core.base.**working_directory**(**args*, ***kwds*)

catarob.core.correction module

Created on 31 aoÃ»t 2013

@author: thomas

class catarob.core.correction.**Correction**
Bases: object

catarob.core.filtering module

class catarob.core.filtering.**Filtering**(*spatial_radius=None*, *range_radius=None*)
Bases: object

Segmenter class using the mean shift GPU OpenCV to segment image Example:

```
import cv2
from gpumeanshift import filter
I = cv2.imread("path/to/image", cv2.CV_IMREAD_COLOR)
A = filter(I, 12, 12, 1)
```

range_radius None
Range radius of the search window

spatial_radius None
Spatial radius of the search window

catarob.core.fitting module

Created on 31 aoÃ»t 2013

@author: thomas

class catarob.core.fitting.**Fitting**
Bases: object

catarob.core.preprocessing module

Created on 17 août 2013

class catarob.core.preprocessing.**Preprocessing**
Bases: object

static cv_resize(*image*, *size_choice=None*)
Resize an iplimage

Parameters **size_choice** (*iplimage CV_8UC3*) – “694x462” or “1392x924” or None

Returns image resizei

Return type same as size_choice

static extraction_laser(*image*, *disp=False*)
Extraction des laser en image de label

static find_height(**args_*, ***kwargs_*)

static read_metadata(*path*)
Pick model, focal and zoom data from Exif data of picture.

Parameters **path** (*str*) – full picture path

Returns model, focal, zoom

Return type tuple

catarob.core.segmentation module

Created on 31 aoÃ»t 2013

@author: thomas

class catarob.core.segmentation.**Segmentation**
Bases: object

Module contents

core (catarob.core)

Sub-package for objects used in core.

As listed below, this sub-package contains image processing functions and classes.

Core Classes

2.1.2 catarob.gui package

Submodules

catarob.gui.Ui_mainwindow module

class catarob.gui.Ui_mainwindow.**Ui_MainWindow**
Bases: object

retranslateUi(*MainWindow*)

setupUi(*MainWindow*)

catarob.gui.icones_rc module

catarob.gui.icones_rc.**qCleanupResources**()

catarob.gui.icones_rc.**qInitResources**()

catarob.gui.main module

Module implementing MainWindow.

class catarob.gui.main.**MainWindow**(*parent=None*)
Bases: PyQt4.QtGui.QMainWindow, catarob.gui.Ui_mainwindow.Ui_MainWindow

Class documentation goes here.

catarob.gui.mainwindow module

Module implementing MainWindow.

class catarob.gui.mainwindow.**MainWindow**(*parent=None*)
Bases: PyQt4.QtGui.QMainWindow, catarob.gui.Ui_mainwindow.Ui_MainWindow, catarob.core.preprocessing.Preprocessing

Class documentation goes here.

alloc_attr()

on_FilterButton_clicked()

on_OpenButton_clicked()
Slot documentation goes here.

on_RegisterButton_clicked()

on_actionHelp_2_triggered()
Slot documentation goes here.

on_actionQuit_triggered()
Slot documentation goes here.

on_actionRun_all_2_triggered()
Slot documentation goes here.

on_actionRun_all_triggered()
Slot documentation goes here.

on_actionSave_current_image_2_triggered()

on_actionSave_current_image_triggered()
Slot documentation goes here.

on_actionStop_triggered()
Slot documentation goes here.

on_actionView_statistics_triggered()
Slot documentation goes here.

show_curr_image()

show_curr_metadata()

update()
Call class and 4update image, and window

catarob.gui.menumanager module

class catarob.gui.menumanager.**MenuManager**(*parent=None*)
Bases: PyQt4.QtGui.QMainWindow

load_file(*path=None*)

class catarob.gui.menumanager.**OpenCVQImage**(*opencvBgrImg*)
Bases: PyQt4.QtGui.QImage

catarob.gui.progressbar module

class catarob.gui.progressbar.**MyAppli**(*parent=None*)
Bases: PyQt4.QtGui.QWidget

incProgress()
Increment the progress dialog

on_btnStart_clicked()
Start the treatment in the thread

class catarob.gui.progressbar.**MyThread**(*parent*)
Bases: PyQt4.QtCore.QThread

cancel()
SLOT to cancel treatment

run()

catarob.gui.progressbar.**bin**(*QTextStream*) → QTextStream

catarob.gui.progressbar.**hex**(*QTextStream*) → QTextStream

catarob.gui.progressbar.**oct**(*QTextStream*) → QTextStream

catarob.gui.termstream module

class catarob.gui.termstream.**TermStream**
Bases: PyQt4.QtCore.QObject

fileno()

flush()

messageWritten None

static **stderr**()

static **stdout**()

write(*msg*)

Module contents

“

core (catarob.gui)

Sub-package for objects used in gui.

As listed below, this sub-package contains Qt GUI derivated classe.

Core Classes

2.1.3 catarob.lib package

Submodules

catarob.lib.cvnumpy module

Created on 18 aoÃ»t 2013

@author: thomas

catarob.lib.cvnumpy.**array2cv**(*a*)

catarob.lib.cvnumpy.**cv2array**(*im*)

Module contents

2.2 Module contents

2.2.1 catarob

Provides

1. An array object of arbitrary homogeneous items
2. Fast image processing over arrays
3. Qt Gui interface

How to use the documentation

We recommend exploring the docstrings using IPython, an advanced Python shell with TAB-completion and introspection capabilities. See below for further instructions.

The docstring examples assume that *catarob* has been imported as *cb*:

```
>>> import catarob as cp
```

Use the built-in `help` function to view a function's docstring:

```
>>> help(cb)
...
```

Available subpackages

core Core functions used by gui

lib Basic functions used by several sub-packages.

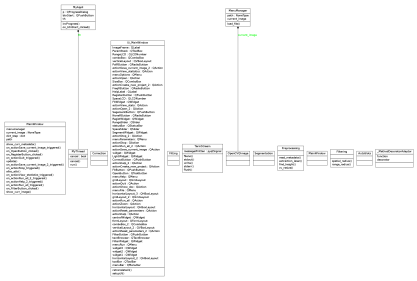
gui Graphical interface that use core functions

..uml:: {{/home/thomas/workspace/catarob/catarob/}}

CHAPTER

THREE

INDICES AND TABLES



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