
layer*viewerDocumentation*

Release 0.1.1

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LAYER_VIEWER

1.1 Features

Current features include:

- conda ready
- pytest unit test
- continous integration
- coverall code coverage
- documentation with sphinx
- documentation on readthedocs

INSTALLATION

todo

USAGE

To use `layer_viewer` in a project:

```
import layer_viewer
```


EXAMPLES

Note: Click [here](#) to download the full example code

4.1 Hello World

```
import pyqtgraph as pg
from pyqtgraph.Qt import QtCore, QtGui
import numpy as np
import pyqtgraph.console

from layer_viewer import dcolors
from layer_viewer import LayerViewerWidget
from layer_viewer.layers import *
import numpy
import skimage.data

app = pg.mkQApp()

image = skimage.data.astronaut().swapaxes(0,1)

viewer = LayerViewerWidget()
viewer.setWindowTitle('LayerViewer')
viewer.show()

layer = MultiChannelImageLayer(name='img', data=image[...])
viewer.addLayer(layer=layer)

labels = numpy.zeros(image.shape[0:2], dtype='uint8')
label_layer = LabelLayer(name='labels', data=None)
viewer.addLayer(layer=label_layer)
viewer.setData('labels', image=labels)

# connect stuff
def foo(layer):
```

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```
print(labels)
label_layer.labelsChangedSignal.connect(foo)

## Start Qt event loop unless running in interactive mode or using pyside.
if __name__ == '__main__':
    import sys
    if (sys.flags.interactive != 1) or not hasattr(QtCore, 'PYQT_VERSION'):
        QtGui.QApplication.instance().exec_()
```

Total running time of the script: (0 minutes 0.000 seconds)

5.1 layer_viewer

5.1.1 layer_viewer package

Subpackages

layer_viewer.cli package

Submodules

layer_viewer.cli.main module

Module contents

layer_viewer.layers package

Submodules

layer_viewer.layers.binary_object_layer module

```
class layer_viewer.layers.binary_object_layer.BinaryObjectLayer (name,  
                                                                data=None,  
                                                                color=None)  
  
    Bases: layer_viewer.layers.layer_base.LayerBase  
    ctrl_widget ()  
    get_image_item ()  
    setData (image)  
    setOpacity (opacity)  
    setVisible (visible)  
    setZValue (z)  
    updateData (image)
```

layer_viewer.layers.gray_image_layer module

```
class layer_viewer.layers.gray_image_layer.GrayImageLayer (name, data=None,
autoLevels=True,
levels=None, autoHistogramRange=False,
cmap=None)

Bases: layer_viewer.layers.layer_base.LayerBase

ctrl_widget ()
get_image_item ()
setData (image)
updateData (image)
```

layer_viewer.layers.label_layer module

```
class layer_viewer.layers.label_layer.LabelLayer (name, data=None, lut=None)
Bases: layer_viewer.layers.layer_base.LayerBase

class CtrlWidget (name=None, parent=None, current_label=1, disc_rad=1)
Bases: PyQt5.QtWidgets.QWidget

getCurrentLabel ()
mousePressEvent (self, QMouseEvent)
setFraction (opacity)
setName (name)
setNumClasses (setNumClasses)

class LabelLayerImageItem (label_layer)
Bases: PyQtGraph.graphicsItems.ImageItem.ImageItem

keyPressEvent (self, QKeyEvent)
mouseClickEvent (ev)
mouseDragEvent (ev)

class MyQGraphicsItemGroup (image_item, temp_path)
Bases: PyQt5.QtWidgets.QGraphicsItemGroup

keyPressEvent (self, QKeyEvent)
keyPressed

ctrl_widget ()
get_image_item ()
labelsChangedSignal
setCurrentDiskRadius (rad)
setCurrentLabel (label)
setData (image)
setNumClasses (num_classes)
```

```
updateData (image)
```

layer_viewer.layers.layer_base module

```
class layer_viewer.layers.layer_base.LayerBase (name)
    Bases: PyQt5.QtCore.QObject

    setOpacity (opacity)
    setVisible (visible)
    setZValue (z)
    updateData (*args, **kwargs)
```

layer_viewer.layers.layer_controller module

```
class layer_viewer.layers.layer_controller.LayerItemWidget (name=None,
                                                             parent=None,
                                                             add_gradient_widget=False,
                                                             channel_selector=False,
                                                             add_as_rgb_button=False)

    Bases: PyQt5.QtWidgets.QWidget

    mousePressEvent (self, QMouseEvent)
    setFraction (opacity)
    setName (name)
```

layer_viewer.layers.multi_channel_image_layer module

```
class layer_viewer.layers.multi_channel_image_layer.MultiChannelImageLayer (name,
                                                                              data=None,
                                                                              autoLevels=True,
                                                                              levels=None,
                                                                              autoHistogram=False,
                                                                              cmap=None)

    Bases: layer_viewer.layers.layer_base.LayerBase

    class CtrlWidget (name)
        Bases: layer_viewer.layers.layer_controller.LayerItemWidget

        ctrl_widget ()
        get_image_item ()
        setData (image)
        updateData (image)
```

layer_viewer.layers.object_layer module

```
class layer_viewer.layers.object_layer.ObjectLayer (name, data=None,
                                                    lut=None, lut_size=10000,
                                                    with_background=True)
```

Bases: *layer_viewer.layers.layer_base.LayerBase*

```
ctrl_widget ()
get_image_item ()
setData (image)
updateData (image)
```

layer_viewer.layers.rgb_image_layer module

```
class layer_viewer.layers.rgb_image_layer.RGBImageLayer (name, data=None, au-
                                                         toLevels=True, lev-
                                                         els=None, autoHistogram-
                                                         Range=False)
```

Bases: *layer_viewer.layers.layer_base.LayerBase*

```
ctrl_widget ()
get_image_item ()
setData (image)
setOpacity (opacity)
setVisible (visible)
setZValue (z)
updateData (image)
```

Module contents

layer_viewer.widgets package

Subpackages

layer_viewer.widgets.icons package

Module contents

layer_viewer.widgets.ui package

Module contents

Submodules

layer_viewer.widgets.fraction_selection_bar module

```
class layer_viewer.widgets.fraction_selection_bar.FractionSelectionBar (initial_fraction=1.0,  
                                                                    parent=None)  
  
    Bases: PyQt5.QtWidgets.QWidget  
  
    fraction()  
  
    fractionChanged  
  
    minimumSizeHint (self) → QSize  
  
    mouseMoveEvent (self, QMouseEvent)  
  
    mousePressEvent (self, QMouseEvent)  
  
    mouseReleaseEvent (self, QMouseEvent)  
  
    paintEvent (self, QPaintEvent)  
  
    setFraction (value)  
  
    sizeHint (self) → QSize
```

layer_viewer.widgets.gradient_widget module

```
class layer_viewer.widgets.gradient_widget.GradientWidget (parent=None, orientation='bottom',  
                                                            *args,  
                                                            **kwargs)  
  
    Bases: pyqtgraph.widgets.GradientWidget.GradientWidget  
  
    loadPreset (name)  
  
    sizeHint (self) → QSize
```

layer_viewer.widgets.layer_view_settings module

layer_viewer.widgets.toggle_eye module

```
class layer_viewer.widgets.toggle_eye.ToggleEye (parent=None)  
    Bases: PyQt5.QtWidgets.QLabel  
  
    active()  
  
    activeChanged  
  
    mousePressEvent (self, QMouseEvent)  
  
    setActive (b)  
  
    toggle()  
  
class layer_viewer.widgets.toggle_eye.TrippleToggleEye (parent=None)  
    Bases: PyQt5.QtWidgets.QLabel  
  
    mouseDoubleClickEvent (self, QMouseEvent)  
  
    mousePressEvent (self, QMouseEvent)  
  
    mouseReleaseEvent (self, QMouseEvent)
```

```
setActive (binary_state)  
setState (state)  
state ()  
stateChanged
```

Module contents

Submodules

layer_viewer.distinct_colors module

```
layer_viewer.distinct_colors.get_label_lut (lut_size=255)
```

layer_viewer.layer_ctrl_widget module

```
class layer_viewer.layer_ctrl_widget.DrangAndDropListWidget (parent=None)  
    Bases: PyQt5.QtWidgets.QListWidget  
  
    dragEnterEvent (self, QDragEnterEvent)  
  
    dropEvent (self, QDropEvent)  
  
    on_rowsInserted (parent_index, start, end)  
  
class layer_viewer.layer_ctrl_widget.LayerCtrlWidget (parent=None)  
    Bases: PyQt5.QtWidgets.QWidget  
  
    add_layer (layer)  
  
    dragEnterEvent (self, QDragEnterEvent)  
  
    remove_layer (layer)
```

layer_viewer.layer_view_widget module

```
class layer_viewer.layer_view_widget.LayerViewWidget (settings_widget, parent=None)  
    Bases: PyQt5.QtWidgets.QWidget  
  
    setBackground ()  
  
    showSettings ()  
  
class layer_viewer.layer_view_widget.MyViewBox  
    Bases: pyqtgraph.graphicsItems.ViewBox.ViewBox.ViewBox  
  
    keyPressEvent (ev)  
        This routine should capture key presses in the current view box. Key presses are used only when mouse  
        mode is RectMode The following events are implemented: ctrl-A : zooms out to the default “full” view of  
        the plot ctrl-+ : moves forward in the zooming stack (if it exists) ctrl- : moves backward in the zooming  
        stack (if it exists)  
  
layer_viewer.layer_view_widget.getQtPattern (name)
```

layer_viewer.layer_viewer module

Main module.

layer_viewer.layer_viewer_widget module

```
class layer_viewer.layer_viewer_widget.LayerViewerObject (parent=None)
    Bases: object

    addLayer (layer, opacity=1.0, visible=True)

    hasLayer (layer_name)

    layerOpacity (layer_name)

    layerVisibility (layer_name)

    property layer_ctrl_widget

    property layer_view_widget

    removeAllLayers ()

    removeLayer (layer_name)

    setData (layer_name, **kwargs)

    setLayerOpacity (layer_name, opacity)

    setLayerVisibility (layer_name, visible)

    property settings_widget

    showAndHideOthers (layer_name)

    updateData (layer_name, **kwargs)

    property view_box

class layer_viewer.layer_viewer_widget.LayerViewerWidget (gui_style='splitter', parent=None)
    Bases: PyQt5.QtWidgets.QWidget, layer_viewer.layer_viewer_widget.LayerViewerObject
```

layer_viewer.pixel_path module

```
class layer_viewer.pixel_path.PixelPath
    Bases: object

    add (pos)

    clear ()

    insert_to_image (label_image, label, rad)

layer_viewer.pixel_path.bresenham_line (pstart, pstop)
```

layer_viewer.settings_widget module

```
class layer_viewer.settings_widget.SettingsWidget (*args, **kwargs)
    Bases: pyqtgraph.parametertree.ParameterTree.ParameterTree
```

layer_viewer.version module

Module contents

CONTRIBUTING

Contributions are welcome, and they are greatly appreciated! Every little bit helps, and credit will always be given. You can contribute in many ways:

6.1 Types of Contributions

6.1.1 Report Bugs

Report bugs at https://github.com/DerThorsten/layer_viewer/issues.

If you are reporting a bug, please include:

- Your operating system name and version.
- Any details about your local setup that might be helpful in troubleshooting.
- Detailed steps to reproduce the bug.

6.1.2 Fix Bugs

Look through the GitHub issues for bugs. Anything tagged with “bug” and “help wanted” is open to whoever wants to implement it.

6.1.3 Implement Features

Look through the GitHub issues for features. Anything tagged with “enhancement” and “help wanted” is open to whoever wants to implement it.

6.1.4 Write Documentation

`layer_viewer` could always use more documentation, whether as part of the official `layer_viewer` docs, in docstrings, or even on the web in blog posts, articles, and such.

6.1.5 Submit Feedback

The best way to send feedback is to file an issue at https://github.com/DerThorsten/layer_viewer/issues.

If you are proposing a feature:

- Explain in detail how it would work.
- Keep the scope as narrow as possible, to make it easier to implement.
- Remember that this is a volunteer-driven project, and that contributions are welcome :)

6.2 Pull Request Guidelines

Before you submit a pull request, check that it meets these guidelines:

1. The pull request should include tests.
2. If the pull request adds functionality, the docs should be updated. Put your new functionality into a function / classes with a proper documentation, and add the feature to the list in README.rst.

CREDITS

7.1 Development Lead

- Thorsten Beier <derthorstenbeier@gmail.com>

7.2 Contributors

None yet. Why not be the first?

HISTORY

8.1 0.1.0 (2019-08-02)

- First release on PyPI.

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