My Project

Generated by Doxygen 1.9.1

Chapter 1

ProiectSD

SAlut acesta este un test

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

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

Chapter 4

Class Documentation

4.1 ImToQuadTree< dataType > Class Template Reference

```
#include <ImToQuadTree.h>
```

Public Member Functions

- void showDifVect (std::vector< std::pair< cv::Point, cv::Point >>)
- ImToQuadTree (std::string filepath)
- std::vector< std::pair< cv::Point, cv::Point > > getDiff (ImToQuadTree< dataType > *, unsigned long long threshold)
- void sanityCheck ()

4.1.1 Detailed Description

template<typename dataType>
class ImToQuadTree< dataType >

DO NOT use "using namespace cv" please it'd be ideal if we kept use of OPENCV obvious

Class that handles generating quadTrees from images , as of right now only passed as filepaths

Template Parameters

dataType	Can only be cv::Vec3b if any other types are needed they must be declared somewhere that has access to ImToQuadTree before compilation

4.1.2 Constructor & Destructor Documentation

4.1.2.1 ImToQuadTree()

```
template<typename dataType >
ImToQuadTree< dataType >::ImToQuadTree (
            std::string filepath )
```

Only constructor used within the actual program This calls generate with 0,0 and {$p,$p} arguments where $p is ceil(log2(std::max(width,height))) of the image

Template Parameters

dataType	

Parameters

filepath	valid filepath in std::string format

4.1.3 Member Function Documentation

4.1.3.1 getDiff()

```
template<typename dataType >
std::vector< std::pair< cv::Point, cv::Point > > ImToQuadTree< dataType >::getDiff (
            ImToQuadTree< dataType > * T1,
            unsigned long long threshold )
```

The other do everything function in our program

Parameters

T1	pointer to Tree this is supposed to be compared to
threshold	value against which we check colour difference , can therefore be used , as the name would suggest, for more "fuzzy" comparison. Quite useful for JPG images.

Returns

> Vector of "squares" which represent differences in the two trees Based on level order traversal, only deviates from this approach when one of the nodes has children

Warning

> possible bug here if f1-type is root, i'm assuming no image would be a block of identical pixels however

4.1.3.2 sanityCheck()

```
template<typename dataType >
void ImToQuadTree< dataType >::sanityCheck
```

Very usefull function to make sure you are in fat not going insane Does nothing beyond print something that won't even show up in stderr unless you've enabled it in some arcane config file

4.1.3.3 showDifVect()

```
template<typename dataType >
void ImToQuadTree< dataType >::showDifVect (
             std::vector< std::pair< cv::Point, cv::Point >> vect )
```

Simple function ment to open a CV window containing line rectangles overlaid over one of the source images.

Template Parameters

dataType	

Parameters

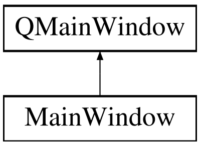
vect	vector of "squares" Honestly I could've used a single point here instead of a pair.

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

- Logic/ImToQuadTree.h
- Logic/ImToQuadTree.cpp

4.2 MainWindow Class Reference

Inheritance diagram for MainWindow:



Public Member Functions

- MainWindow (QWidget ∗parent=nullptr)
- void **setImage** (QString newimg)

4.2.1 Constructor & Destructor Documentation

4.2.1.1 MainWindow()

```
MainWindow::MainWindow (
            QWidget * parent = nullptr )
```

Another prime example of the "Hey man if it works approach" to software engineering This constructor does so much because i would've had to reimplement way to many functions if i had promoted ui objects to their own types Mostly initializes Ui related attributes

Parameters

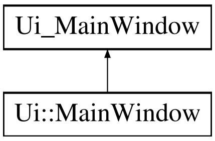
parent	

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

- UI/mainwindow.h
- UI/mainwindow.cpp

4.3 Ui::MainWindow Class Reference

Inheritance diagram for Ui::MainWindow:



Additional Inherited Members

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

- cmake-build-debug/ImComp_autogen/include/ui_mainwindow.h

4.4 qt_meta_stringdata_MainWindow_t Struct Reference

Public Attributes

- QByteArrayData **data** [11]
- char **stringdata0** [211]

The documentation for this struct was generated from the following file:

- cmake-build-debug/ImComp_autogen/KRKR4BN5RM/moc_mainwindow.cpp

4.5 TreeNode< dataType > Class Template Reference

```
#include <TreeNode.h>
```

Public Member Functions

- unsigned long long **colorDistance** (TreeNode< dataType > ∗rhs)
- TreeNode (nodeType=leaf, TreeNode ∗=nullptr)
- TreeNode (dataType, cv::Point={0, 0}, cv::Point={0, 0}, nodeType type=leaf, TreeNode ∗parent=nullptr)
- **TreeNode** (dataType, nodeDirection direction=C)
- ∼TreeNode ()
- TreeNode ∗ **GSN** (nodeRight)
- bool **CorectDirection** (nodeRight)
- nodeDirection **OpositeDirection** ()
- TreeNode ∗ **CompareNode** (TreeNode ∗)
- void delChildren ()
- void propagateProp ()
- TreeNode ∗ **DirectionChild** (nodeDirection)

Public Attributes

- nodeType **type**
- std::array< TreeNode ∗, 4 > **children**
- nodeDirection **direction**
- TreeNode ∗ **parent**
- dataType **content**
- cv::Point **nw**
- cv::Point **se**
- unsigned long long **cDif**

4.5.1 Detailed Description

template<typename dataType>
class TreeNode< dataType >

Class used for representing nodes inside our quadtree structure

Template Parameters

dataType	Can only be cv::Vec3b despide being a deplated function as it is split into a header and implementation.

4.5.2 Constructor & Destructor Documentation

4.5.2.1 TreeNode() [1/2]

```
template<typename dataType >
TreeNode< dataType >::TreeNode (
            nodeType type = leaf,
            TreeNode< dataType > * parent = nullptr )
```

Intentionally declared as implicit constructor

This is also the implicit constructor, watch out this creates leafs by default

Template Parameters

dataType	can only be cv::Vec3b as of right now

Parameters

type	set to leaf By default
parent	parent of node to be inserted

4.5.2.2 TreeNode() [2/2]

```
template<typename dataType >
TreeNode< dataType >::TreeNode (
            dataType content,
            cv::Point upperLeft = {0, 0},
            cv::Point lowerRight = {0, 0},
            nodeType type = leaf,
            TreeNode< dataType > * parent = nullptr )  [explicit]
```

Also assigns a value to nw, se and content

Template Parameters

dataType	can only be cv::Vec3b as of right now

Parameters

content	
upperLeft	Point representing upper left corner of the area this node represents
lowerRight	Point representing upper left corner of the area this node represents
type	Either leaf, branch or root
parent	Pointer to previous node in Tree, should be null when type = root

4.5.2.3 ∼TreeNode()

```
template<typename dataType >
TreeNode< dataType >::∼TreeNode
```

Simple deconstructor should hopefully work

Template Parameters

dataType	

Parameters

content	
type	

4.5.3 Member Function Documentation

4.5.3.1 delChildren()

```
template<typename dataType >
void TreeNode< dataType >::delChildren
```

Simple function used to safely remove child nodes also used in Generation

Template Parameters

dataType	

4.5.3.2 propagateProp()

```
template<typename dataType >
void TreeNode< dataType >::propagateProp
```

Function that sets this nodes content equal to the average of it's children and avarage colour difference (cdif) to the total of it's children + the difference between the colours of it's children and itself The purpose of cDif is to enable a more "fuzzy match" match as that may be required when dealing with JPEG images

Template Parameters

dataType	

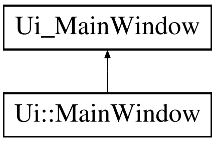
Propagate average

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

- Logic/TreeNode.h
- Logic/TreeNode.cpp

4.6 Ui_MainWindow Class Reference

Inheritance diagram for Ui_MainWindow:



Public Member Functions

- void **setupUi** (QMainWindow ∗MainWindow)
- void **retranslateUi** (QMainWindow ∗MainWindow)

Public Attributes

- QWidget ∗ **centralwidget**
- QGridLayout ∗ **gridLayout_3**
- QTabWidget ∗ **tabWidget**
- QWidget ∗ **LoadSave**
- QHBoxLayout ∗ **horizontalLayout_2**
- QScrollArea ∗ **imagePane**
- QWidget ∗ **scrollAreaWidgetContents**
- QGroupBox ∗ **verticalGroupBox**
- QGridLayout ∗ **gridLayout**
- QPushButton ∗ **LoadSingleImage**
- QListView ∗ **listView**
- QPushButton ∗ **removeSelected**
- QPushButton ∗ **createComparison**
- QWidget ∗ **Compare**
- QHBoxLayout ∗ **horizontalLayout**
- QScrollArea ∗ **comparePane**
- QWidget ∗ **scrollAreaWidgetContents_3**
- QGroupBox ∗ **verticalGroupBox_3**
- QGridLayout ∗ **gridLayout_4**
- QPushButton ∗ **compareSelection**
- QListView ∗ **compareView**
- QPushButton ∗ **saveResult**
- QMenuBar ∗ **menubar**
- QStatusBar ∗ **statusbar**

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

- cmake-build-debug/ImComp_autogen/include/ui_mainwindow.h

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