



# ENTWURFSHEFT

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# Chapter 1

## Einleitung

Vive (lang: Video veritatem) ist ein Programm zum Testen verschiedener Videoencoder. Dieses Dokument ist das Entwurfsheft, in welchem sich Diagramme und Spezifikationen zu jeder einzelnen Klasse befinden. Außerdem dient es als Richtlinie für die Implementierungsphase. Das Entwurfsheft ist in mehrere Abschnitte gegliedert: Im ersten Abschnitt sind Diagramme zu sehen, die einen groben Überblick über die Struktur des Programms liefern. Darauf folgt die detaillierte Beschreibung jeder einzelnen Klasse und Methode. Eine Übersicht über die Implementierungsphase in Form eines Gantt-Diagramms ist im Anhang enthalten.



## Chapter 2

# Data Structure Documentation

### 2.1 AddFilter Class Reference

#### Public Member Functions

- [AddFilter](#) ()
- void [undo](#) ()
- void [redo](#) ()

#### 2.1.1 Constructor & Destructor Documentation

##### 2.1.1.1 AddFilter ( )

Constructor

#### 2.1.2 Member Function Documentation

##### 2.1.2.1 void redo ( )

Adds a filter to the filterlist

##### 2.1.2.2 void undo ( )

Removes added filter from the filterlist

### 2.2 AddVideo Class Reference

#### Public Member Functions

- [AddVideo](#) ()
- void [undo](#) ()
- void [redo](#) ()

#### 2.2.1 Constructor & Destructor Documentation

### 2.2.1.1 AddVideo ( )

Constuctor

## 2.2.2 Member Function Documentation

### 2.2.2.1 void redo ( )

adds a video to the Analysis tab

### 2.2.2.2 void undo ( )

removes the added video from the analysis tab

## 2.3 AnalysisBox Class Reference

### Public Member Functions

- **AnalysisBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- [Memento::AnalysisBoxMemento](#) **getMemento** ()
- void **restore** ([Memento::AnalysisBoxMemento](#) memento)
- void **setTimer** (shared\_ptr< [GUI::Player::Timer](#) > timer:std:)
- void **setRawVideo** ([GUI::Player::Video](#) \*video)
- void **setControlPanel** ([Player::GlobalControlPanel](#) \*panel)
- void **showMacroBlockVideo** ()
- void **showRGBDifferenceVideo** ()
- void **setAnalyseVideo** (QString path)

### 2.3.1 Detailed Description

Shows the Analysis of a single video

## 2.3.2 Member Function Documentation

### 2.3.2.1 void restore ( [Memento::AnalysisBoxMemento](#) *memento* )

Shows the Analysis of a single video

## 2.4 AnalysisBoxContainer Class Reference

### Public Member Functions

- **AnalysisBoxContainer** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- [Memento::AnalysisBoxContainerMemento](#) **getMemento** ()
- void **restore** ([Memento::AnalysisBoxContainerMemento](#) memento)
- void **addVideo** (QString path)
- void **setRawVideo** ([GUI::Player::Video](#) \*video)
- void **setTimer** (shared\_ptr< [GUI::Player::Timer](#) > timer:std:)
- void **setControlPanel** ([Player::GlobalControlPanel](#) \*panel)
- void **showMacroBlockVideos** ()

- void [showRGBDifferenceVideos](#) ()
- void [removeBox](#) ([GUI::AnalysisBox](#) &box)

### 2.4.1 Detailed Description

contains and manages the AnalysisBoxes

### 2.4.2 Member Function Documentation

#### 2.4.2.1 void addVideo ( QString *path* )

creates a Analysis box for the video and adds it to boxes

#### 2.4.2.2 void removeBox ( GUI::AnalysisBox & *box* )

removes box from the list

#### 2.4.2.3 void setControlPanel ( Player::GlobalControlPanel \* *panel* )

set panel of the raw video and tells analysisBox to do the same with their video

#### 2.4.2.4 void setRawVideo ( GUI::Player::Video \* *video* )

sets the rawVideo to video

#### 2.4.2.5 void setTimer ( shared\_ptr< GUI::Player::Timer > timer:std: )

set timer of the raw video and tells analysisBox to do the same with their video

#### 2.4.2.6 void showMacroBlockVideos ( )

tells all AnalysisBoxes to show the macro block video

#### 2.4.2.7 void showRGBDifferenceVideos ( )

tells all AnalysisBoxes to show the RGBDiff video

## 2.5 AnalysisBoxContainer2 Class Reference

### Public Member Functions

- void **analysisBoxContainer** ([Memento::AnalysisBoxContainerMemento](#) anaBoxConMemento)
- void **changeAnalyseTyp** (int typ)
- QList< AnalysisBox2 > [getBoxesList](#) ()
- analysisBoxContainerMemento **getMemento** ()
- QPushButton **getAddVidButton** ()



## 2.5.1 Member Function Documentation

### 2.5.1.1 `QList< AnalysisBox2 > getBoxesList ( )`

returns all Analysis boxes known to this container

## 2.6 AnalysisBoxContainerMemento Class Reference

### Public Member Functions

- void [analyseBoxMemento](#) ( )
- vector< [Memento::AnalysisBoxMemento](#) > [getAnalysisBoxList](#) ( )
- void [setAnalysisBoxList](#) (vector< [Memento::AnalysisBoxMemento](#) > analyseBoxList:std:)

### 2.6.1 Detailed Description

This class is the memento for the AnalysisBoxContainer.

### 2.6.2 Member Function Documentation

#### 2.6.2.1 `void analyseBoxMemento ( )`

Constructor.

#### 2.6.2.2 `vector< Memento::AnalysisBoxMemento > getAnalysisBoxList ( )`

Returns a list of AnalysisBox mementos.

Returns

a lists of [AnalysisBoxMemento](#)

#### 2.6.2.3 `void setAnalysisBoxList ( vector< Memento::AnalysisBoxMemento > analyseBoxList:std: )`

Sets the list of [AnalysisBoxMemento](#)

Parameters

<i>analyseBoxList:std,:</i>	the list of the mementos
-----------------------------	--------------------------

## 2.7 AnalysisBoxMemento Class Reference

### Public Member Functions

- [AnalysisBoxMemento](#) ( )
- QString [getVideoPath](#) ( )
- void [setVideoPath](#) (QString videoPath)
- QString [getComment](#) ( )
- void [setComment](#) (QString comment)

- [GUI::Player::Video \\* getMacroVideo \( \)](#)
- void [setMacroVideo \(GUI::Player::Video \\*macroVideo\)](#)
- [GUI::Player::Video \\* getRgbDiffVideo \( \)](#)
- void [setRgbDiffVideo \(GUI::Player::Video \\*rgbDiffVideo\)](#)
- QImage [getPsnr \( \)](#)
- void [setPsnr \(QImage psnr\)](#)
- QImage [getBitrate \( \)](#)
- void [setBitrate \(QImage bitrate\)](#)

### 2.7.1 Detailed Description

This class is the memento for the AnalysisBox.

### 2.7.2 Constructor & Destructor Documentation

#### 2.7.2.1 AnalysisBoxMemento ( )

Constrictor.

### 2.7.3 Member Function Documentation

#### 2.7.3.1 QImage getBitrate ( )

Returns an image of the bitrate graph.

Returns

an image of the bitrate graph

#### 2.7.3.2 QString getComment ( )

Returns the user comment.

Returns

the user comment

#### 2.7.3.3 GUI::Player::Video \* getMacroVideo ( )

Returns the macroblock video.

Returns

the macroblock video

#### 2.7.3.4 QImage getPsnr ( )

Returns an image of the psnr graph.

Returns

an image of the psnr graph

**2.7.3.5 GUI::Player::Video \* getRgbDiffVideo ( )**

Returns the rgb difference video.

**Returns**

the rgb difference video

**2.7.3.6 QString getVideoPath ( )**

Returns the path to the video.

**Returns**

absolute path to the video

**2.7.3.7 void setBitrate ( QImage *bitrate* )**

Sets the image for the bitrate graph.

**Parameters**

<i>bitrate</i>	the image of the bitrate graph
----------------	--------------------------------

**2.7.3.8 void setComment ( QString *comment* )**

Sets the user comment.

**Parameters**

<i>comment</i>	the user comment
----------------	------------------

**2.7.3.9 void setMacroVideo ( GUI::Player::Video \* *macroVideo* )**

Sets the macroblock video.

**Parameters**

<i>macroVideo</i>	the macroblock video
-------------------	----------------------

**2.7.3.10 void setPsnr ( QImage *psnr* )**

Sets the image of the psnr graph.

**Parameters**

<i>psnr</i>	the image of the psnr graph
-------------	-----------------------------

**2.7.3.11 void setRgbDiffVideo ( GUI::Player::Video \* *rgbDiffVideo* )**

Sets the rgb difference video.

## Parameters

<i>rgbDiffVideo</i>	the rgb difference video
---------------------	--------------------------

2.7.3.12 void setVideoPath ( QString *videoPath* )

Sets the path to the video.

## Parameters

<i>videoPath</i>	absolute path to the video
------------------	----------------------------

## 2.8 AnalysisTab Class Reference

### Public Member Functions

- **AnalysisTab** (GUI::QtGui::QWidget\_\_10 \*parent)
- Memento::AnalysisTabMemento **getMemento** ()
- void **restore** (Memento::AnalysisTabMemento memento)

### Data Fields

- GUI::Player::FrameView \* **rawVideoView**

#### 2.8.1 Detailed Description

the tab that shows videos and analyses them

## 2.9 AnalysisTabMemento Class Reference

### Public Member Functions

- **AnalysisTabMemento** ()
- int **getCurrentVideoPosition** ()
- void **setCurrentVideoPosition** (int currentVideoPosition)
- int **getCurrentlyShownAnalysisVideo** ()
- void **setCurrentlyShownAnalysisVideo** (int currentlyShownAnalysisVideo)
- float **getCurrentSpeed** ()
- void **setCurrentSpeed** (float currentSpeed)
- Memento::AnalysisBoxContainerMemento **getAnalysisBoxContainerMemento** ()
- void **setAnalysisBoxContainerMemento** (Memento::AnalysisBoxContainerMemento analysisBoxContainerMemento)

#### 2.9.1 Detailed Description

This class is the memento for the analysis tab.

## 2.9.2 Constructor & Destructor Documentation

### 2.9.2.1 AnalysisTabMemento ( )

Constructor.

## 2.9.3 Member Function Documentation

### 2.9.3.1 Memento::AnalysisBoxContainerMemento getAnalysisBoxContainerMemento ( )

Returns the memento of the AnalysisBoxContainer.

Returns

the memento of the AnalysisBoxContainer

### 2.9.3.2 int getCurrentlyShownAnalysisVideo ( )

Returns what analysis video is currently shown. 0 means rgb difference. non zero means macroblocks.

Returns

the currently shown analysis video

### 2.9.3.3 float getCurrentSpeed ( )

Returns the current speed of the player.

Returns

the current speed of the player

### 2.9.3.4 int getCurrentVideoPosition ( )

Returns the current position the player is at.

Returns

the current position of the player

### 2.9.3.5 void setAnalysisBoxContainerMemento ( Memento::AnalysisBoxContainerMemento *analysisBoxContainerMemento* )

Sets the memento of the AnalysisBoxContainer.

Parameters

<i>analysisBoxContainerMemento</i>	the memento of the AnalysisBoxContainer
------------------------------------	---

### 2.9.3.6 void setCurrentlyShownAnalysisVideo ( int *currentlyShownAnalysisVideo* )

Sets the currently shown analysis video. 0 means rgb difference. non 0 means macroblocks.

## Parameters

<i>currently↔ Shown↔ AnalysisVideo</i>	the currently shown analysis video
--	------------------------------------

2.9.3.7 void setCurrentSpeed ( float *currentSpeed* )

Sets the current speed of the player.

## Parameters

<i>currentSpeed</i>	the current speed of the player
---------------------	---------------------------------

2.9.3.8 void setCurrentVideoPosition ( int *currentVideoPosition* )

Sets the current position of the player.

## Parameters

<i>currentVideo↔ Position</i>	the current position of the player
-----------------------------------	------------------------------------

## 2.10 ApplyFilter Class Reference

### Public Member Functions

- [ApplyFilter](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.10.1 Constructor & Destructor Documentation

#### 2.10.1.1 ApplyFilter ( )

Constructor

### 2.10.2 Member Function Documentation

#### 2.10.2.1 void redo ( )

applies filter to the video

#### 2.10.2.2 void undo ( )

resets to the state before filters were applied

## 2.11 AVVideo Class Reference

## Public Member Functions

- [AVVideo](#) (int fps, int width, int height)
- int [getWidth](#) ()
- int [getHeight](#) ()
- int [getFps](#) ()
- AVFrame \* [getFrame](#) (int index)
- void [insertFrame](#) (int index=-1, unique\_ptr< AVFrame > frame:std:)
- void [removeFrame](#) (int index)
- void [insertFrames](#) (int index=-1, vector< std::unique\_ptr< AVFrame > > &frames:std:)
- int [getNumberOfFrames](#) ()

## Data Fields

- [Model::EncodedVideo](#) \* **avVideo**

### 2.11.1 Constructor & Destructor Documentation

#### 2.11.1.1 AVVideo ( int fps, int width, int height )

Constructor.

Parameters

<i>fps</i>	the fps the video should be played at
<i>width</i>	the width of the video
<i>height</i>	the height of the video

### 2.11.2 Member Function Documentation

#### 2.11.2.1 int getFps ( )

Returns the fps of the video.

Returns

fps of the video

#### 2.11.2.2 AVFrame \* getFrame ( int index )

Returns the frame at the given index. If the index is invalid nullptr is returned.

Parameters

<i>index</i>	the index of the frame to return
--------------	----------------------------------

#### 2.11.2.3 int getHeight ( )

Returns the height of the video.

Returns

the height of the video

## 2.11.2.4 int getNumberOfFrames ( )

Returns the number of frames in the video.

Returns

the number of frames in the video

## 2.11.2.5 int getWidth ( )

Returns the width of the video.

Returns

the width of the video

2.11.2.6 void insertFrame ( int *index* = -1, unique\_ptr< AVFrame > frame:std: )

Inserts a frame at the given index. If  $index < 0$  then the frame gets pushed to the back. If the index is greater than [getNumberOfFrames\(\)](#) the frames gets pushed to the back.

Parameters

<i>index</i>	The index to insert the frame at
<i>frame:std,:</i>	The frame to insert

2.11.2.7 void insertFrames ( int *index* = -1, vector< std::unique\_ptr< AVFrame > > &frames:std: )

Inserts a vector of frames at the given index. If the  $index < 0$  or index is greater than [getNumberOfFrames\(\)](#) then the frames are pushed to the back.

Parameters

<i>index</i>	the index to insert the frames at
<i>frames:std,:</i>	the frames to insert

2.11.2.8 void removeFrame ( int *index* )

Removes the frame at the given index. If the index is invalid nothing happens.

Parameters

<i>index</i>	the index of the frame to remove
--------------	----------------------------------

## 2.12 BitrateCalculator Class Reference

### Public Member Functions

- [BitrateCalculator](#) ([Model::AVVideo](#) &video)
- [Model::Graph](#) calculate ()

### 2.12.1 Detailed Description

This class calculates the bitrate of a video.



## 2.12.2 Constructor & Destructor Documentation

### 2.12.2.1 BitrateCalculator ( Model::AVVideo & video )

Constructor.

Parameters

<i>video</i>	The video of which the bitrate is calculated.
--------------	---

## 2.12.3 Member Function Documentation

### 2.12.3.1 Model::Graph calculate ( )

Calculates the bitrate graph.

Returns

the bitrate graph

## 2.13 BlackWhiteFilter Class Reference

### Public Member Functions

- std::string [getName](#) ()
- std::string [getFilterDescription](#) ()

### 2.13.1 Detailed Description

Converts the video to black and white

### 2.13.2 Member Function Documentation

#### 2.13.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.13.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.14 BlackWhiteFilterBox Class Reference

### Public Member Functions

- **BlackWhiteFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.15 BlendingFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- `bool` [getInBlend](#) ()
- `void` [setInBlend](#) (`bool` inBlend)
- `int` [getStartFrame](#) ()
- `void` [setStartFrame](#) (`int` startFrame)
- `std::string` [getName](#) ()
- `int` [getEndFrame](#) ()
- `void` [setEndFrame](#) (`int` endFrame)

### 2.15.1 Detailed Description

Inserts black blending into the video

### 2.15.2 Member Function Documentation

#### 2.15.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.15.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.16 BlendingFilterBox Class Reference

### Public Member Functions

- **BlendingFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual `void` [setFilter](#) ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* [getFilter](#) ()

## 2.17 BlurFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- `bool` [getPreserveEdges](#) ()
- `void` [setPreserveEdges](#) (`bool` preserveEdges)
- `std::string` [getName](#) ()
- `int` [getIntensity](#) ()
- `void` [setIntensity](#) (`int` intensity)

### 2.17.1 Detailed Description

Blurs the video

### 2.17.2 Member Function Documentation

#### 2.17.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.17.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.18 BlurFilterBox Class Reference

### Public Member Functions

- **BlurFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.19 BorderFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- bool **getTop** ()
- void **setTop** (bool top)
- bool **getBottom** ()
- void **setBottom** (bool bottom)
- bool **getRight** ()
- `std::string` [getName](#) ()
- void **setRight** (bool right)
- bool **getLeft** ()
- void **setLeft** (bool left)
- int **getThickness** ()
- void **setThickness** (int thickness)
- `QRgb` **getColor** ()
- void **setColor** (`QRgb` color)

### 2.19.1 Detailed Description

Inserts border into the video

## 2.19.2 Member Function Documentation

### 2.19.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

### 2.19.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.20 BorderFilterBox Class Reference

### Public Member Functions

- **BorderFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.21 BrightnessFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- `int` **getIntensity** ()
- `std::string` [getName](#) ()
- void **setIntensity** (`int` intensity)

### 2.21.1 Detailed Description

Adjusts the video brightness

## 2.21.2 Member Function Documentation

### 2.21.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

### 2.21.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.22 BrightnessFilterBox Class Reference

### Public Member Functions

- **BrightnessFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.23 ColorbalanceFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- [Model::Filter::BasicColor](#) **getColor** ()
- void **setColor** ([Model::Filter::BasicColor](#) color)
- int **getIntensity** ()
- void **setIntensity** (int intensity)
- bool **getBrightPixels** ()
- void **setBrightPixels** (bool brightPixels)
- bool **getMediumPixels** ()
- void **setMediumPixels** (bool mediumPixels)
- bool **getDarkPixels** ()
- void **setDarkPixels** (bool darkPixels)
- virtual std::string [getName](#) ()

### 2.23.1 Detailed Description

Adjusts the colorbalance of the video

### 2.23.2 Member Function Documentation

#### 2.23.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.23.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.24 ColorbalanceFilterBox Class Reference

### Public Member Functions

- **ColorbalanceFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.25 ContrastFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- `void` **setIntensity** (int intensity)
- `int` **getIntensity** ()
- `std::string` [getName](#) ()

### 2.25.1 Detailed Description

Adjusts the contrast of the video

### 2.25.2 Member Function Documentation

#### 2.25.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.25.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.26 ContrastFilterBox Class Reference

### Public Member Functions

- **ContrastFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- `virtual void` **setFilter** ([Model::Filter::Filter](#) &filter)
- `virtual` [Model::Filter::Filter](#) \* **getFilter** ()

## 2.27 ControlPanel Class Reference

### Public Member Functions

- [ControlPanel](#) ()
- `void` [setMasterVideoPlayer](#) ([Player::Player](#) &player)
- `void` [addVideoPlayer](#) ([GUI::Player](#) &player)
- `virtual void` **updateUi** ()=0
- `void` **removeVideoPlayer** ([Player::Player](#) &player)

### Data Fields

- [GUI::ForwardPlayer](#) \* **forwardPanel**
- [GUI::Player::VideoPlayer](#) \* **masterPanel**

## Protected Attributes

- `std::vector< GUI::Player::VideoPlayer * > players`

### 2.27.1 Detailed Description

This class is the base class for control panels.

### 2.27.2 Constructor & Destructor Documentation

#### 2.27.2.1 ControlPanel ( )

Constructor.

### 2.27.3 Member Function Documentation

#### 2.27.3.1 void addVideoPlayer ( GUI::Player & *player* )

Adds the video player the list of players to notify.

Parameters

<i>player</i>	The player to add to the list
---------------	-------------------------------

#### 2.27.3.2 void setMasterVideoPlayer ( Player::Player & *player* )

Sets the master video player. The master video player is the reference to where to set the position of the slider, if the video is played paused or stopped.

Parameters

<i>player</i>	the master video player
---------------	-------------------------

## 2.28 EdgeFilter Class Reference

### Public Member Functions

- `std::string getFilterDescription ()`
- `std::string getName ()`

### 2.28.1 Detailed Description

Only shows the borders and places a black overlay over the rest

### 2.28.2 Member Function Documentation

#### 2.28.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

2.28.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.29 EdgeFilterBox Class Reference

### Public Member Functions

- **EdgeFilterBox** ([GUI::QtGui::QWidget](#) \_\_10 \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.30 EncodedVideo Class Reference

### Public Member Functions

- **EncodedVideo** (QString path)
- QString **getPath** ()
- int **getFileSize** ()
- int **getNumberOfColors** ()
- QString **getCodec** ()
- [Model::Graph](#) & **getBitrate** ()
- [Model::Graph](#) & **getPsnr** ()
- void **getRedHistogramm** ()
- [Model::Graph](#) & **getBlueHistogramm** ()
- [Model::Graph](#) & **getGreenHistogramm** ()
- [Model::AVVideo](#) & **getAvVideo** ()
- [GUI::Player::Video](#) & **getMacroBlockVideo** ()
- [GUI::Player::Video](#) & **getRgbDiffVideo** ([GUI::Player::Video](#) \*reference=0)
- [GUI::Player::Video](#) & **getVideo** ()

### Data Fields

- [GUI::AnalysisBox](#) \* **video**
- [Model::AVVideo](#) \* **avVideo**
- [GUI::Player::Video](#) \* **displayVideo**
- [GUI::Player::Video](#) \* **macroblockVideo**
- [GUI::Player::Video](#) \* **rgbDiffVideo**
- [Model::Graph](#) \* **bitrate**
- [Model::Graph](#) \* **psnr**
- [Model::Graph](#) \* **redHisto**
- [Model::Graph](#) \* **greenHisto**
- [Model::Graph](#) \* **blueHiso**

## 2.31 Filter Class Reference

### Public Member Functions

- virtual std::string **getFilterDescription** ()=0
- virtual std::string **getName** ()=0



### 2.31.1 Detailed Description

Abstract class to provide superclass for filters.

### 2.31.2 Member Function Documentation

#### 2.31.2.1 `virtual std::string getFilterDescription ( ) [pure virtual]`

Returns the description of the filter

Implemented in [ColorbalanceFilter](#), [BorderFilter](#), [RectangleFilter](#), [GridFilter](#), [NoiseFilter](#), [ScaleFilter](#), [BlendingFilter](#), [MirrorFilter](#), [RGBFilter](#), [ZoomFilter](#), [BlackWhiteFilter](#), [BlurFilter](#), [SepiaFilter](#), [VintageFilter](#), [BrightnessFilter](#), [ContrastFilter](#), [PosterFilter](#), [RotationFilter](#), [SaturationFilter](#), [SharpnessFilter](#), [EdgeFilter](#), and [NegativeFilter](#).

#### 2.31.2.2 `std::string getName ( ) [pure virtual]`

Returns the name of the filter

Implemented in [ColorbalanceFilter](#), [GridFilter](#), [RectangleFilter](#), [BorderFilter](#), [BlendingFilter](#), [NoiseFilter](#), [ScaleFilter](#), [RGBFilter](#), [BlurFilter](#), [ContrastFilter](#), [BrightnessFilter](#), [MirrorFilter](#), [PosterFilter](#), [RotationFilter](#), [SaturationFilter](#), [SharpnessFilter](#), [EdgeFilter](#), [NegativeFilter](#), [ZoomFilter](#), [BlackWhiteFilter](#), [SepiaFilter](#), and [VintageFilter](#).

## 2.32 FilterApplier Class Reference

### Public Member Functions

- [FilterApplier](#) ([Model::Filter::FilterList](#) &list)
- void [applyToVideo](#) ([Model::AVVideo](#) &target, [Model::AVVideo](#) &video)

### 2.32.1 Detailed Description

Applies filters of a given [FilterList](#) to the video

### 2.32.2 Constructor & Destructor Documentation

#### 2.32.2.1 `FilterApplier ( Model::Filter::FilterList & list )`

Constructor.

Parameters

<i>list</i>	the list with the filters to apply
-------------	------------------------------------

### 2.32.3 Member Function Documentation

#### 2.32.3.1 `void applyToVideo ( Model::AVVideo & target, Model::AVVideo & video )`

Applies the given filters to the video.

Parameters

<i>target</i>	the video to which the new frames are added to
<i>video</i>	the video to apply the filters on

## 2.33 FilterConfiguration Class Reference

### Public Member Functions

- void **add** ([Model::Filter::Filter](#) filter)
- void **remove** ([Model::Filter::Filter](#) filter)
- void **remove** (int index)
- void **move** (int old\_index, int new\_index)
- void **get** (int index)
- void **move** ([Model::Filter::Filter](#) filter, int new\_index)
- int **size** ()

## 2.34 FilterConfigurationBox Class Reference

### Public Member Functions

- **FilterConfigurationBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)=0
- virtual [Model::Filter::Filter](#) \* **getFilter** ()=0

## 2.35 FilterConfigurationLoader Class Reference

### Public Member Functions

- [FilterConfigurationLoader](#) (QString path)
- [Model::Filter::FilterList](#) **getConfiguration** ()

### 2.35.1 Detailed Description

This class can load a Filterlist.

### 2.35.2 Constructor & Destructor Documentation

#### 2.35.2.1 FilterConfigurationLoader ( QString path )

Constructor.

Parameters

<i>path</i>	the path to the filerlist to load
-------------	-----------------------------------

### 2.35.3 Member Function Documentation

#### 2.35.3.1 Model::Filter::FilterList getConfiguration ( )

Loads the filterlist.

**Returns**

the loaded filterlist

**2.36 FilterConfigurationLoader2 Class Reference****2.37 FilterConfigurationSaver Class Reference****2.38 FilterConfigurationSaver\_ Class Reference****Public Member Functions**

- [FilterConfigurationSaver\\_](#) (QString file, [Model::Filter::FilterList](#) &filterList)
- void [save](#) ()

**2.38.1 Detailed Description**

This class can save a filterlist.

**2.38.2 Constructor & Destructor Documentation****2.38.2.1 FilterConfigurationSaver\_ ( QString *file*, Model::Filter::FilterList & *filterList* )**

Constructor.

**Parameters**

<i>file</i>	absolute path to the file to save to
<i>filterList</i>	the filterlist to save

**2.38.3 Member Function Documentation****2.38.3.1 void save ( )**

Saves the filterlist.

**2.39 FilterContainerTab Class Reference****Public Member Functions**

- **FilterContainerTab** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- void [addFilter](#) ([Model::Filter::Filter](#) filter)
- void **setParentTab** ([GUI::FilterTab](#) &parent)
- void [uncheck](#) (string filterName)

**2.39.1 Detailed Description**

shows all FilterViews

## 2.39.2 Member Function Documentation

### 2.39.2.1 void addFilter ( [Model::Filter::Filter](#) filter )

Slot: connected to to every [FilterView.checked\(filter:Filter\)](#)

### 2.39.2.2 void uncheck ( [string](#) filterName )

searches for the [filterView](#) with the filter [filterName](#) and unchecks it

## 2.40 FilterList Class Reference

### Public Member Functions

- [Model::Filter::Filter](#) \* **getFilterByName** (string name:std:)
- void **removeFilter** (string name:std:)
- void **moveFilter** (int oldPosition, int newPosition)
- void **removeFilter** (int position)
- void **addFilter** (string name:std:)
- void **getFilterByIndex** (int index)

### Data Fields

- [Model::Filter::FilterApplier](#) \* **list**

## 2.41 FilterReset Class Reference

### Public Member Functions

- [FilterReset](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.41.1 Constructor & Destructor Documentation

#### 2.41.1.1 [FilterReset](#) ( )

Constuctor

### 2.41.2 Member Function Documentation

#### 2.41.2.1 void [redo](#) ( )

clears the filter configurations and the filter list

#### 2.41.2.2 void [undo](#) ( )

loads the filterlist and filter configuration to the state it was before the reset

## 2.42 FilterTab Class Reference

### Public Member Functions

- **FilterTab** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- [Memento::FilterTabMemento](#) **getMemento** ()
- void **restore** ([Memento::FilterTabMemento](#) memento)
- void **addFilter** ([Model::Filter::Filter](#) filter)
- void **removeFilter** (string filterName)

### 2.42.1 Member Function Documentation

#### 2.42.1.1 void addFilter ( [Model::Filter::Filter](#) *filter* )

adds a filter to list\_filterList

#### 2.42.1.2 void removeFilter ( string *filterName* )

removes the filter with the name filterName in list\_filterList

## 2.43 FilterTabMemento Class Reference

### Public Member Functions

- [FilterTabMemento](#) ()
- [Model::Filter::FilterList](#) **getFilterList** ()
- void **setFilterList** ([Model::Filter::FilterList](#) filterList)
- bool **getWasApplied** ()
- void **setWasApplied** (bool wasApplied)
- int **getDisplayedFrame** ()
- void **setDisplayFrame** (int displayedFrame)
- string **getLoadedFile** ()
- void **setLoadedFile** (string loadedFile)

### 2.43.1 Detailed Description

This class is the memento for the FilterTab.

### 2.43.2 Constructor & Destructor Documentation

#### 2.43.2.1 FilterTabMemento ( )

Constructor.

### 2.43.3 Member Function Documentation

#### 2.43.3.1 int getDisplayedFrame ( )

Returns the currently displayed frame in the frame preview.

**Returns**

the currently displayed frame

**2.43.3.2 Model::Filter::FilterList getFilterList ( )**

Returns the list of the currently selected filters.

**Returns**

list of the selected filters

**2.43.3.3 string getLoadedFile ( )**

Returns the path to the currently loaded yuv file.

**Returns**

absolute path to the currently loaded yuv file

**2.43.3.4 bool getWasApplied ( )**

Whether the filter were already applied.

**Returns**

true if the filter wre already applied

**2.43.3.5 void setDisplayedFrame ( int *displayedFrame* )**

Sets the currently displayed frame in the frame preview.

**Parameters**

<i>displayedFrame</i>	the currently displayed frame
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**2.43.3.6 void setFilterList ( Model::Filter::FilterList *filterList* )**

Sets the list of the currently selected filters.

**Parameters**

<i>filterList</i>	list of the selected filters
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**2.43.3.7 void setLoadedFile ( string *loadedFile* )**

Sets the path to the currently loaded yuv file.

**Parameters**

<i>loadedFile</i>	absolute path to the loaded yuv file
-------------------	--------------------------------------

#### 2.43.3.8 void setWasApplied ( bool *wasApplied* )

Sets whether the filters were already applied.

Parameters

<i>wasApplied</i>	true if the filter were already applied
-------------------	---

## 2.44 FilterView Class Reference

### Public Member Functions

- **FilterView** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- void **setFilter** ([Model::Filter::Filter](#) filter)
- void **setFilterTab** ([GUI::FilterTab](#) \*filtertab)

#### 2.44.1 Detailed Description

represents a filter in the gui, shows a example of the filter and a checkbox as well as its name

## 2.45 ForwardPlayer Class Reference

### Public Member Functions

- void **setForwardControlPanel** ([GUI::Player::ControlPanel](#) panel)
- void **play** ()
- void **pause** ()
- void **stop** ()
- void **nextFrame** ()
- void **previousFrame** ()
- void **setSpeed** (float speed)
- void **setPosition** (int position)
- int **getPosition** ()
- float **getSpeed** ()
- bool **isPlaying** ()
- bool **isStopped** ()
- void **reset** ()

## 2.46 FrameView Class Reference

### Public Member Functions

- [FrameView](#) (QWidget \*parent=0)
- void [setFrame](#) (QImage &frame)
- void [clear](#) ()

### Protected Member Functions

- void [resizeEvent](#) (QResizeEvent \*event)
- void [repaintEvent](#) (QPaintEvent \*event)

### 2.46.1 Detailed Description

This class is the view used by the video player. It automatically scales the frames passed to it.

### 2.46.2 Constructor & Destructor Documentation

#### 2.46.2.1 [FrameView](#) ( QWidget \* *parent* = 0 )

Constructor.

### 2.46.3 Member Function Documentation

#### 2.46.3.1 void [clear](#) ( )

Clears the current frame so nothing get shown.

#### 2.46.3.2 void [repaintEvent](#) ( QPaintEvent \* *event* ) [protected]

This method is called when the widget has to be repainted.

#### 2.46.3.3 void [resizeEvent](#) ( QResizeEvent \* *event* ) [protected]

This method is called when the widget got resized.

#### 2.46.3.4 void [setFrame](#) ( QImage & *frame* )

Sets the frame to show.

Parameters

<i>frame</i>	the frame to show
--------------	-------------------

## 2.47 GlobalControlPanel Class Reference

### Public Member Functions

- void [play](#) ()
- void [pause](#) ()
- void [stop](#) ()
- void [nextFrame](#) ()
- void [previousFrame](#) ()
- void [setPosition](#) (int position)
- void [updateUi](#) ()



## Data Fields

- [GUI::AnalysisTab](#) \* **globalControlPanel**

## Additional Inherited Members

## 2.48 Graph Class Reference

### Public Member Functions

- [Graph](#) ()
- void [setValue](#) (int x, double y)
- void [cut](#) (int x)
- double [getValue](#) (int x)
- int [getLength](#) ()

## Data Fields

- [Model::EncodedVideo](#) \* **bitrate**
- [Model::EncodedVideo](#) \* **psnr**
- [Model::EncodedVideo](#) \* **redHisto**
- [Model::EncodedVideo](#) \* **greenHisto**
- [Model::EncodedVideo](#) \* **blueHiso**

### 2.48.1 Detailed Description

This class is a graph.

### 2.48.2 Constructor & Destructor Documentation

#### 2.48.2.1 [Graph](#) ( )

Constructor.

### 2.48.3 Member Function Documentation

#### 2.48.3.1 void [cut](#) ( int x )

cuts the number of vectors down up to a certain value x.

Parameters

x	The last x-value in the cut down vectors.
---	---

#### 2.48.3.2 int [getLength](#) ( )

Returns the length of the unbounded array. That many x/y values are saved.

#### 2.48.3.3 double [getValue](#) ( int x )

Returns the y-value to a specific x-value.

## Parameters

<i>x</i>	The x value.
----------	--------------

2.48.3.4 void setValue ( int *x*, double *y* )

gives a y-value to a x-value. Later the point in the graph.

## Parameters

<i>x</i>	value on the x-axes.
<i>y</i>	value on the y-axes.

## 2.49 GraphWidget Class Reference

### Public Member Functions

- [GraphWidget](#) ()
- void [drawGraph](#) ([Model::Graph](#) graph, bool filled)
- void [setLineColor](#) (QRgb color)
- void [setFillColor](#) (QRgb color)
- void [setControlPanel](#) ([GUI::GlobalControlPanel](#) \*panel)

### Data Fields

- [GUI::AnalysisBox](#) \* **psnrGraph**
- [GUI::AnalysisBox](#) \* **bitrateGraph**
- [GUI::AnalysisBox](#) \* **redHistogramm**
- [GUI::AnalysisBox](#) \* **blueHistogramm**
- [GUI::AnalysisBox](#) \* **greenHistogramm**
- [Model::Graph](#) \* **graph**

### 2.49.1 Detailed Description

This class is a widget to draw graphs.

### 2.49.2 Constructor & Destructor Documentation

#### 2.49.2.1 GraphWidget ( )

Constructor.

### 2.49.3 Member Function Documentation

#### 2.49.3.1 void drawGraph ( [Model::Graph](#) graph, bool filled )

Draws a graph to the widget.

#### 2.49.3.2 void setFillColor ( [QRgb](#) color )

Determines the color of the area beneath the graph line.

## Parameters

<i>color</i>	The color in which the area beneath the graph line is filled.
--------------	---

2.49.3.3 void setLineColor ( QRgb *color* )

Determines the color of the graph line.

## Parameters

<i>color</i>	The color in which the line is shown.
--------------	---------------------------------------

## 2.50 GridFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- int **getHorizontalLines** ()
- void **setHorizontalLines** (int horizontalLines)
- int **getVerticalLines** ()
- void **setVerticalLines** (int verticalLines)
- QRgb **getColor** ()
- void **setColor** (QRgb color)
- int **getThickness** ()
- void **setThickness** (int thickness)
- int **getOpacity** ()
- void **setOpacity** (int opacity)
- std::string [getName](#) ()

### 2.50.1 Detailed Description

Inserts a grid into the video as an overlay

### 2.50.2 Member Function Documentation

#### 2.50.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.50.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.51 GridFilterBox Class Reference

### Public Member Functions

- **GridFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)

- virtual void **setFilter** (Model::Filter::Filter &filter)
- virtual Model::Filter::Filter \* **getFilter** ()

## 2.52 LoadAnalysisVideo Class Reference

### Public Member Functions

- void **undo** ()
- void **redo** ()

## 2.53 LoadFilterconfig Class Reference

### Public Member Functions

- LoadFilterconfig ()
- void **undo** ()
- void **redo** ()

### 2.53.1 Constructor & Destructor Documentation

#### 2.53.1.1 LoadFilterconfig ( )

Constuctor

### 2.53.2 Member Function Documentation

#### 2.53.2.1 void redo ( )

loads a filter configuration from a external file

#### 2.53.2.2 void undo ( )

loads the filter configuration present before external configuration was loaded

## 2.54 LoadFilterVideo Class Reference

### Public Member Functions

- LoadFilterVideo ()
- void **undo** ()
- void **redo** ()

### 2.54.1 Constructor & Destructor Documentation

#### 2.54.1.1 LoadFilterVideo ( )

Constuctor

## 2.54.2 Member Function Documentation

### 2.54.2.1 void redo ( )

loads video to which filter can be applied

### 2.54.2.2 void undo ( )

removes current video to which filters can be applied and loads previous video

## 2.55 LoadVideo Class Reference

### Public Member Functions

- [LoadVideo](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.55.1 Constructor & Destructor Documentation

#### 2.55.1.1 LoadVideo ( )

Constuctor

## 2.55.2 Member Function Documentation

### 2.55.2.1 void redo ( )

loads video to which filter can be applied

### 2.55.2.2 void undo ( )

removes current video to which filters can be applied and loads previous video

## 2.56 LoadVideoControlPanel Class Reference

### Public Member Functions

- void **updateUi** ()

### Additional Inherited Members

## 2.57 MacroblockCalculator Class Reference

### Public Member Functions

- void [macroBlockCalculator](#) (Model::AVVideo &video)
- void [calculateMacroblockImages](#) (GUI::Player::Video &target)

### 2.57.1 Detailed Description

This class calculates the macroblocks of a video.

### 2.57.2 Member Function Documentation

#### 2.57.2.1 void calculateMacroblockImages ( GUI::Player::Video & *target* )

Calculates QImage video with macroblock overlay.

Parameters

<i>target</i>	the video the frames with the calculated macroblocks are added to
---------------	---

#### 2.57.2.2 void macroBlockCalculator ( Model::AVVideo & *video* )

Constructor.

Parameters

<i>video</i>	the video to calculate the macroblocks for
--------------	--

## 2.58 MainWindow Class Reference

### Public Member Functions

- **MainWindow** (GUI::QtGui::QWidget\_\_10 \*parent)
- Memento::MainWindowMemento **getMemento** ()
- void **restore** (Memento::MainWindowMemento memento)
- Model::Project & **getProject** ()

### Data Fields

- Model::Project \* **loadedProject**

### 2.58.1 Detailed Description

Contains the elements of the GUI

## 2.59 MainWindowMemento Class Reference

### Public Member Functions

- MainWindowMemento ()
- int **getSelectedTab** ()
- void **setSelectedTab** (int selectedTab)
- Memento::AnalysisTabMemento **getAnalyseTabMeMento** ()
- void **setAnalyseTabMeMento** (Memento::AnalysisTabMemento analyseTabMeMento)
- Memento::FilterTabMemento **getFilterTabMemento** ()
- void **setFilterTabMemento** (Memento::FilterTabMemento filterTabMemento)

### 2.59.1 Detailed Description

This class is the memento for the MainWindow.

### 2.59.2 Constructor & Destructor Documentation

#### 2.59.2.1 MainWindowMemento ( )

Constructor.

### 2.59.3 Member Function Documentation

#### 2.59.3.1 Memento::AnalysisTabMemento getAnalyseTabMeMento ( )

Returns the AnalyseTabMemento.

Returns

the AnalyseTabMemento

#### 2.59.3.2 Memento::FilterTabMemento getFilterTabMemento ( )

Returns the [FilterTabMemento](#).

Returns

the [FilterTabMemento](#)

#### 2.59.3.3 int getSelectedTab ( )

Returns the currently selected tab.

Returns

the currently selected tab

#### 2.59.3.4 void setAnalyseTabMeMento ( Memento::AnalysisTabMemento *analyseTabMeMento* )

Sets the AnalyseTabMemento.

Parameters

<i>analyseTabMeMento</i>	the AnalyseTabMemento
--------------------------	-----------------------

#### 2.59.3.5 void setFilterTabMemento ( Memento::FilterTabMemento *filterTabMemento* )

Sets the [FilterTabMemento](#).

## Parameters

<i>filterTab</i> ↔ <i>Memento</i>	the <a href="#">FilterTabMemento</a>
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2.59.3.6 void setSelectedTab ( int *selectedTab* )

Sets the currently selected tab.

## Parameters

<i>selectedTab</i>	the currently selected tab
--------------------	----------------------------

## 2.60 MirrorFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- std::string [getName](#) ()
- Model::Filter::MirrorMode **getMode** ()
- void **setMode** (Model::Filter::MirrorMode mode)

### 2.60.1 Detailed Description

Mirrors the video horizontally or vertically

### 2.60.2 Member Function Documentation

#### 2.60.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.60.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.61 MirrorFilterBox Class Reference

### Public Member Functions

- **MirrorFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()



## 2.62 MoveFilterDown Class Reference

### Public Member Functions

- [MoveFilterDown](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.62.1 Constructor & Destructor Documentation

#### 2.62.1.1 MoveFilterDown ( )

Constuctor

### 2.62.2 Member Function Documentation

#### 2.62.2.1 void redo ( )

moves selected filter one position down in the filterlist

#### 2.62.2.2 void undo ( )

moves the filter one position back up in the filterlist

## 2.63 MoveFilterUp Class Reference

### Public Member Functions

- [MoveFilterUp](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.63.1 Constructor & Destructor Documentation

#### 2.63.1.1 MoveFilterUp ( )

Constuctor

### 2.63.2 Member Function Documentation

#### 2.63.2.1 void redo ( )

moves selected filter one position up in the filterlist

#### 2.63.2.2 void undo ( )

moves the filter one position back down in the filterlist

## 2.64 NegativeFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- std::string [getName](#) ()

#### 2.64.1 Detailed Description

Converts the video into it's negative

#### 2.64.2 Member Function Documentation

##### 2.64.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

##### 2.64.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.65 NegativeFilterBox Class Reference

### Public Member Functions

- **NegativeFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.66 NoiseFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- [Model::Filter::NoiseMode](#) **getMode** ()
- void **setMode** ([Model::Filter::NoiseMode](#) mode)
- int **getIntensity** ()
- std::string [getName](#) ()
- void **setIntensity** (int intensity)

#### 2.66.1 Detailed Description

Inserts noise into the video

## 2.66.2 Member Function Documentation

### 2.66.2.1 `std::string getFilterDescription ( ) [virtual]`

Returns the description of the filter

Implements [Filter](#).

### 2.66.2.2 `std::string getName ( ) [virtual]`

Returns the name of the filter

Implements [Filter](#).

## 2.67 NoiseFilterBox Class Reference

### Public Member Functions

- **NoiseFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.68 PlayerControlPanel Class Reference

### Public Member Functions

- [PlayerControlPanel](#) ([QWidget](#) \*parent=0)
- void **updateUi** ()

### 2.68.1 Detailed Description

This class is the control panel to play videos.

### 2.68.2 Constructor & Destructor Documentation

#### 2.68.2.1 `PlayerControlPanel ( QWidget * parent = 0 )`

Constructor.

## 2.69 PlayerControlPanel\_\_6 Class Reference

## 2.70 PlayerControlPanel\_\_7 Class Reference

### Public Member Functions

- void [playerControlPanel](#) ([QWidget](#) \*parent=0)
- void **updateUi** ()

## Additional Inherited Members

### 2.70.1 Detailed Description

This class is the control panel to play videos.

### 2.70.2 Member Function Documentation

#### 2.70.2.1 void playerControlPanel ( QWidget \* *parent* = 0 )

Constructor.

## 2.71 PosterFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- int [getNumberOfColors](#) ()
- std::string [getName](#) ()
- void [setNumberOfColors](#) (int numberOfColors)

### 2.71.1 Detailed Description

Reduces the maximum number of colors in the video

### 2.71.2 Member Function Documentation

#### 2.71.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.71.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.72 PosterFilterBox Class Reference

### Public Member Functions

- **PosterFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.73 PreviewControlPanel Class Reference

### Public Member Functions

- [PreviewControlPanel](#) ([Player::QWidget](#) \*parent=0)
- void **updateUi** ()

#### 2.73.1 Detailed Description

This class is the control panel for the frame preview.

#### 2.73.2 Constructor & Destructor Documentation

##### 2.73.2.1 PreviewControlPanel ( [Player::QWidget](#) \* *parent* = 0 )

Constructor.

## 2.74 PreviewControlPanel\_\_8 Class Reference

## 2.75 PreviewControlPanel\_\_9 Class Reference

### Public Member Functions

- void [previewControlPanel](#) ([GUI::Player::QWidget\\_\\_11](#) \*parent=0)
- void **updateUi** ()

### Additional Inherited Members

#### 2.75.1 Detailed Description

This class is the control panel for the frame preview.

#### 2.75.2 Member Function Documentation

##### 2.75.2.1 void previewControlPanel ( [GUI::Player::QWidget\\_\\_11](#) \* *parent* = 0 )

Constructor.

## 2.76 Project Class Reference

### Public Member Functions

- [Project](#) (QString name)
- QString [getName](#) ()
- [Memento::MainWindowMemento](#) & [getMemento](#) ()
- void **setMemento** ([Memento::MainWindowMemento](#) memento)
- void **setPath** (QString path)
- QString **getPath** ()

### 2.76.1 Detailed Description

This class contains the different mementos.

### 2.76.2 Constructor & Destructor Documentation

#### 2.76.2.1 Project ( QString *name* )

Constructor.

Parameters

<i>name</i>	name of the project
-------------	---------------------

### 2.76.3 Member Function Documentation

#### 2.76.3.1 Memento::MainWindowMemento & getMemento ( )

Returns the MainWindowMemento.

Returns

the MainWindowMemento

#### 2.76.3.2 QString getName ( )

Returns the name of the project.

Returns

name of the project

## 2.77 ProjectReader Class Reference

### Public Member Functions

- [ProjectReader](#) (QString path)
- [Model::Project](#) readProject ( )

### 2.77.1 Detailed Description

This class can read a project from a file.

### 2.77.2 Constructor & Destructor Documentation

#### 2.77.2.1 ProjectReader ( QString *path* )

Constructor.

## Parameters

<i>path</i>	the absolute path to the project file
-------------	---------------------------------------

## 2.77.3 Member Function Documentation

### 2.77.3.1 Model::Project readProject ( )

Reads a project from a file.

## Returns

the project

## 2.78 ProjectWriter Class Reference

### Public Member Functions

- [ProjectWriter](#) ([Model::Project](#) p)
- void [saveProject](#) ()
- void [saveResults](#) ()

### 2.78.1 Detailed Description

This class can write the project files and the results.

### 2.78.2 Constructor & Destructor Documentation

#### 2.78.2.1 ProjectWriter ( [Model::Project](#) p )

Constructor.

## Parameters

<i>p</i>	the project to save
----------	---------------------

### 2.78.3 Member Function Documentation

#### 2.78.3.1 void saveProject ( )

Saves the whole project.

#### 2.78.3.2 void saveResults ( )

Saves on the analysis results.

## 2.79 PsnrCalculator Class Reference

### Public Member Functions

- [PsnrCalculator](#) ([Model::AVVideo](#) &referenceVideo, [Model::AVVideo](#) &compareVideo)
- [Model::Graph](#) calculate ()

### 2.79.1 Detailed Description

This class calculates the psnr-graph of a video.

### 2.79.2 Constructor & Destructor Documentation

#### 2.79.2.1 PsnrCalculator ( Model::AVVideo & *referenceVideo*, Model::AVVideo & *compareVideo* )

Constructor.

Parameters

<i>referenceVideo</i>	the reference video for the psnr calculation
<i>compareVideo</i>	the video that is compared to the reference video

### 2.79.3 Member Function Documentation

#### 2.79.3.1 Model::Graph calculate ( )

Calculates the psnr graph.

Returns

the psnr graph

## 2.80 QCheckBox Class Reference

## 2.81 QComboBox Class Reference

## 2.82 QDialog Class Reference

## 2.83 QDialog\_\_12 Class Reference

## 2.84 QDialog\_\_13 Class Reference

## 2.85 QFarbDialog Class Reference

## 2.86 QFrame\_\_1 Class Reference

## 2.87 QFrame\_\_1 Class Reference

## 2.88 QFrame\_\_2 Class Reference

## 2.89 QFrame\_\_2 Class Reference

## 2.90 QFrame\_\_3 Class Reference



## 2.91 QGraphicsView Class Reference

## 2.92 QGroupBox Class Reference

## 2.93 QHBoxLayout Class Reference

## 2.94 QLabel Class Reference

## 2.95 QListWidget Class Reference

## 2.96 QMainWindow Class Reference

## 2.97 QMainWindow\_\_4 Class Reference

## 2.98 QMainWindow\_\_5 Class Reference

## 2.99 QMediaPlayer Class Reference

### Public Member Functions

- void **setMedia** (QMediaContent media)
- void **setPlaylist** (QMediaPlaylist \*playlist)
- void **setPlaybackRate** (qreal playbackRate)
- void **setVideoOutput** ([GUI::QtGui::QVideoWidget](#) output)

## 2.100 QMenuBar Class Reference

## 2.101 QRadioButton Class Reference

## 2.102 QSpinBox Class Reference

## 2.103 QUndoCommand Class Reference

## 2.104 QUndoStack Class Reference

## 2.105 QVBoxLayout Class Reference

## 2.106 QVideoFrame Class Reference

## 2.107 QVideoWidget Class Reference

## Public Member Functions

- void **show** ()
- Qt::AspectRatioMode **getAspectRatioMode** ()
- void **setAspectRatioMode** (Qt::AspectRatioMode aspectRatioMode)

## 2.108 QWidget Class Reference

### 2.109 QWidget\_\_10 Class Reference

### 2.110 QWidget\_\_11 Class Reference

### 2.111 RectangleFilter Class Reference

## Public Member Functions

- std::string **getFilterDescription** ()
- QRgb **getColor** ()
- void **setColor** (QRgb color)
- int **getWidth** ()
- void **setWidth** (int width)
- int **getHeight** ()
- void **setHeight** (int height)
- int **getX** ()
- std::string **getName** ()
- void **setX** (int x)
- int **getY** ()
- void **setY** (int y)
- int **getOpacity** ()
- void **setOpacity** (int opacity)

#### 2.111.1 Detailed Description

Inserts a filled rectangle with a given color into the video

#### 2.111.2 Member Function Documentation

##### 2.111.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

##### 2.111.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.112 RectangleFilterBox Class Reference

### Public Member Functions

- **RectangleFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.113 RemoveFilter Class Reference

### Public Member Functions

- [RemoveFilter](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.113.1 Constructor & Destructor Documentation

#### 2.113.1.1 [RemoveFilter](#) ( )

Constuctor

### 2.113.2 Member Function Documentation

#### 2.113.2.1 void [redo](#) ( )

removes a filter from the filterlist

#### 2.113.2.2 void [undo](#) ( )

adds the removed filter back into the filterlist

## 2.114 RemoveVideo Class Reference

### Public Member Functions

- [RemoveVideo](#) ()
- void [undo](#) ()
- void [redo](#) ()

### 2.114.1 Constructor & Destructor Documentation

#### 2.114.1.1 [RemoveVideo](#) ( )

Constuctor

## 2.114.2 Member Function Documentation

### 2.114.2.1 void redo ( )

removes a video from the analysis tab

### 2.114.2.2 void undo ( )

readds the removed video to the analysis tab

## 2.115 RGBDifferenceCalculator Class Reference

### Public Member Functions

- [RGBDifferenceCalculator](#) ([GUI::Player::Video](#) &referenceVideo, [GUI::Player::Video](#) &video)
- void [calculateVideo](#) ([GUI::Player::Video](#) &target)

### 2.115.1 Detailed Description

This class calculates the RGB-difference video of a video.

### 2.115.2 Constructor & Destructor Documentation

#### 2.115.2.1 RGBDifferenceCalculator ( [GUI::Player::Video](#) & *referenceVideo*, [GUI::Player::Video](#) & *video* )

Constructor.

Parameters

<i>referenceVideo</i>	The reference video.
<i>video</i>	The video that is compared to the reference video.

### 2.115.3 Member Function Documentation

#### 2.115.3.1 void calculateVideo ( [GUI::Player::Video](#) & *target* )

Calculates the RGB difference between two videos.

Parameters

<i>target</i>	the video the calculated frames are added to
---------------	--

## 2.116 RGBFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- [Model::Filter::BasicColor](#) [getColor](#) ()
- void [setColor](#) ([Model::Filter::BasicColor](#) color)
- std::string [getName](#) ()

### 2.116.1 Detailed Description

Filters the video by a given channel (red, green or blue)

### 2.116.2 Member Function Documentation

#### 2.116.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.116.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.117 RGBFilterBox Class Reference

### Public Member Functions

- **RGBFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ( )

## 2.118 RGBHistogrammCalculator Class Reference

### Public Member Functions

- void [RGBHistogrammCalculator](#) ([GUI::Player::Video](#) &video)
- void [calculate](#) ( )
- [Model::Graph](#) [getRedHistogramm](#) ( )
- [Model::Graph](#) [getGreenHistogramm](#) ( )
- [Model::Graph](#) [getBlueHistogramm](#) ( )

### 2.118.1 Detailed Description

This class calculates the RGB histogramm for a video.

### 2.118.2 Member Function Documentation

#### 2.118.2.1 `void calculate ( )`

Calculates the red, green and blue components of a video.

#### 2.118.2.2 `Model::Graph getBlueHistogramm ( )`

Returns the blue components of a video.

**2.118.2.3 Model::Graph getGreenHistogramm ( )**

Returns the green components of a video.

**2.118.2.4 Model::Graph getRedHistogramm ( )**

Returns the red components of a video.

**2.118.2.5 void RGBHistogrammCalculator ( GUI::Player::Video & video )**

Constructor.

Parameters

<i>video</i>	the video that is analyzed.
--------------	-----------------------------

## 2.119 RotationFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ( )
- int **getAngle** ( )
- std::string [getName](#) ( )
- void **setAngle** (int angle)

### 2.119.1 Detailed Description

Rotates the video

### 2.119.2 Member Function Documentation

**2.119.2.1 std::string getFilterDescription ( ) [virtual]**

Returns the description of the filter

Implements [Filter](#).

**2.119.2.2 std::string getName ( ) [virtual]**

Returns the name of the filter

Implements [Filter](#).

## 2.120 RotationFilterBox Class Reference

### Public Member Functions

- **RotationFilterBox** (GUI::QtGui::QWidget\_\_10 \*parent)
- virtual void **setFilter** (Model::Filter::Filter &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ( )

## 2.121 SaturationFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- `int` [getIntensity](#) ()
- `std::string` [getName](#) ()
- `void` [setIntensity](#) (int intensity)

### 2.121.1 Detailed Description

Adjusts the saturation of the video

### 2.121.2 Member Function Documentation

#### 2.121.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.121.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.122 SaturationFilterBox Class Reference

### Public Member Functions

- **SaturationFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual `void` [setFilter](#) ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* [getFilter](#) ()

## 2.123 ScaleFilter Class Reference

### Public Member Functions

- `std::string` [getFilterDescription](#) ()
- `bool` [getKeepRatio](#) ()
- `void` [setKeepRatio](#) (bool keepRatio)
- `std::string` [getName](#) ()
- `int` [getWidth](#) ()
- `void` [setWidth](#) (int width)
- `int` [getHeight](#) ()
- `void` [setHeight](#) (int height)
- `int` [getRatio](#) ()
- `void` [setRatio](#) (int ratio)

### 2.123.1 Detailed Description

Scales the video

### 2.123.2 Member Function Documentation

#### 2.123.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.123.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.124 ScaleFilterBox Class Reference

### Public Member Functions

- **ScaleFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.125 SepiaFilter Class Reference

### Public Member Functions

- `std::string` [getName](#) ()
- `std::string` [getFilterDescription](#) ()

### 2.125.1 Detailed Description

Converts the video into sepia

### 2.125.2 Member Function Documentation

#### 2.125.2.1 `std::string getFilterDescription ( )` [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.125.2.2 `std::string getName ( )` [virtual]

Returns the name of the filter

Implements [Filter](#).



## 2.126 SepiaFilterBox Class Reference

### Public Member Functions

- **SepiaFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.127 SharpnessFilter Class Reference

### Public Member Functions

- std::string [getFilterDescription](#) ()
- int **getIntensity** ()
- std::string [getName](#) ()
- void **setIntensity** (int intensity)

### 2.127.1 Detailed Description

Sharpens the video

### 2.127.2 Member Function Documentation

#### 2.127.2.1 std::string [getFilterDescription](#) ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.127.2.2 std::string [getName](#) ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.128 SharpnessFilterBox Class Reference

### Public Member Functions

- **SharpnessFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

## 2.129 Timer Class Reference

### Public Member Functions

- [Timer](#) (int fps)
- void [setFps](#) (int fps)
- void [setSpeed](#) (float speed)

- float `getSpeed` ()
- int `getFps` ()
- void `pause` ()
- void `start` ()
- void `addPlayer` (GUI::Player::VideoPlayer &player)
- bool `isPlaying` ()

### 2.129.1 Detailed Description

This class is the timer for the video player. It handles the switching of the frames according to fps and speed.

### 2.129.2 Constructor & Destructor Documentation

#### 2.129.2.1 Timer ( int *fps* )

Constructor.

Parameters

<i>fps</i>	the fps to play at
------------	--------------------

### 2.129.3 Member Function Documentation

#### 2.129.3.1 void addPlayer ( GUI::Player::VideoPlayer & *player* )

Adds a player.

Parameters

<i>player</i>	the player to add
---------------	-------------------

#### 2.129.3.2 int getFps ( )

Returns the current fps the timer plays at.

Returns

the current fps

#### 2.129.3.3 float getSpeed ( )

Returns the current speed the timer plays at.

Returns

the current speed

#### 2.129.3.4 bool isPlaying ( )

Whether the timer currently switches frames.

Returns

true if the timer currently switches frames.

**2.129.3.5 void pause ( )**

Stops the timer from switch frames.

**2.129.3.6 void setFps ( int *fps* )**

Sets the fps for the timer.

Parameters

<i>fps</i>	the new fps
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**2.129.3.7 void setSpeed ( float *speed* )**

Sets the speed to play at. The default value is 1.0.

Parameters

<i>speed</i>	the new speed
--------------	---------------

**2.129.3.8 void start ( )**

Tells the timer to start switching frames.

**2.130 UndoStack Class Reference****Static Public Member Functions**

- static [QUndoStack](#) & **getUndoStack** ()

**2.131 Video Class Reference****Public Member Functions**

- [Video](#) (int fps, int width, int height)
- int [getWidth](#) ()
- int [getHeight](#) ()
- int [getFps](#) ()
- QImage \* [getFrame](#) (int index)
- void [insertFrame](#) (int index=-1, unique\_ptr< QImage > frame:std:)
- void [removeFrame](#) (int index)
- void [insertFrames](#) (int index=-1, vector< std::unique\_ptr< QImage > > &frames:std:)
- int [getNumberOfFrames](#) ()

**Data Fields**

- [Model::EncodedVideo](#) \* **displayVideo**
- [Model::EncodedVideo](#) \* **macroblockVideo**
- [Model::EncodedVideo](#) \* **rgbDiffVideo**

### 2.131.1 Detailed Description

This class represents a video. It provides a basic interface to comfortably handle a vector of frames.

### 2.131.2 Constructor & Destructor Documentation

#### 2.131.2.1 Video ( int *fps*, int *width*, int *height* )

Constructor.

Parameters

<i>fps</i>	the fps the video should be played at
<i>width</i>	the width of the video
<i>height</i>	the height of the video

### 2.131.3 Member Function Documentation

#### 2.131.3.1 int getFps ( )

Returns the fps of the video.

Returns

fps of the video

#### 2.131.3.2 QImage \* getFrame ( int *index* )

Returns the frame at the given index. If the index is invalid nullptr is returned.

Parameters

<i>index</i>	the index of the frame to return
--------------	----------------------------------

#### 2.131.3.3 int getHeight ( )

Returns the height of the video.

Returns

the height of the video

#### 2.131.3.4 int getNumberOfFrames ( )

Returns the number of frames in the video.

Returns

the number of frames in the video

### 2.131.3.5 int getWidth ( )

Returns the width of the video.

#### Returns

the width of the video

### 2.131.3.6 void insertFrame ( int *index* = -1, unique\_ptr< QImage > frame:std: )

Inserts a frame at the given index. If  $index < 0$  then the frame gets pushed to the back. If the index is greater than [getNumberOfFrames\(\)](#) the frames gets pushed to the back.

#### Parameters

<i>index</i>	The index to insert the frame at
<i>frame:std,:</i>	The frame to insert

### 2.131.3.7 void insertFrames ( int *index* = -1, vector< std::unique\_ptr< QImage > > &frames:std: )

Inserts a vector of frames at the given index. If the  $index < 0$  or index is greater than [getNumberOfFrames\(\)](#) then the frames are pushed to the back.

#### Parameters

<i>index</i>	the index to insert the frames at
<i>frames:std,:</i>	the frames to insert

### 2.131.3.8 void removeFrame ( int *index* )

Removes the frame at the given index. If the index is invalid nothing happens.

#### Parameters

<i>index</i>	the index of the frame to remove
--------------	----------------------------------

## 2.132 VideoConverter Class Reference

### Static Public Member Functions

- static std::unique\_ptr< QImage > [convertAVFrameToQImage](#) (AVFrame &frame, int width, int height)
- static std::unique\_ptr< GUI::Player::Video > [convertAVVideoToVideo](#) (Model::AVVideo &video)
- static unique\_ptr< AVFrame > [convertQImageToAVFrame](#) (QImage &imgae)
- static unique\_ptr< Model::AVVideo > [convertVideoToAVVideo](#) (GUI::Player::Video &video)

### 2.132.1 Detailed Description

Converts AVFrames to QImages and vice versa.

### 2.132.2 Member Function Documentation

2.132.2.1 `static std::unique_ptr<QImage> convertAVFrameToQImage ( AVFrame & frame, int width, int height )`  
`[inline], [static]`

Converts the given AVFrame to a QImage.

**Parameters**

<i>frame</i>	the avframe to convert
<i>width</i>	The width of the frame
<i>height</i>	The height of the frame

**Returns**

the converted AVFrame

**2.132.2.2** `static std::unique_ptr<GUI::Player::Video> convertAVVideoToVideo ( Model::AVVideo & video )`  
`[inline],[static]`

Converts a AVVideo to a Video

**Parameters**

<i>video</i>	The video to convert
--------------	----------------------

**Returns**

the converted AVVideo

**2.132.2.3** `static unique_ptr<AVFrame> convertQImageToAVFrame ( QImage & imgae )` `[inline],[static]`

Converts a qimage to a avframe.

**Parameters**

<i>imgae</i>	the qimage to convert
--------------	-----------------------

**Returns**

the converted qimage

**2.132.2.4** `static unique_ptr<Model::AVVideo> convertVideoToAVVideo ( GUI::Player::Video & video )` `[inline],[static]`

Converts a Video to a AVVideo.

**Parameters**

<i>video</i>	the video to convert
--------------	----------------------

**Returns**

the converted video

## 2.133 VideoLoader Class Reference

**Public Member Functions**

- [VideoLoader](#) (QString path)
- `std::uinque_ptr< Model::AVVideo > loadVideo ()`

### 2.133.1 Detailed Description

This class can load a encoded video.

### 2.133.2 Member Function Documentation

#### 2.133.2.1 `std::unique_ptr< Model::AVVideo > loadVideo ( )`

Loads the video and generates the AVVideo.

Returns

the loaded video

## 2.134 VideoPlayer Class Reference

### Public Member Functions

- [VideoPlayer](#) ()
- void [addView](#) ([GUI::Player::FrameView](#) &view)
- void [removeView](#) ([GUI::Player::FrameView](#) &view)
- void [setVideo](#) ([GUI::Player::Video](#) &video)
- [GUI::Player::Video](#) \* [getVideo](#) ()
- void [setTimer](#) (shared\_ptr< [GUI::Player::Timer](#) > timer\_:std:)
- void [clearTimer](#) ()
- int [getFps](#) ()
- void [setMasterControlPanel](#) ([GUI::Player::ControlPanel](#) &controlPanel)
- void [play](#) ()
- void [pause](#) ()
- void [stop](#) ()
- void [nextFrame](#) ()
- void [previousFrame](#) ()
- void [setSpeed](#) (float speed)
- void [setPosition](#) (int position)
- int [getPosition](#) ()
- float [getSpeed](#) ()
- bool [isPlaying](#) ()
- bool [isStopped](#) ()
- void [reset](#) ()

### Data Fields

- std::vector< [GUI::Player::FrameView](#) \* > **views**

### 2.134.1 Detailed Description

This class is a video player. It provides a basic interface for handling playback of videos.

### 2.134.2 Constructor & Destructor Documentation

#### 2.134.2.1 `VideoPlayer ( )`

Constructor.



### 2.134.3 Member Function Documentation

#### 2.134.3.1 void addView ( GUI::Player::FrameView & view )

Adds a view. Multiple views can be added.

##### Parameters

<i>view</i>	the view to add
-------------	-----------------

#### 2.134.3.2 void clearTimer ( )

Clears the timer.

#### 2.134.3.3 int getFps ( )

Returns the fps the player is currently playing at.

##### Returns

the current fps of the player

#### 2.134.3.4 GUI::Player::Video \* getVideo ( )

Returns a pointer to the currently played video. If no video is set nullptr is returned.

##### Returns

pointer to the current video

#### 2.134.3.5 void removeView ( GUI::Player::FrameView & view )

Removes a view.

##### Parameters

<i>view</i>	the view to remove
-------------	--------------------

#### 2.134.3.6 void setTimer ( shared\_ptr< GUI::Player::Timer > timer\_:std: )

Sets the timer for the player. This method has to be called in order to be able to play the video.

##### Parameters

<i>timer :std,:</i>	the timer for the player
---------------------	--------------------------

#### 2.134.3.7 void setVideo ( GUI::Player::Video & video )

Sets the video. If a video was previously set the old video gets deleted,

## Parameters

<i>video</i>	the video to play
--------------	-------------------

## 2.135 VintageFilter Class Reference

### Public Member Functions

- `std::string` [getName](#) ()
- `std::string` [getFilterDescription](#) ()

#### 2.135.1 Detailed Description

Adjusts the colors of the video to make it look vintage

#### 2.135.2 Member Function Documentation

##### 2.135.2.1 `std::string` [getFilterDescription](#) ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

##### 2.135.2.2 `std::string` [getName](#) ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.136 VintageFilterbox Class Reference

### Public Member Functions

- void **[vintageFilterBox](#)** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **[setFilter](#)** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **[getFilter](#)** ()

## 2.137 WriteComment Class Reference

### Public Member Functions

- [WriteComment](#) ()
- void [mergeWith](#) ([Undo\\_Redo::QUndoCommand](#) command)
- void [undo](#) ()
- void [redo](#) ()
- void [id](#) ()

### 2.137.1 Constructor & Destructor Documentation

#### 2.137.1.1 WriteComment ( )

Constuctor

### 2.137.2 Member Function Documentation

#### 2.137.2.1 void id ( )

returns id of this command

#### 2.137.2.2 void mergeWith ( Undo\_Redo::QUndoCommand *command* )

attempts to merge this command with command if they have the same id, and the id is not -1

#### 2.137.2.3 void redo ( )

applies changes to the textbox

#### 2.137.2.4 void undo ( )

reverts changes to the textbox

## 2.138 Yuv411FileReader Class Reference

### Public Member Functions

- [Yuv411FileReader](#) (QString filename, int width, int height, GUI::Player::Compression compression)
- std::unique\_ptr< [GUI::Player::Video](#) > read ()

### Static Public Member Functions

- static std::vector< QRgb > [yuv411ToRgb888](#) (Yuv11Vector vector)

### Additional Inherited Members

#### 2.138.1 Detailed Description

This class is able to read Yuv 411 files.

### 2.138.2 Constructor & Destructor Documentation

#### 2.138.2.1 Yuv411FileReader ( QString *filename*, int *width*, int *height*, GUI::Player::Compression *compression* )

Constructor.

## Parameters

<i>filename</i>	absolute path to the file to load
<i>width</i>	width of the video
<i>height</i>	height of the video
<i>compression</i>	the compression of the file

## 2.138.3 Member Function Documentation

2.138.3.1 `std::unique_ptr< GUI::Player::Video > read ( ) [virtual]`

Reads the file in.

## Returns

the complete video

Implements [YuvFileReader](#).

2.138.3.2 `static std::vector<QRgb> yuv411ToRgb888 ( Yuv11Vector vector ) [inline],[static]`

Converts a [Yuv411Vector](#) to the corresponding Rgb88 pixels.

## Parameters

<i>vector</i>	the vector to convert
---------------	-----------------------

## Returns

the computed rgb888 pixels

## 2.139 Yuv411FileSaver Class Reference

## Public Member Functions

- [Yuv411FileSaver](#) (QString filename, [GUI::Player::Video](#) &video, GUI::Player::Compression compression)
- void [save](#) ()

## Static Public Member Functions

- static [GUI::Player::Yuv411Vector](#) [rgb888ToYuv411](#) (QRgb pixel1, QRgb pixel2, QRgb pixel3, QRgb pixel4)

## Additional Inherited Members

## 2.139.1 Detailed Description

This class can save videos in the yuv 411 format.

## 2.139.2 Constructor &amp; Destructor Documentation

2.139.2.1 `Yuv411FileSaver ( QString filename, GUI::Player::Video & video, GUI::Player::Compression compression )`

Constructor.

## Parameters

<i>filename</i>	absolute path to the file to save to
<i>video</i>	the video to save
<i>compression</i>	the compression mode

## 2.139.3 Member Function Documentation

2.139.3.1 `static GUI::Player::Yuv411Vector rgb888ToYuv411 ( QRgb pixel1, QRgb pixel2, QRgb pixel3, QRgb pixel4 )`  
`[inline], [static]`

Converts Rgb888 pixels to a [Yuv411Vector](#).

## Returns

the [Yuv411Vector](#)

2.139.3.2 `void save ( ) [virtual]`

Saves the video to the file.

Implements [YuvFileSaver](#).

## 2.140 Yuv411Vector Class Reference

## Data Fields

- `uint8_t u`
- `uint8_t y1`
- `uint8_t y2`
- `uint8_t v`
- `uint8_t y3`
- `uint8_t y4`

## 2.140.1 Detailed Description

A [Yuv411Vector](#).

## 2.141 Yuv420FileReader Class Reference

## Public Member Functions

- `void yuv420FileReader (QString filename, int width, int height)`
- `std::unique_ptr< GUI::Player::Video > read ()`

## Additional Inherited Members

## 2.141.1 Detailed Description

This class can read Yuv 420 files.

### 2.141.2 Member Function Documentation

#### 2.141.2.1 `std::unique_ptr< GUI::Player::Video > read ( ) [virtual]`

Reads the file in.

Returns

the complete video

Implements [YuvFileReader](#).

#### 2.141.2.2 `void yuv420FileReader ( QString filename, int width, int height )`

Constructor.

Parameters

<i>filename</i>	absolute path to the file to load
<i>width</i>	width of the video
<i>height</i>	height of the video

## 2.142 Yuv420FileSaver Class Reference

### Public Member Functions

- [Yuv420FileSaver](#) (QString filename, [GUI::Player::Video](#) &video)
- void [save](#) ()

### Additional Inherited Members

#### 2.142.1 Detailed Description

This class can save videos in the yuv 420 format.

#### 2.142.2 Constructor & Destructor Documentation

##### 2.142.2.1 `Yuv420FileSaver ( QString filename, GUI::Player::Video & video )`

Constructor.

Parameters

<i>filename</i>	absolute path to the file to save to
<i>video</i>	the video to save

#### 2.142.3 Member Function Documentation

##### 2.142.3.1 `void save ( ) [virtual]`

Saves the video to the file.

Implements [YuvFileSaver](#).

## 2.143 Yuv422FileReader Class Reference

### Public Member Functions

- [Yuv422FileReader](#) (QString filename, int width, int height, GUI::Player::Compression compression)
- `std::unique_ptr< Videoi > read ()`

### Static Public Member Functions

- `static std::vector< QRgb > yuv422ToRgb888 (GUI::Player::Yuv422Vector vector)`

### Additional Inherited Members

#### 2.143.1 Detailed Description

This class can read yuv 422 files.

#### 2.143.2 Constructor & Destructor Documentation

##### 2.143.2.1 Yuv422FileReader ( QString *filename*, int *width*, int *height*, GUI::Player::Compression *compression* )

Constructor.

Parameters

<i>filename</i>	absolute path to the file to load
<i>width</i>	width of the video
<i>height</i>	height of the video
<i>compression</i>	compression of the file

#### 2.143.3 Member Function Documentation

##### 2.143.3.1 `std::unique_ptr< Videoi > read ( )` [virtual]

Reads the file in.

Returns

the complete video

Implements [YuvFileReader](#).

##### 2.143.3.2 `static std::vector<QRgb> yuv422ToRgb888 ( GUI::Player::Yuv422Vector vector )` [inline], [static]

Converts a [Yuv422Vector](#) the Rgb888 pixels

Returns

the computed rgb888 pixels

## 2.144 Yuv422FileSaver Class Reference

### Public Member Functions

- [Yuv422FileSaver](#) (QString filename, [GUI::Player::Video](#) &video, [GUI::Player::Compression](#) compression)
- void [save](#) ()

### Static Public Member Functions

- static [GUI::Player::Yuv422Vector](#) [rgb888ToYuv422](#) (QRgb pixel1, QRgb pixel2)

### Additional Inherited Members

#### 2.144.1 Detailed Description

This class can save a video in the yuv 422 format.

#### 2.144.2 Constructor & Destructor Documentation

##### 2.144.2.1 Yuv422FileSaver ( QString filename, GUI::Player::Video & video, GUI::Player::Compression compression )

Constructor.

Parameters

<i>filename</i>	absolute path to the file to save to
<i>video</i>	the video to save
<i>compression</i>	the compression mode

#### 2.144.3 Member Function Documentation

##### 2.144.3.1 static GUI::Player::Yuv422Vector rgb888ToYuv422 ( QRgb pixel1, QRgb pixel2 ) [inline],[static]

Converts Rgb888 pixel to a [Yuv422Vector](#).

Returns

the [Yuv422Vector](#)

##### 2.144.3.2 void save ( ) [virtual]

Saves the video to the file.

Implements [YuvFileSaver](#).

## 2.145 Yuv422Vector Class Reference

#### 2.145.1 Detailed Description

A [Yuv422Vector](#).



## 2.146 Yuv444FileReader Class Reference

### Public Member Functions

- [Yuv444FileReader](#) (QString filename, int width, int height, GUI::Player::Compression compression)
- std::unique\_ptr< [GUI::Player::Video](#) > read ()

### Static Public Member Functions

- static QRgb [yuv444ToRgb888](#) (GUI::Player::Yuv444Vector vector)

### Additional Inherited Members

#### 2.146.1 Detailed Description

This class can read Yuv 444 files.

#### 2.146.2 Constructor & Destructor Documentation

##### 2.146.2.1 Yuv444FileReader ( QString *filename*, int *width*, int *height*, GUI::Player::Compression *compression* )

Constructor.

Parameters

<i>filename</i>	absolute path to the file to load
<i>width</i>	width of the video
<i>height</i>	height of the video
<i>compression</i>	compression of the file

#### 2.146.3 Member Function Documentation

##### 2.146.3.1 std::unique\_ptr< GUI::Player::Video > read ( ) [virtual]

Reads the file in.

Returns

the complete video

Implements [YuvFileReader](#).

##### 2.146.3.2 static QRgb yuv444ToRgb888 ( GUI::Player::Yuv444Vector *vector* ) [inline],[static]

Converts a [Yuv444Vector](#) to a Rgb888 pixel.

Parameters

<i>vector</i>	the vector to convert
---------------	-----------------------

Returns

the computed pixel

## 2.147 Yuv444FileSaver Class Reference

### Public Member Functions

- [Yuv444FileSaver](#) (QString filename, [GUI::Player::Video](#) &video, [GUI::Player::Compression](#) compression)
- void [save](#) ()

### Static Public Member Functions

- static [GUI::Player::Yuv444Vector](#) [rgb888ToYuv444](#) (QRgb pixel1)

### Additional Inherited Members

#### 2.147.1 Detailed Description

This class can save videos in the yuv 422 format.

#### 2.147.2 Constructor & Destructor Documentation

##### 2.147.2.1 Yuv444FileSaver ( QString filename, GUI::Player::Video & video, GUI::Player::Compression compression )

Constructor.

Parameters

<i>filename</i>	absolute path to the file to save to
<i>video</i>	the video to save
<i>compression</i>	the compression mode

#### 2.147.3 Member Function Documentation

##### 2.147.3.1 static GUI::Player::Yuv444Vector rgb888ToYuv444 ( QRgb pixel1 ) [inline],[static]

Converts a Rgb888 pixel to a [Yuv444Vector](#).

Parameters

<i>pixel1</i>	the pixel to convert
---------------	----------------------

Returns

the [Yuv444Vector](#)

##### 2.147.3.2 void save ( ) [virtual]

Saves the video to the file.

Implements [YuvFileSaver](#).

## 2.148 Yuv444Vector Class Reference

#### 2.148.1 Detailed Description

A [Yuv444Vector](#).

## 2.149 YuvFileDialog Class Reference

### Public Member Functions

- [YuvFileDialog](#) ([GUI::Player::QWidget\\_\\_11](#) \*parent=0)
- [QString](#) [getFilename](#) ()
- void [show](#) ()
- bool [wasSuccessfull](#) ()

### 2.149.1 Detailed Description

This class is the dialog that gets shown when the user wants to select a yuv file to load.

### 2.149.2 Constructor & Destructor Documentation

#### 2.149.2.1 YuvFileDialog ( GUI::Player::QWidget\_\_11 \* parent = 0 )

Constructor.

### 2.149.3 Member Function Documentation

#### 2.149.3.1 QString getFilename ( )

Returns the absolute path to the file the user wants to open.

Returns

absolute path to the user chosen file

#### 2.149.3.2 void show ( )

Shows the dialog.

#### 2.149.3.3 bool wasSuccessfull ( )

Whether the user clicked ok or cancel.

Returns

true if the user clicked ok. false otherwise.

## 2.150 YuvFileReader Class Reference

### Public Member Functions

- [YuvFileReader](#) ([QString](#) filename, int width, int height)
- virtual [std::unique\\_ptr](#)< [GUI::Player::Video](#) > [read](#) ()=0

### Static Public Member Functions

- static int [clamp](#) (int value)

## Protected Attributes

- `unique_ptr< QByteArray > binaryData:std:`
- `int width`
- `int height`
- `unique_ptr< GUI::Player::Video > video:std:`

### 2.150.1 Detailed Description

This is the base class for all different yuv file readers.

### 2.150.2 Constructor & Destructor Documentation

#### 2.150.2.1 YuvFileReader ( QString filename, int width, int height )

Constructor.

Parameters

<i>filename</i>	the absolute path to the file to load
<i>width</i>	the width of the video
<i>height</i>	the height of the video

### 2.150.3 Member Function Documentation

#### 2.150.3.1 static int clamp ( int value ) [inline], [static]

Clamps the given value to the range [0,255].

Parameters

<i>value</i>	the value to clamp
--------------	--------------------

Returns

the clamped value

#### 2.150.3.2 virtual std::unique\_ptr<GUI::Player::Video> read ( ) [pure virtual]

Reads the file in.

Returns

the complete video

Implemented in [Yuv411FileReader](#), [Yuv444FileReader](#), [Yuv422FileReader](#), and [Yuv420FileReader](#).

## 2.151 YuvFileSaver Class Reference

### Public Member Functions

- [YuvFileSaver](#) (QString filename, [GUI::Player::Video](#) &video)
- virtual void [save](#) ()=0

## Protected Attributes

- int **width**
- int **height**
- [GUI::Player::Video](#) \* **video**
- QFile **file**
- QDataStream **dataStream**

### 2.151.1 Detailed Description

This is the base class for yuv savers.

### 2.151.2 Constructor & Destructor Documentation

#### 2.151.2.1 YuvFileSaver ( QString *filename*, GUI::Player::Video & *video* )

Constructor.

Parameters

<i>filename</i>	absolute path to the file to save to
<i>video</i>	the video to save

### 2.151.3 Member Function Documentation

#### 2.151.3.1 virtual void save ( ) [pure virtual]

Saves the video to the file.

Implemented in [Yuv411FileSaver](#), [Yuv422FileSaver](#), [Yuv444FileSaver](#), and [Yuv420FileSaver](#).

## 2.152 YuvInfoDialog Class Reference

### Public Member Functions

- [YuvInfoDialog](#) (QWidget \*parent)
- int [getFps](#) ()
- int [getWidth](#) ()
- int [getHeight](#) ()
- GUI::Player::Compression [getCompression](#) ()
- GUI::Player::PixelScheme [getPixelScheme](#) ()
- bool [wasSuccessful](#) ()
- void [show](#) ()

### 2.152.1 Detailed Description

This class is the dialog that gets shown to ask the user for additional information about the yuv file he wants to load.

### 2.152.2 Constructor & Destructor Documentation

#### 2.152.2.1 YuvInfoDialog ( QWidget \* *parent* )

Constructor.

### 2.152.3 Member Function Documentation

#### 2.152.3.1 GUI::Player::Compression getCompression ( )

Returns the compression the user entered.

Returns

the compression

#### 2.152.3.2 int getFps ( )

Returns the fps the user entered.

Returns

the fps

#### 2.152.3.3 int getHeight ( )

Returns the height the user entered.

Returns

the height

#### 2.152.3.4 GUI::Player::PixelScheme getPixelScheme ( )

Returns the pixelsheme the user entered.

Returns

the pixelsheme

#### 2.152.3.5 int getWidth ( )

Returns the width the user entered.

Returns

the width

#### 2.152.3.6 void show ( )

Shows the dialog.

#### 2.152.3.7 bool wasSuccessful ( )

Whether the user clicked ok or cancel.

Returns

true if the user clicked ok. false otherwise

## 2.153 YuvVideo Class Reference

### Public Member Functions

- **YuvVideo** (QString path, GUI::Player::PixelScheme type, int width, int height, int fps)
- QString **getPath** ()
- GUI::Player::Compression **getCompression** ()
- YuvType **getYuvType** ()
- [Model::AVVideo](#) & **getAvVideo** ()
- [GUI::Player::Video](#) & **getVideo** ()
- void **loadVideo** ()

### Data Fields

- GUI::Player::Compression \* **compression**
- [GUI::Player::Video](#) \* **displayVideo**
- [Model::AVVideo](#) \* **avVideo**

## 2.154 ZoomFilter Class Reference

### Public Member Functions

- std::string **getName** ()
- std::string **getFilterDescription** ()
- int **getIntensity** ()
- void **setIntensity** (int intensity)

### 2.154.1 Detailed Description

Zooms into the video

### 2.154.2 Member Function Documentation

#### 2.154.2.1 std::string getFilterDescription ( ) [virtual]

Returns the description of the filter

Implements [Filter](#).

#### 2.154.2.2 std::string getName ( ) [virtual]

Returns the name of the filter

Implements [Filter](#).

## 2.155 ZoomFilterBox Class Reference

### Public Member Functions

- **ZoomFilterBox** ([GUI::QtGui::QWidget\\_\\_10](#) \*parent)
- virtual void **setFilter** ([Model::Filter::Filter](#) &filter)
- virtual [Model::Filter::Filter](#) \* **getFilter** ()

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