Image Compression

Generated by Doxygen 1.8.7

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Data Structure Documentation

3.1 bitmap_header_t Struct Reference

Data Fields

- uint32_t **size_of_bitmap_file**
- uint32_t **reserved**
- uint32_t **offset_to_start_image**
- uint32_t **size_of_header**
- uint32_t **width**
- uint32_t **height**
- uint16_t **number_of_planes**
- uint16_t **number_of_bits_per_pixel**
- uint32_t **compression_type**
- uint32_t **size_of_image_in_bytes**
- uint32_t **horizontal_pixels_per_meter**
- uint32_t **vertical_pixels_per_meter**
- uint32_t **number_of_colors**
- uint32_t **number_of_important_colors**

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

- src/bitmap.h

3.2 bitmap_t Struct Reference

Data Fields

- bitmap_header_t **header**
- uint8_t * **bgr_pixel_array**

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

- src/bitmap.h

3.3 cuif_2d_image_t Struct Reference

Data Fields

- cuif_header_t **header**
- void * **extra_content**
- uint8_t *** **pixel_array**

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

- src/cuif_2d.h

3.4 cuif_header_t Struct Reference

Data Fields

- uint16_t signature
- uint8_t version
- uint8_t number_of_students
- uint8_t channels
- uint32_t width
- uint32_t height
- uint32_t * student_id

3.4.1 Field Documentation

3.4.1.1 uint8_t cuif_header_t::channels

The number of channels in the image

3.4.1.2 uint32_t cuif_header_t::height

The full image height

3.4.1.3 uint8_t cuif_header_t::number_of_students

Number of students in the group who edited the code

3.4.1.4 uint16_t cuif_header_t::signature

Must have the file signature, used to identify the cuif format

3.4.1.5 uint32_t* cuif_header_t::student_id

A list of numeric student IDs

3.4.1.6 uint8_t cuif_header_t::version

Identifies the version of the cuif

3.4.1.7 uint32_t cuif_header_t::width

The full image width

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

- src/cuif.h

3.5 cuif_raster_image_t Struct Reference

Data Fields

- cuif_header_t **header**
- void * **extra_content**
- uint8_t ** **pixel_array**

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

- src/cuif_raster.h

Chapter 4

File Documentation

4.1 src/bitmap.c File Reference

```
#include "bitmap.h"
```

Functions

- bitmap_t * bitmap_new ()

  Creates a new bitmap (through (m)alloc)
- void bitmap_free (bitmap_t *bitmap)

  This function frees the bitmap from the memory.

4.1.1 Detailed Description

: ismaelseidel : 2016-08-10 21:56:11 Modified by: ismaelseidel Modified time: 2016-08-11 19:13:28

4.1.2 Function Documentation

4.1.2.1 void bitmap_free (bitmap_t * *bitmap*)

This function frees the bitmap from the memory.

Parameters

bitmap	Pointer to the bitmap that should be freed

4.1.2.2 bitmap_t* bitmap_new ( )

Creates a new bitmap (through (m)alloc)

Returns

The newly (m)allocated bitmap, with a all zeroed header and NULL pixel array

4.2 src/bitmap_test.c File Reference

```
#include "bitmap_test.h"
```

Functions

- void test_bitmap_reading ()

  { function_description }

4.2.1 Detailed Description

: ismaelseidel : 2016-08-10 22:11:51 Modified by: ismaelseidel Modified time: 2016-08-11 18:53:32

4.3 src/bmp2cuif.c File Reference

```
#include <stdio.h>
#include <getopt.h>
#include "cuif.h"
#include "language.h"
#include "cuif_test.h"
#include "bitmap_test.h"
```

Macros

- #define **FORMAT_NAME** "cuif"

Functions

- void **testing** ()
- void print_help ()

  Prints a help for this program.
- int **main** (int argc, char ∗∗argv)

4.3.1 Detailed Description

: ismaelseidel : 2016-08-08 17:34:21 Modified by: ismaelseidel Modified time: 2016-08-10 22:13:15

bmp2cuif – Tool to convert a bitmap (∗.bmp) file to CUIF

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4.4 src/cuif.c File Reference

```
#include "cuif.h"
```

Functions

- bool cuif_init_header (cuif_header_t *header, uint8_t version, uint8_t channels, uint32_t width, uint32_t height)

  Initializes the header with the informed paramenters.

- void cuif_add_student_ids_in_header (cuif_header_t *header, const uint32_t *list_of_ids)

  { function_description }

4.4.1 Detailed Description

: ismaelseidel : 2016-08-08 21:47:59 Modified by: ismaelseidel Modified time: 2016-08-11 19:15:19

4.4.2 Function Documentation

4.4.2.1 void cuif_add_student_ids_in_header (cuif_header_t * *header*, const uint32_t * *list_of_ids*)

{ function_description }

Parameters

	header	The header
in	*list_of_ids*	The list of identifiers

4.4.2.2 bool cuif_init_header (cuif_header_t * *header*, uint8_t *version*, uint8_t *channels*, uint32_t *width*, uint32_t *height*)

Initializes the header with the informed paramenters.

Parameters

	header	The header
in	*version*	The version
in	*width*	The width
in	*height*	The height

Returns

Returns true if the header was successfully initialized and false otherwise

4.5 src/cuif_2d.c File Reference

```
#include "cuif_2d.h"
```

Functions

- cuif_2d_image_t * cuif_2d_image_new (uint8_t version, uint8_t channels, uint32_t width, uint32_t height)
  Creates a new 2d cuif.
- cuif_2d_image_t * **cuif_2d_image_new_with_header** (cuif_header_t *header)
- void cuif_2d_image_free (cuif_2d_image_t *cuif_2d_image)
  Frees the (m)allocated memory.

4.5.1 Detailed Description

: ismaelseidel : 2016-08-09 15:28:48 Modified by: ismaelseidel Modified time: 2016-08-10 21:34:10

4.5.2 Function Documentation

4.5.2.1 void cuif_2d_image_free (cuif_2d_image_t * *cuif_2d_image*)

Frees the (m)allocated memory.

Parameters

cuif_2d_image	The cuif 2 d image

4.5.2.2 cuif_2d_image_t* cuif_2d_image_new (uint8_t *version,* uint8_t *channels,* uint32_t *width,* uint32_t *height*)

Creates a new 2d cuif.

Parameters

in	*width*	The width
in	*height*	The height

Returns

A pointer to the recently created 2d cuif

4.6 src/cuif_file_handler.c File Reference

```
#include "cuif_file_handler.h"
```

Functions

- void cuif_2d_write_to_file (cuif_2d_image_t *image, const char *filename)
  { function_description }
- void cuif_raster_write_to_file (cuif_raster_image_t *image, const char *filename)
  { function_description }
- cuif_2d_image_t * **cuif_2d_read_from_file** (const char *filename, bool verbose)

4.6.1 Detailed Description

: ismaelseidel : 2016-08-09 15:28:50 Modified by: ismaelseidel Modified time: 2016-08-11 15:47:43

4.6.2 Function Documentation

4.6.2.1 void cuif_2d_write_to_file (cuif_2d_image_t * *image*, const char * *filename*)

{ function_description }

Parameters

	image	The image
in	*filename*	The filename

4.6.2.2 void cuif_raster_write_to_file (cuif_raster_image_t * *image*, const char * *filename*)

{ function_description }

Parameters

	image	The image
in	*filename*	The filename

4.7 src/cuif_raster.c File Reference

```
#include "cuif_raster.h"
```

Functions

- cuif_raster_image_t * **cuif_raster_image_new** (uint8_t version, uint8_t channels, uint32_t width, uint32_t height)

4.7.1 Detailed Description

: ismaelseidel : 2016-08-09 15:28:50 Modified by: ismaelseidel Modified time: 2016-08-10 21:49:09

4.8 src/cuif_test.c File Reference

```
#include "cuif_test.h"
```

Functions

- void **test_cuif_2d_rgb_writing** ()

4.8.1 Detailed Description

: ismaelseidel : 2016-08-10 18:22:02 Modified by: ismaelseidel Modified time: 2016-08-10 21:52:26

4.9 src/cuif_v1.c File Reference

```
#include "cuif_v1.h"
```

4.9.1 Detailed Description

: ismaelseidel : 2016-08-10 21:42:43 Modified by: ismaelseidel Modified time: 2016-08-10 21:42:52

4.10 src/language.c File Reference

```
#include "language.h"
```

Functions

- void **setup_language** ()

4.10.1 Detailed Description

: ismaelseidel : 2016-08-09 17:38:05 Modified by: ismaelseidel Modified time: 2016-08-10 16:52:29