Класс Morph

Work with 3d models. Morhp surfaces and view changes. Подробнее...

```
#include <morph.hpp>
```

Открытые члены

	Morph ()
void	**rounder** (std::string source_input, std::string source_output) Rounds to four decimal places. Works only with OFF or OBJ files.
void	**convert_off_to_obj** (std::string source_input, std::string source_output) Converts a file from off to obj. There is a similar function that converts from obj to off.
void	**convert_obj_to_off** (std::string source_input, std::string source_output)
void	**write_obj** (Eigen::MatrixXd V_input, Eigen::MatrixXi F_input, std::string source_output) Writes data from vertex and side matrices to a file.
void	**fast_draw** (std::string source_to_file) Launches the 3D model viewing mode. Does not allow editing of the face.
void	**draw_mesh** () Launches the 3D model viewing mode. Allows editing the face. For correct operation, additional files must also be read - run the **init_bones()** function.

Закрытые члены

bool	**key_down** (igl::opengl::glfw::Viewer &viewer_temp, unsigned int key, int mods) Reads keyboard input and calls corresponding changes in the face shape.
bool	**pre_draw** (igl::opengl::glfw::Viewer &viewer_temp)
void	**init_bones** () Reads data from additional files. Necessary for face editing mode.
void	**save_file** (std::string source) Saves a file with the .obj extension.

Закрытые данные

Eigen::MatrixXd	**V**
Eigen::MatrixXd	**Union**
Eigen::MatrixXd	**d_nose**
Eigen::MatrixXd	**d_chin**
Eigen::MatrixXd	**d_cheeks**
Eigen::MatrixXd	**d_jawls**
Eigen::MatrixXd	**d_lips**
Eigen::MatrixXd	**d_horns**
Eigen::MatrixXi	**F**
Eigen::MatrixXi	**F1**

Подробное описание

Work with 3d models. Morhp surfaces and view changes.

Конструктор(ы)

◆ Morph()

```
Morph::Morph (  )
```

Методы

◆ convert_obj_to_off()

```
void Morph::convert_obj_to_off ( std::string  source_input,
                                 std::string  source_output
                               )
```

Converts a file from obj to off. There is a similar function that converts from off to obj.

Аргументы

source_input	The address of the file to be processed.
source_output	The address where the processed file will be saved. The address must contain the file name.

◆ convert_off_to_obj()

```
void Morph::convert_off_to_obj ( std::string  source_input,
                                 std::string  source_output
                               )
```

Converts a file from off to obj. There is a similar function that converts from obj to off.

Аргументы

source_input	The address of the file to be processed.
source_output	The address where the processed file will be saved. The address must contain the file name.

◆ draw_mesh()

```
void Morph::draw_mesh ( )
```

Launches the 3D model viewing mode. Allows editing the face. For correct operation, additional files must also be read - run the **init_bones()** function.

◆ fast_draw()

```
void Morph::fast_draw ( std::string  source_to_file )
```

Launches the 3D model viewing mode. Does not allow editing of the face.

Аргументы

source_to_file The address of the file to be read. Accepts obj or off files.

◆ init_bones()

```
void Morph::init_bones ( )
```

private

Reads data from additional files. Necessary for face editing mode.

Reads data from OBJ files and stores it in matrices. Pay attention to the paths of the files being read inside the function.

◆ key_down()

```
bool Morph::key_down ( igl::opengl::glfw::Viewer &  viewer_temp,
                       unsigned int                 key,
                       int                          mods 
                     )
```

private

Reads keyboard input and calls corresponding changes in the face shape.

◆ pre_draw()

```
bool Morph::pre_draw ( igl::opengl::glfw::Viewer &  viewer_temp )
```

private

◆ rounder()

```
void Morph::rounder ( std::string  source_input,
                      std::string  source_output
                    )
```

Rounds to four decimal places. Works only with OFF or OBJ files.

The algorithm: checks the file extension -> calls the read function -> rounds -> writes.

Аргументы

source_input The address of the file to be processed.

source_output The address where the processed file will be saved. The address must contain the file name.

◆ save_file()

```
void Morph::save_file ( std::string  source )
```

private

Saves a file with the .obj extension.

Writes a 3D model to a file using the Union and F matrices. This method is called after modifying the model, if you want to save the changes made. Pay attention to the address where the file will be saved inside the function.

Аргументы

source String containing the address and name of the file to be saved.

◆ write_obj()

```
void Morph::write_obj ( Eigen::MatrixXd  V_input,
                        Eigen::MatrixXi  F_input,
                        std::string      source_output
                      )
```

Writes data from vertex and side matrices to a file.

Аргументы

V_input Matrix of vertices.

F_input Matrix of sides.

The address where the resulting file will be saved.

Данные класса

◆ d_cheeks

Eigen::MatrixXd Morph::d_cheeks

private

Аргументы

d_cheeks Matrix of cheeks vertices

◆ d_chin

Eigen::MatrixXd Morph::d_chin

private

Аргументы

d_chin Matrix of chin vertices

◆ d_horns

Eigen::MatrixXd Morph::d_horns

private

Аргументы

d_horns Matrix of horns vertices

◆ d_jawls

Eigen::MatrixXd Morph::d_jawls

private

Аргументы

d_jawls Matrix of jawls vertices

◆ d_lips

Eigen::MatrixXd Morph::d_lips

private

Аргументы

d_lips Matrix of lips vertices

◆ d_nose

Eigen::MatrixXd Morph::d_nose

private

Аргументы

d_nose Matrix of nose vertices

◆ F

Eigen::MatrixXi Morph::F private

Аргументы

F Matrix of surfaces of the main model

◆ F1

Eigen::MatrixXi Morph::F1 private

Аргументы

F1 Matrix of surfaces where surfaces of additional files (e.g. nose, cheeks) will be stored. This variable is not used, but it is mandatory because surfaces must be read.

◆ Union

Eigen::MatrixXd Morph::Union private

Аргументы

Union Matrix of vertices of the modified model. Used in the draw_mesh method.

◆ V

Eigen::MatrixXd Morph::V private

Аргументы

V Matrix of vertices of the main model

Объявления и описания членов классов находятся в файлах:

- code/include/**morph.hpp**
- code/**morph.cpp**

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