

SoftRenderer

0.1

Generated by Doxygen 1.8.15

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Chapter 1

SoftRenderer

1.1 Introduction

SoftRenderer is a simple software-based rendering library written in C++.

1.2 Build

To build the whole project, either Code::Blocks or Visual Studio 2012 (or later) is required.

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Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

D:/cwork/softrenderер/include/ softrenderер.h	
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Chapter 3

File Documentation

3.1 D:/cwork/softrenderер/include/softrenderер.h File Reference

This header file contains declarations of all functions of softrenderер.

```
#include <meshlib.h>
#include <vector>
```

Macros

- #define **SOFTRENDERER_API** extern

Functions

- SOFTRENDERER_API int [sr_mesh_render_persp](#) (MESH m, std::vector< FLOATDATA > &depthmap, std::vector< FLOATDATA > &scalarmap, FLOATDATA f, INTDATA h, INTDATA w, bool doscalar, FLOATDATA cutoff=0.0, FLOATDATA eps=0.0001)
Perspective-renders a given mesh to a depthmap and optionally scalarmap.
- SOFTRENDERER_API int [sr_mesh_render_ortho](#) (MESH m, std::vector< FLOATDATA > &depthmap, std::vector< FLOATDATA > &scalarmap, FLOATDATA g, INTDATA h, INTDATA w, bool doscalar, FLOATDATA cutoff=0.0, FLOATDATA eps=0.0001)
Orthographic-renders a given mesh to a depthmap and optionally scalarmap.

3.1.1 Detailed Description

This header file contains declarations of all functions of softrenderер.

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Version

0.1.0.0

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3.1.2 Function Documentation

3.1.2.1 `sr_mesh_render_ortho()`

```
SOFTRENDERER_API int sr_mesh_render_ortho (
    MESH m,
    std::vector< FLOATDATA > & depthmap,
    std::vector< FLOATDATA > & scalarmap,
    FLOATDATA g,
    INTDATA h,
    INTDATA w,
    bool doscalar,
    FLOATDATA cutoff,
    FLOATDATA eps )
```

Orthographic-renders a given mesh to a depthmap and optionally scalarmap.

Parameters

in	<i>m</i>	Input mesh (must contain faces, face-scalars are preferred)
out	<i>depthmap</i>	Column-major depth map
out	<i>scalarmap</i>	Column-major scalar map
in	<i>g</i>	Camera focal-length (in px)
in	<i>h</i>	Map height (in px)
in	<i>w</i>	Map width (in px)
in	<i>doscalar</i>	Render scalar map (true/false)
in	<i>cutoff</i>	Render front z-cut-off (default - 0.0)
in	<i>eps</i>	Render tolerance (default - 0.0001)

Returns

Error code (0-success)

3.1.2.2 `sr_mesh_render_persp()`

```
SOFTRENDERER_API int sr_mesh_render_persp (
    MESH m,
    std::vector< FLOATDATA > & depthmap,
    std::vector< FLOATDATA > & scalarmap,
    FLOATDATA f,
    INTDATA h,
    INTDATA w,
    bool doscalar,
    FLOATDATA cutoff,
    FLOATDATA eps )
```

Perspective-renders a given mesh to a depthmap and optionally scalarmap.

Parameters

in	<i>m</i>	Input mesh (must contain faces, face-scalars are preferred)
out	<i>depthmap</i>	Column-major depth map
out	<i>scalarmap</i>	Column-major scalar map
in	<i>f</i>	Camera focal-length (in px)
in	<i>h</i>	Map height (in px)
in	<i>w</i>	Map width (in px)
in	<i>doscalar</i>	Render scalar map (true/false)
in	<i>cutoff</i>	Render front z-cut-off (default - 0.0)
in	<i>eps</i>	Render tolerance (default - 0.0001)

Returns

Error code (0-success)

3.2 D:/cwork/softrenderersrc/softrenderers.cpp File Reference

This header file contains definitions of all functions of softrenderers.

```
#include "../include/softrenderers.h"
#include <iostream>
#include <vector>
#include <cmath>
#include <limits>
#include <stdint.h>
#include <algorithm>
#include <assert.h>
```

Functions

- SOFTRENDERER_API int [sr_mesh_render_persp](#) (MESH m, std::vector< FLOATDATA > &depthmap, std::vector< FLOATDATA > &scalarmap, FLOATDATA f, INTDATA h, INTDATA w, bool doscalar, FLOATDATA cutoff, FLOATDATA eps)

Perspective-renders a given mesh to a depthmap and optionally scalarmap.

- SOFTRENDERER_API int [sr_mesh_render_ortho](#) (MESH m, std::vector< FLOATDATA > &depthmap, std::vector< FLOATDATA > &scalarmap, FLOATDATA g, INTDATA h, INTDATA w, bool doscalar, FLOATDATA cutoff, FLOATDATA eps)

Orthographic-renders a given mesh to a depthmap and optionally scalarmap.

3.2.1 Detailed Description

This header file contains definitions of all functions of softrenderers.

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3.2.2 Function Documentation

3.2.2.1 sr_mesh_render_ortho()

```
SOFTRENDERER_API int sr_mesh_render_ortho (
    MESH m,
    std::vector< FLOATDATA > & depthmap,
    std::vector< FLOATDATA > & scalarmap,
    FLOATDATA g,
    INTDATA h,
    INTDATA w,
    bool doscalar,
    FLOATDATA cutoff,
    FLOATDATA eps )
```

Orthographic-renders a given mesh to a depthmap and optionally scalarmap.

Parameters

in	<i>m</i>	Input mesh (must contain faces, face-scalars are preferred)
out	<i>depthmap</i>	Column-major depth map
out	<i>scalarmap</i>	Column-major scalar map
in	<i>g</i>	Camera focal-length (in px)
in	<i>h</i>	Map height (in px)
in	<i>w</i>	Map width (in px)
in	<i>doscalar</i>	Render scalar map (true/false)
in	<i>cutoff</i>	Render front z-cut-off (default - 0.0)
in	<i>eps</i>	Render tolerance (default - 0.0001)

Returns

Error code (0-success)

3.2.2.2 sr_mesh_render_persp()

```
SOFTRENDERER_API int sr_mesh_render_persp (
    MESH m,
    std::vector< FLOATDATA > & depthmap,
    std::vector< FLOATDATA > & scalarmap,
    FLOATDATA f,
    INTDATA h,
    INTDATA w,
    bool doscalar,
    FLOATDATA cutoff,
    FLOATDATA eps )
```

Perspective-renders a given mesh to a depthmap and optionally scalarmap.

Parameters

in	<i>m</i>	Input mesh (must contain faces, face-scalars are preferred)
out	<i>depthmap</i>	Column-major depth map
out	<i>scalarmap</i>	Column-major scalar map
in	<i>f</i>	Camera focal-length (in px)
in	<i>h</i>	Map height (in px)
in	<i>w</i>	Map width (in px)
in	<i>doscalar</i>	Render scalar map (true/false)
in	<i>cutoff</i>	Render front z-cut-off (default - 0.0)
in	<i>eps</i>	Render tolerance (default - 0.0001)

Returns

Error code (0-success)

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