



MASTER INFORMATIQUE

Deep Shadow Maps
README

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1 Description

This project is an implementation of the Deep Shadow Map technic on a Ray Tracer written with c++.

2 How to run the project

This project is purely written in c++ and does not contain external dependencies. You can execute it directly as a c++ project. The project folder is "DeepShadowMaps". When the project is executed, the program will create a ppm file named "render.ppm" that contains the final render.

3 Test scenes

All of the scenes from the abstract or the presentation are on the SceneSetUp.cpp file. You can modify this file to change the content of the scenes. To render a specific scene you just have to call it from the main.cpp file. Or you can uncomment one of the following files still in the main.cpp file.

```
40 sceneRenderer.render3BoxSceneSetUp();
41 //sceneRenderer.renderCylinderScene();
42 //sceneRenderer.volumetricObjectTestScene();
43 //sceneRenderer.box_volumetric_interraction();
44 //sceneRenderer.cylinder_box_interaction();
45
```

4 Parameters

From the main.cpp file you can change the Ray Tracing and shadow map resolution with it's sample number. You can also choose the shadow type between classical ray tracing shadows and deep shadow map shadows. There is also an option to activate self shadowing.

To change the volumetric objects appearance you can modify the scaling factor and noise power parameters from MathHelper.cpp file. You can also give different density functions from this file as a material for volumetric objects.