Advanced Computer Graphics – Assignment 4

1. Introduction

The objective of this assignment is to increase the experimental speed of the previous assignment. Therefore, the BVH approach is used to accelerate ray tracing. The idea is to construct a box to surround each object and detect whether the emitted ray touches the box and then detect whether intersects the objects inside the box.

1. C++ Environment

The Machine is running on windows 10 with Inter Core i7-9700 CPU, 32 GB RAM and NVDIA GeForce RTX 2060 GPU.

1. Data Overview

|  |  |
| --- | --- |
| Input Data (.txt) | Description |
| Input\_Suzanne.txt | Contain 900+ Triangles and no Sphere. |
| Input\_Bunny.txt | Contain 60000+ Triangles and no Sphere. |

(3) Experimentation

|  |  |  |
| --- | --- | --- |
|  | Suzanne | Bunny |
| Output Image |  |  |
| Run Time | 0.74 (s) | 39.85(s) |

1. Run time comparison

|  |  |  |
| --- | --- | --- |
|  | Suzanne | Bunny |
| Homework 3 | 50 min 25 s | Maybe in a few days. |
| Homework 4 | 0.74 s | 39.85 s |