Raytracer Research Assignment

Benjamin Sanders, MS April 6, 2022

1 Introduction

You will need to work individually to complete this assignment. Write your name at the top of all pages for this assignment. Turn in all work to Blackboard on or before the deadline to receive credit.

2 Assignment Description

There are many components to a raytracer. For this introductory assignment, you will identify many pieces of code or pseudocode online which will help you complete a more developed programming project in the future.

You will need to find or write code or pseudocode for the following components:

1. Load OBJ File
2. Compute Absolute Value
3. Compute the Distance between a Point and a Line in 3D
4. Determine whether a Line and a Triangle Intersect in 3D
5. Determine Which Faces from an OBJ File a Given Line Intersects With in 3D
6. Compute the Normal of a Triangle in 3D

7. Compute the Angle between Two Lines in 3D
8. Compute the Illumination for a Triangle in 3D
9. Raytrace an OBJ in 3D to Identify Illumination Intensities over a Screen of Pixels in 2D
10. Output Screen Pixels as an Image
11. A Main Function to Run the Program

3 What to Turn In

Turn in one PDF or Word document on Blackboard, containing the following items.

1. All code or pseudocode found or written for the assignment, along with references. Note that if you do not provide a reference, you are claiming to have created the code or pseudocode yourself.