**My journey undertaking The Ray Tracer Challenge**

Introduction:

This document is my day-by-day journal of building a ray tracer from complete scratch while following the book ‘The Ray Tracer Challenge – A Test-Driven Guide to Your First 3D Renderer’ written by Jamis Buck.

I have a passion for 3D rendering and the process of creating photorealistic images with computers using only mathematics has always fascinated me, I wish to one day apply for a job at Google and believe that building a Ray Tracer is the perfect project to be able to put on my Resume as it is complex but also a visual project.

This book aims to guide you on how to build your own recursive ray tracing software in any OOP programming language of your choice using test-first style and performing Unit tests along the way. The book writes all code in pseudocode, and it is up to the reader to decide how they will implement each component and how they will run their tests.

Aim:

The aim after completing this book is to have a fully functional ray tracer written in C++ as a Console Application that can render images in the PPM image format at any resolution.

The ray tracer will be built entirely in C++ as an executable application as I wish to further my C++ knowledge and because we want to eventually integrate this renderer into Autodesk Maya as a Maya Plug-in (.dll) so that users can export a Maya 3D scene to the custom renderer and send that rendered image back to Maya for Maya to display in a UI window. Maya’s API is written in C++ so writing the renderer in C++ means bridging it with Maya.exe will be much simpler.

Tools and resources:

Visual Studio 15 2017 with C++17.

<https://visualstudio.microsoft.com/vs/older-downloads/>

Git for Windows for version control management and for tracking code changes over time.

<https://gitforwindows.org/>

GoogleTest for performing Unit tests. <https://github.com/google/googletest>

Google C++ Style Guide. <https://google.github.io/styleguide/cppguide.html#C++_Version>

Photoshop 2021 for viewing the PPM image format.

Journal:

Day 1 - 23/2/21:

I installed all required C++ VS 2017 Tools that I needed such as GoogleTest, Desktop development with C++ and Git Bash on both my laptop and desktop. I setup a directory for the Git Repository and added a VS C++ Console app project to it, then connected and hosted it with GitHub as a private repository. I added some useful diagrams into a assets folder and a PDF file of the book, this word document and the UML class Diagrams word document.

Finally, I added README.md and .gitignore files to the Master branch of the new repository.

Day 2 - 24/2/21:

I worked on writing and formatting the README.md file for the repository page.