

Ray-tracing based renderer from scratch in Python

Jörn Lasse Vaupel

February 20, 2023

Contents

1	Introduction	3
2	First rendering loop	3
3	Static camera	3
4	Spheres	3
5	Antialiasing	3
6	Materials	3
6.1	Diffuse	3
6.2	Specular	3
6.3	Specular transmission	3
6.4	Emissive	3
7	Enhancing camera	3
7.1	Positioning and orienting	3
7.2	Depth of field	3
8	Conclusion	3
	References	4

Abstract

- 1 Introduction**
- 2 First rendering loop**
- 3 Static camera**
- 4 Spheres**
- 5 Antialiasing**
- 6 Materials**
 - 6.1 Diffuse**
 - 6.2 Specular**
 - 6.3 Specular transmission**
 - 6.4 Emissive**
- 7 Enhancing camera**
 - 7.1 Positioning and orienting**
 - 7.2 Depth of field**
- 8 Conclusion**

[1]

References

- [1] Peter Shirley. Ray tracing in one weekend, December 2020.
<https://raytracing.github.io/books/RayTracingInOneWeekend.html>.