

Illumination for Computer Generated Pictures

COMP110 - Research Journal - Computing

1707502

March 22, 2018

1 Introduction

This Journal will detail my research on Bui Tuong Phong's seminal article "Illumination for computer generated pictures" and its influence on object modeling in the industry today. This article goes into particular detail about Existing shading techniques of the time , the current issues with long rendering time for detailed shaded objects and the distant goal of a real time display system that can generate pictures at 30 frames per second. I will be referencing both new and older articles that connect to these topics within my main piece of research material.

2 Shading Techniques

Phong talks about many different shading techniques that have been created throughout this section of his article. Phongs first talks about Warnocks shading and how upon projection onto the cathode-ray tube screen a great amount of depth is lost which makes the images look flat. To increase the amount of depth Warnock decreased the intensity

of the reflected light from the object with the distance between the light source and the object. Next he talked about Newell and Sancha who had some ideas on creating transparency and highlights for objects by using not just the highlights created by the incident light source but also the reflection of light from other objects in the scene. [1]

References

- [1] B. T. Phong, “Illumination for computer generated pictures,” *Communications of the ACM*, vol. 18, no. 6, pp. 311–317, 1975.