PRODUCING A BETTER EXPORTER: A COMPARATIVE STUDY OF BLENDER-OSG LIGHTING MODELS

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In 3D computer graphics, mathematical representations known as lighting or illumination models approximate the physical laws governing the interaction of light and matter. A lighting model calculates the color of a surface based on the characteristics of the scene illumination and the reflective properties of the surface.

It is not uncommon for graphical software packages to use different sets of lighting models. However, a problem emerges when multiple software applications are being used in conjunction with each other and each application is executing a different model. The inconsistency in the lighting structure can generate unexpected results in the final rendered images.

Blender and Open Scene Graph (OSG) are 3D graphics packages that are used jointly to develop high performance graphics applications. Blender’s model objects are exported into OSG for higher level scene graph representation and rendering. Currently, there is a visible disparity between Blender and OSG renderings. To reduce the differences, the study first compares the lighting models of both applications. Second, based on the analysis, the study then presents a process for translating between the two models with the objective of generating renderings in OSG that are analogous to Blender’s final render. The result is a Blender exporter that allows a user to export a set of objects and their material properties from Blender to OSG resulting in the same material appearance in both applications, thereby enhancing Blender’s compatibility with OSG.