

TPA 13: Virtual Relighting

Global illumination algorithms simulate light transport in virtual scenes to render photo-realistic images. Ray-Tracing (RT) is a fundamental and much investigated computer graphics algorithm for solving primitive/ray intersections. Instead of creating discrete virtual point lights (VPLs) at vertices of random-walk paths, it is possible to place virtual ray lights (VRLs) along each path segment in the medium.

Objective:

Illuminate virtual scenes using the concept of volumetric phone lightening and virtual point light.

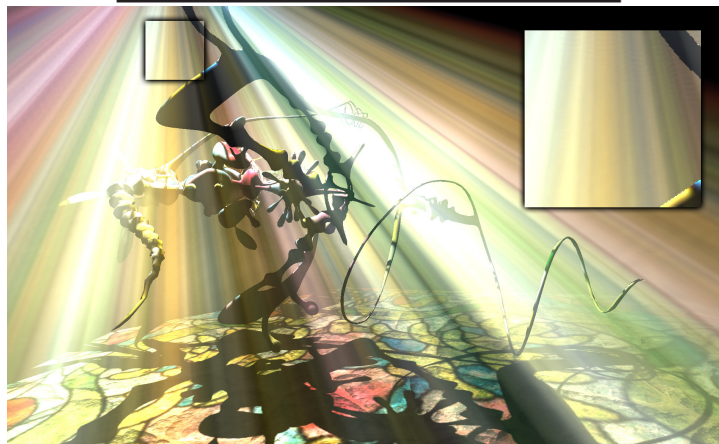
Input

Virtual graphical scenes and parameters of light.

Output

Illuminated scene using different methods of light models, at different view points of display.

Example



References:

1. “Virtual Ray Lights for Rendering Scenes with **Participating Media**”, Jan Novák, Derek Nowrouzezahrai, Carsten Dachsbacher, and Wojciech Jarosz, ACM Transactions on Graphics (Proceedings of SIGGRAPH 2012), vol. 31, no. 4, 2012.
2. “Screen-space bias compensation for interactive high-quality global illumination with **virtual point lights**”, Jan Novák, Thomas Engelhardt, Carsten Dachsbacher, Symposium on Interactive 3D Graphics and Games, pp 119-124, 2011
3. “Naive-Ray-Tracing: A divide-and-conquer approach”, Benjamin Mora, ACM Transactions on Graphics, Article 117, Vol. 30, No 5, October 2011.
4. Photon Beam Diffusion: A Hybrid Monte Carlo Method for **Subsurface Scattering**; Ralf Habel, Per H. Christensen, Wojciech Jarosz; Eurographics Symposium on Rendering 2013, Nicolas Holzschuch and Szymon Rusinkiewicz, (Guest Editors), Volume 32 (2013), Number 4.
5. Visibility-driven progressive volume **photon tracing**; Charly Collin · Mickaël Ribardière · Adrien Gruson · Rémi Cozot · Sumanta Pattanaik · Kadi Bouatouch; Vis Comput DOI 10.1007/s00371-013-0845-x, June 2013.