MANCHESTER 1824
The University of Manchester

COMP37111: Advanced Computer Graphics

Workshop 8 : Path Tracing, Baking and Special Effects

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Breakout 1 : Ponderings

Task 1: Diffuse Environments

In the video on Radiosity we briefly saw a lecture theatre, and you were asked to think about why it was mostly made of diffuse materials. Take a moment to look around you now and see if the same is true of wherever you are now . Why might diffuse materials be a sensible choice for most working environments?

Task 2: Shadows most of the object are diffuse.

In the Path Tracing video we looked at why hard shadows are created by point lights, and soft shadows by area lights and it was said that 'in the real world, of course, lights aren't infinitely small points'. Given that's true, how come we see hard shadows in the real world? BSSDF, light may through the object and make

Task 3: Baking

Texture baking from radiosity solution gives different results to texture baking from path tracing. Why might one give safer results than the other?

Breakout 2 : Visual Effects

For each of these visual effects:

- Caustics
- Motion Blur
- Fluorescence and Phosphorescence
- Doppler effects (e.g. Red or Blue shift)
- Depth of field
- Participating media

Consider

1. Is it modelled by the rendering equation? If yes, how? If no, why?
2. How do each of classic raytracing, radiosity and path tracing handle the effect? Does it naturally happen as part of the technique? If not, could the technique be extended to include it? If so, at what cost?