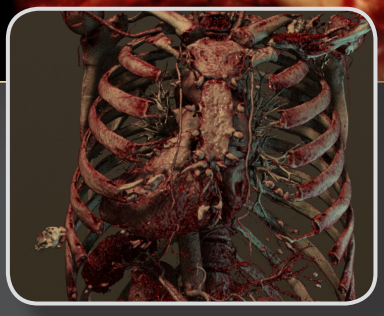
EXPOSURE RENDER

"Interactive direct volume rendering with physically-based lighting"
T. Kroes, F. H. Post, C. P. Botha
http://graphics.tudelft.nl/

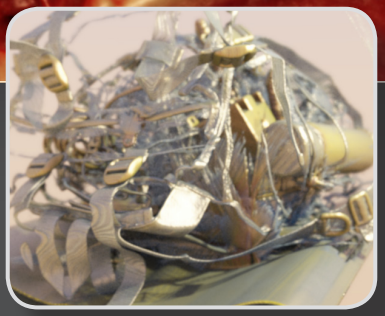
- Interactive Direct Volume Rendering
- Volumetric data (CT, MRI, simulation)
- Enhanced with photo-realistic lighting
- Monte Carlo integration
- Cuda based (GPGPU)
- Fully interactive:
  - transfer function
  - materials
  - lighting
- Open source
- Google Code project

Exposure Render is a Direct Volume Rendering (DVR) Application that applies progressive Monte Carlo raytracing, coupled with physically based light transport to heterogeneous volumetric data.

Exposure Render enables the configuration of any number of arbitrarily shaped and textured area lights, models a real-world camera, including its lens and aperture, and incorporates complex materials, whilst still maintaining interactive display updates. It features both surface and volumetric scattering, implements efficient sampling schemes and applies real-time noise reduction to remove unwanted startup noise, associated with progressive Monte Carlo rendering. The complete implementation is available in source and binary forms under a permissive free software license.



CT data set of a human torso, rendered with a reproducible studio lighting setup



CT data set of a backpack, rendered with complex, physically based shaders

Exposure Render graciously mixes surface and volumetric based scattering

A CT data set of a human heart, lit with a HDR image

http://code.google.com/p/exposure-render

TU Delft · stw · LUMC