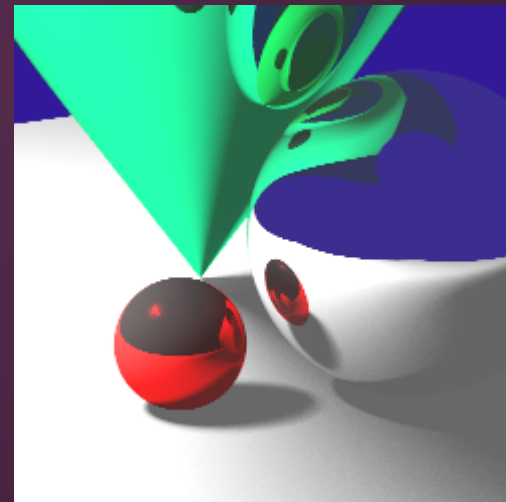
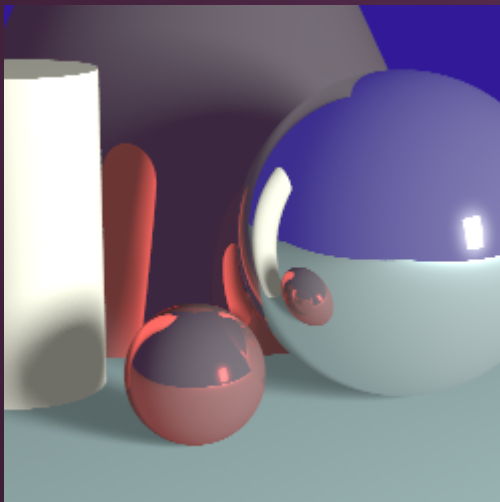
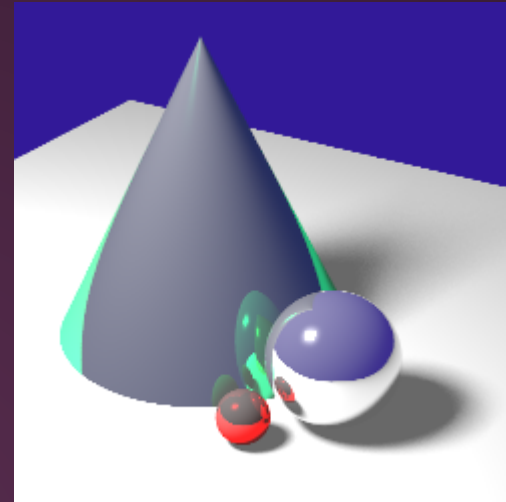
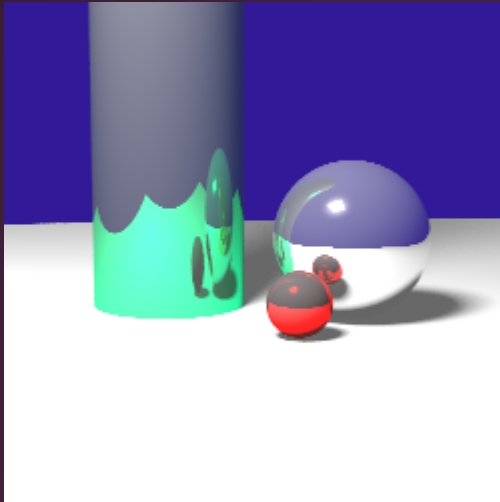


A Practical Model for Subsurface Light Transport

Max Curran



Various Scenes with multiple reflective primitives. Number of samples: Anti-alias - 16, Shadow - 25. All took about one and half minutes

Demo of Basic Raytracer

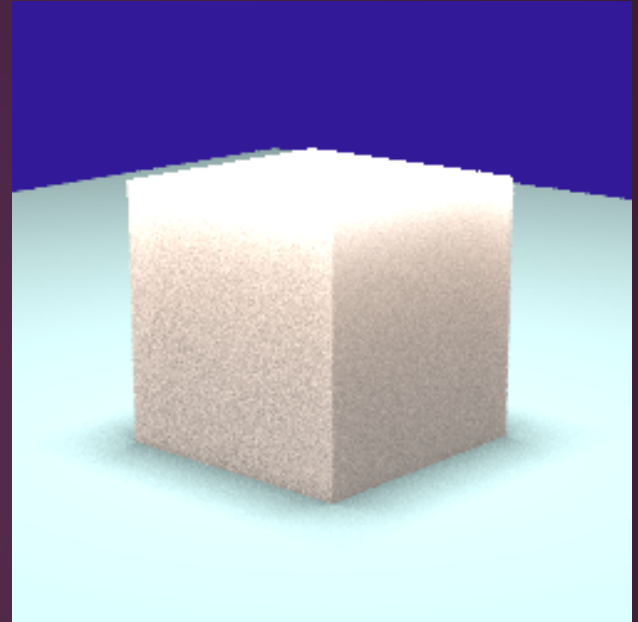
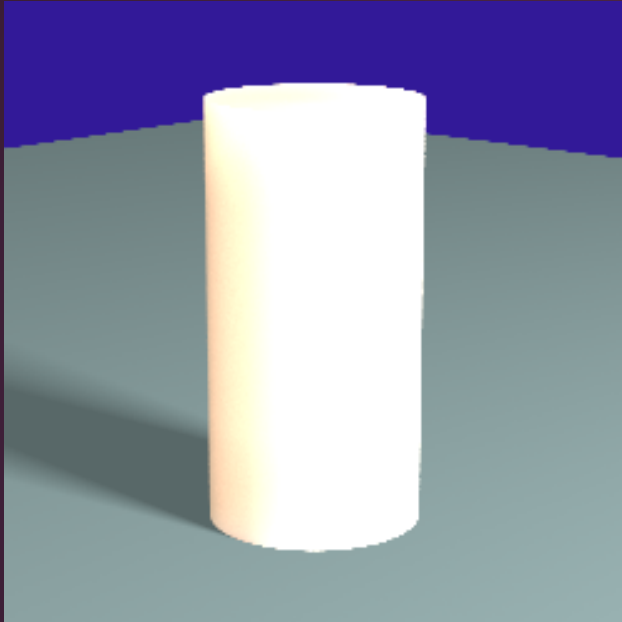
Single Scattering

$$L_o^{(1)}(x_o, \vec{\omega}_o) = \frac{\sigma_s(x_o) Fp(\vec{\omega}_i \cdot \vec{\omega}_o)}{\sigma_{tc}} e^{-s'_i \sigma_t(x_i)} e^{-s'_o \sigma_t(x_o)} L_i(x_i, \vec{\omega}_i).$$

- This equation is used in the raytracer to compute the contribution of the single scattering term
- A random distance into the object is chosen
- a ray is cast from the original intersection the amount of distance chosen
- Then a ray is cast from this point to any light source

Multiple Scattering

- Solve the BSSRDF using the Diffusion Approximation
- Place a real light source below the surface and a virtual light source above the surface to satisfy boundary conditions
- Use their placement to solve the amount of light that enters a point and leaves another point



*Rendering of a cylinder with the parameters of skim milk
and a cube of marble*

Demo of Subsurface Scattering

Any Questions?