CS148: Reading Response, Tuesday 29 July

Shirley Ch. 20: Light & Ch. 25: Reflection Models

The first part of Chapter 20 should be a review from the first week of class; go ahead and skim to section 20.1.6. Don't worry about memorizing all the terms here, but pay attention to several super important graphics buzz words:

Term	**Definition/Description (please fill this in)**
BRDF	The BRDF characterizes a surface by calculating the ratio of the outgoing surface radiance to the incoming irradiance with both of these terms being a function of theta and phi relative to the normal at the measurement point.
Lambertian	A Lambertian surface has a BRDF where the outgoing surface radiance is a constant. This means that a Lambertian's BRFD is only a function of the incoming irradiance.
Rendering Equation	The Rendering Equation is an integral equation that computes the outgoing radiance as a function of its theta and phi. The integral is over the BRDF and field radiance for the surface.
lumen	The lumen is a unit of measure for the photometric quantity called Luminance. Luminance is analogous to radiance except that it takes into account the physiology of the human eye (usable light).

[Ch. 25] 1) Pick two different materials and describe their reflective properties. You may wish to use terms like micro/macroscopic detail; specularity; diffuse/Lambertian, translucency, etc.

Flat wall paint will mainly have a diffuse component due to its small texture variations. It will also have small specular component that will only be evident up close and at high incident angles

A polished wood floor will have moderate specular component due to the smooth polyurethane top coat. It will also have a diffuse component from back scattering off of the actual wood surface below the top coat. This back scattered light comes from what is not reflected by the top surface.

2) Name a material you think would be hard to render using a reflection model like the those described in Ch. 25. Why?

Oil on water would be difficult due to the changing oil thickness over the water surface. The oil surface has a time dependant nature that is not captured in these models.