CS-184: Computer Graphics

Lecture #23: Radiometry

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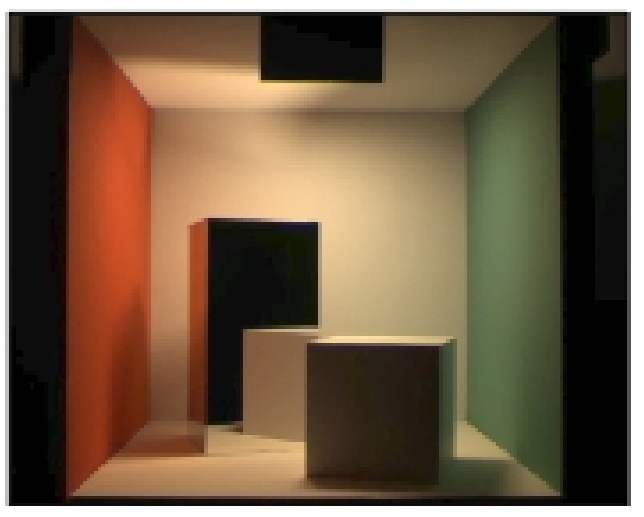
Today

- Radiometry: measuring light
  - Local Illumination and Raytracing were discussed in an *ad hoc* fashion
  - Proper discussion requires proper units
  - Not just pretty pictures... but correct pictures

Matching Reality

Unknown

Matching Reality



Photo

Rendered

Cornell Box Comparison
Cornell Program of Computer Graphics

Units

- Light energy
  - Really power not energy is what we measure
  - Joules / second (J/s) = Watts (W)
- Spectral energy density
  - power per unit spectrum interval
  - Watts / nano-meter (W/nm)
  - Properly done as function over spectrum
  - Often just sampled for RGB
- Often we assume people know we're talking about S.E.D. and just say E...

Irradiance

- Total light striking surface from all directions
  - Only meaningful w.r.t. a surface
  - Power per square meter (W/m^2)
  - Really S.E.D. per square meter ($W/m^2/nm$)
  - Not all directions sum the same because of foreshortening