

3D Modeling and Animation

DPA 8070

Shading, Texturing, **Lighting**, Rendering

Lighting

Very similar to lighting in other art forms (photography, movies, theatre, architecture), also different in some aspects

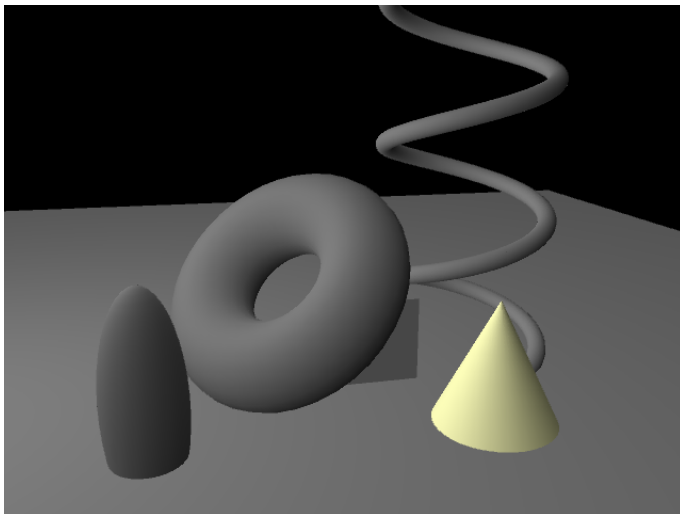
Illuminate objects

Creates the mood of a scene

Makes a picture interesting

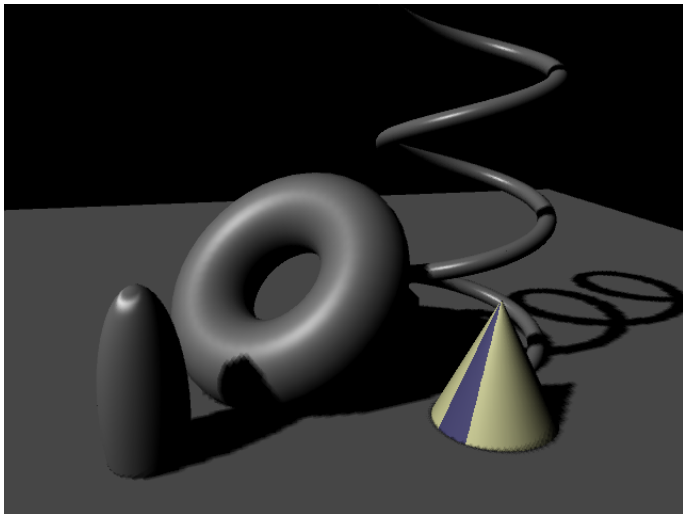
Ambient Lights

Even light across the entire scene, use only at low intensities



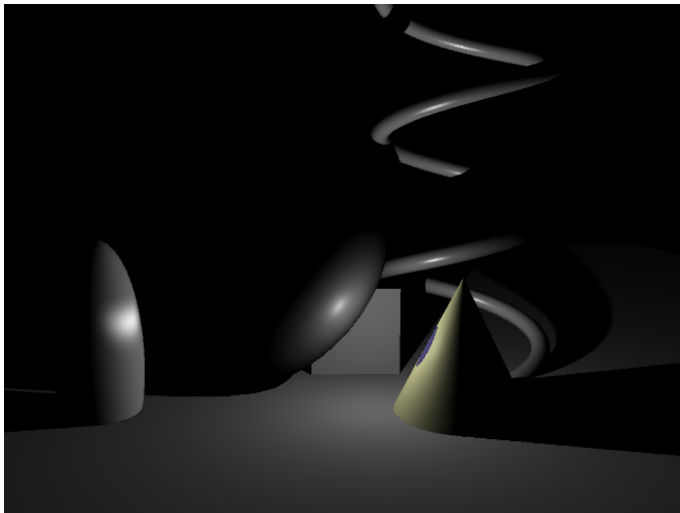
Directional Lights

Light in a specific direction, great for sunlight, general lighting



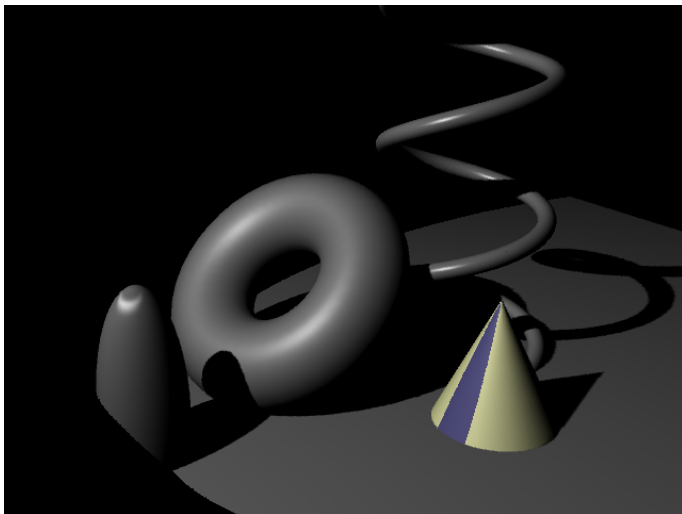
Point Lights

Light is emitted from a specific point into all directions



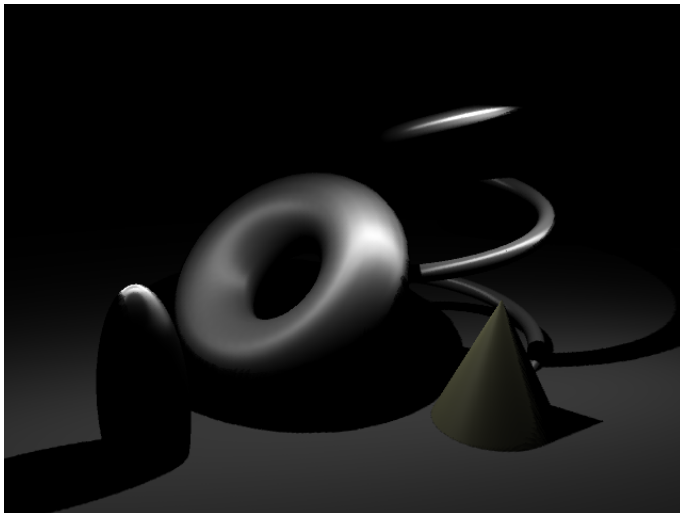
Spot Lights

Light is emitted in a cone shape from a specific place, most common, good to create shadows



Area Lights, Volume Lights

Light is emitted from a specific area or volume



Light Attributes

Type: ambient, directional, spot, ...

Color

Intensity: brightness

Illuminates By Default: uncheck if light should
not illuminate all objects

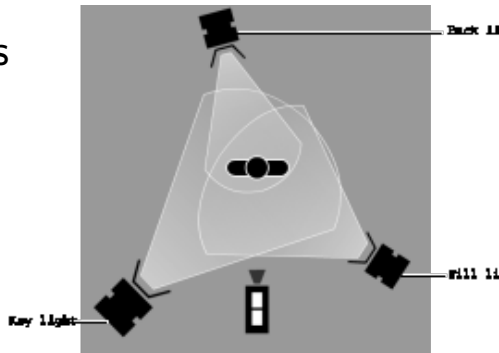
Decay Rate: for Point and Spot Lights only,
determines how the light's intensity
diminishes over distance

Cone Angle, Penumbra Angle: to specify the cone
of Spot Lights

Three-Point Lighting

Common in movies
and television:

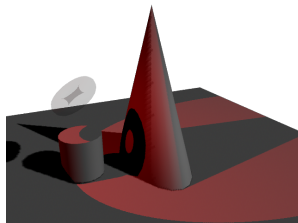
- Key light
- Fill light
- Back light



Shadow Types

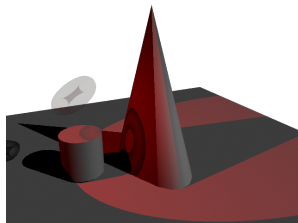
Depth Map Shadows:

- follows the path backward from the lighted object
- fast, less accurate, no transparencies



Ray Trace Shadows:

- traces a ray of light from every light source in all directions, traces reflection to camera lens
- slow, more accurate, handles transparencies

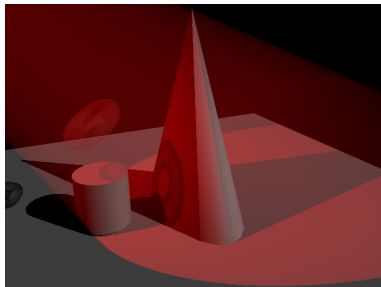


Light Fog

Also called volumetric lighting

Shows the light beams

Light effects → Light Fog

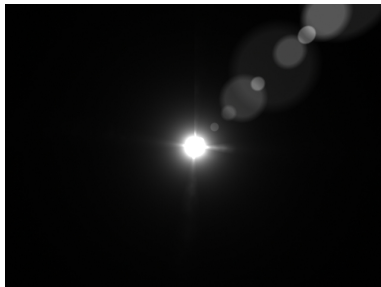


Light Glow and Lens Flare

Effect when a light hits a lens

Light effects → Light Glow

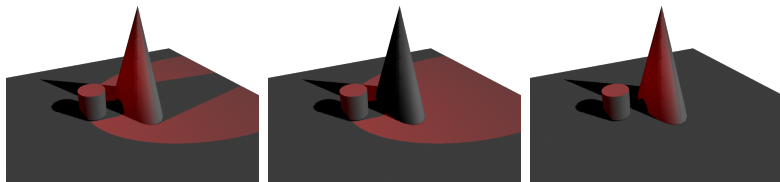
In OpticalFX node check Lens Flare



Light Linking

Lights can be set to only illuminate some objects

- Turn off Illuminates by Default
- Window → Relationship Editors → Light Linking → Light-Centric
- Select lights and objects



Also: Window → Rendering Editors → Light Editor

Exercise 8: Feedback for Project 1

Read the description, look at the Maya file.

Write down your feedback.

E-mail it to the person who created the model with me in cc.

Be professional. Focus on ways one can improve.

Olivia
Rodney
William

Aaron
Julie

Alexis

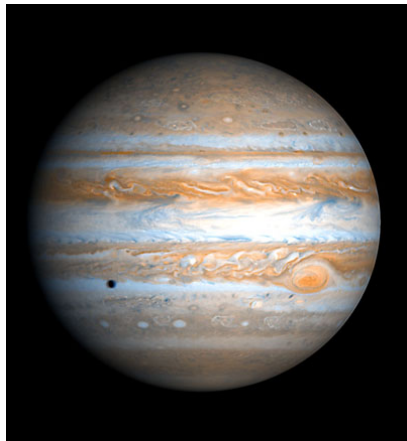
Niranjan
Mohammad
Christine

Hang

critiques
<----->

Eric
Aleene
Kelsey
Zach
Kara
Griffin
David
Eren
Benjamin
A.J

Exercise 9: Shading and Lighting



Exercise 9: Shading and Lighting

Create two spheres: orange and jupiter

Create shaders and lighting to match the pictures as close as possible

Render the scenes

Upload the result to your website

Include a description of what you did and a picture of each shader network