



IMGD 3000 - Technical Game Development I: Texturing

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Texturing

- Created/manipulated using image-processing software
 - Photoshop
 - Paint Shop Pro
- Mapped to geometry (models)
- Very powerful image enhancing techniques
 - Can be used for fake shadows, fake reflections, much more

Mapping to Models

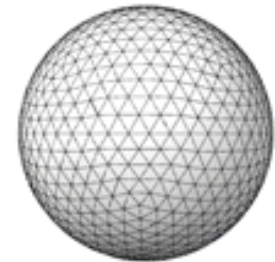
- Objects are made from
 - Geometry (a.k.a., polygons)
 - Lighting
 - Textures

- Vertices and connectivity
 - Triangles
 - Triangle-strips
 - Meshes
 - Patches/surfaces



Textures

- Images that are applied to geometry
- Many ways to apply textures
 - Decal
 - Blend
 - Layer
- Can use for other things as well
 - Height fields
 - Environment mapping
 - Bump mapping
 - Displacement mapping



Sphere with no texture



Texture image



Sphere with texture

Scenes



Texture Mapping Example



Texture Mapping Example



Bump Map Example: Texture



Bump Map Example: Bump Map



Advanced Mapping Techniques

- ❑ Parallax Mapping
- ❑ Ambient Occlusion
- ❑ Backed-on Radiosity

Parallax Mapping (1 of 2)

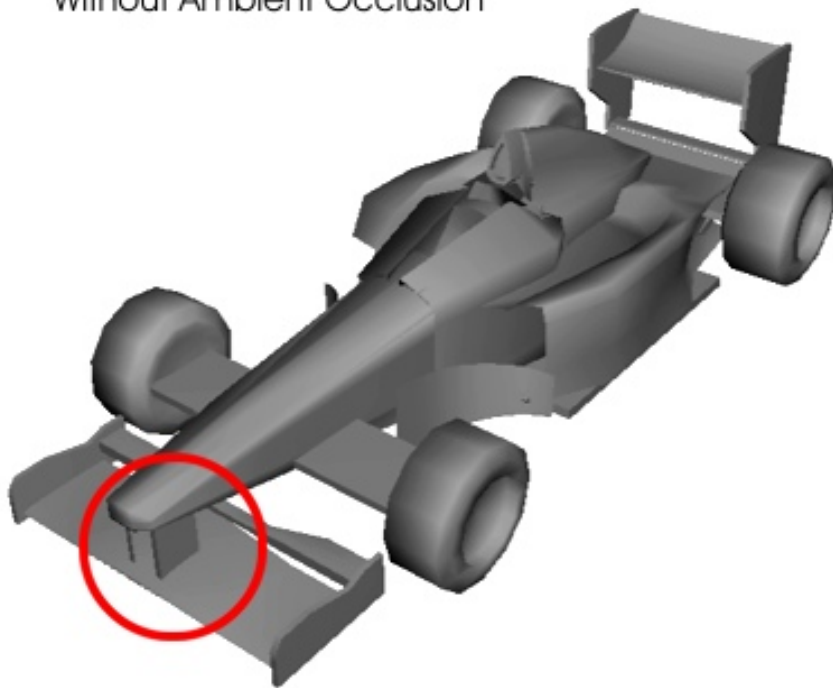


Parallax Mapping (2 of 2)

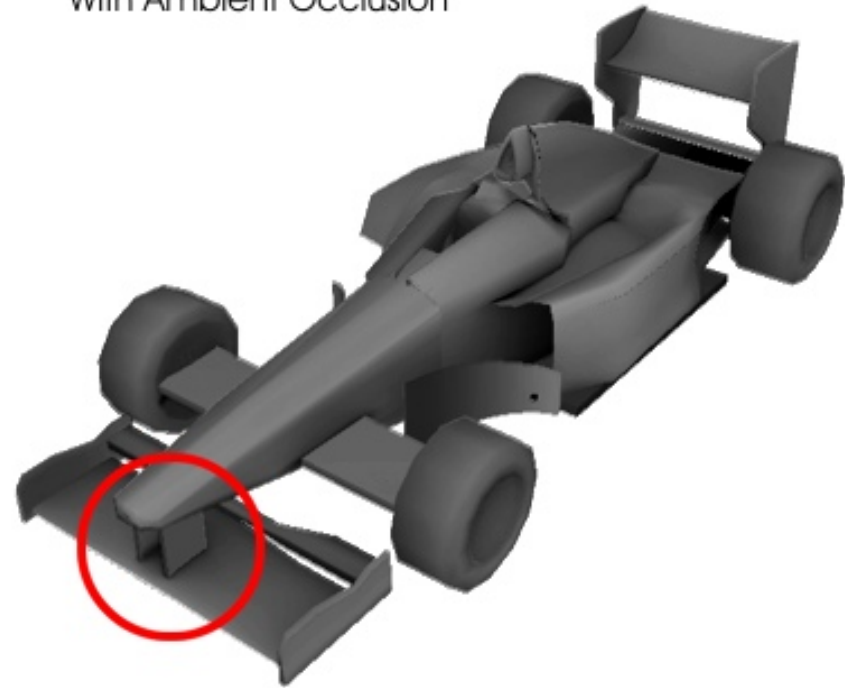


Ambient Occlusion

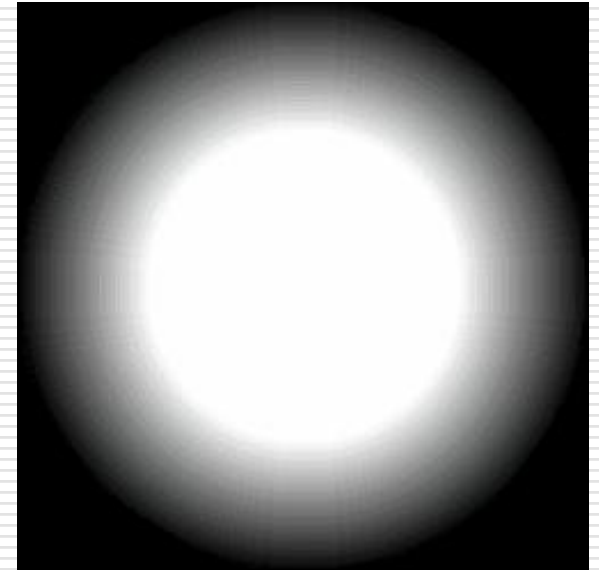
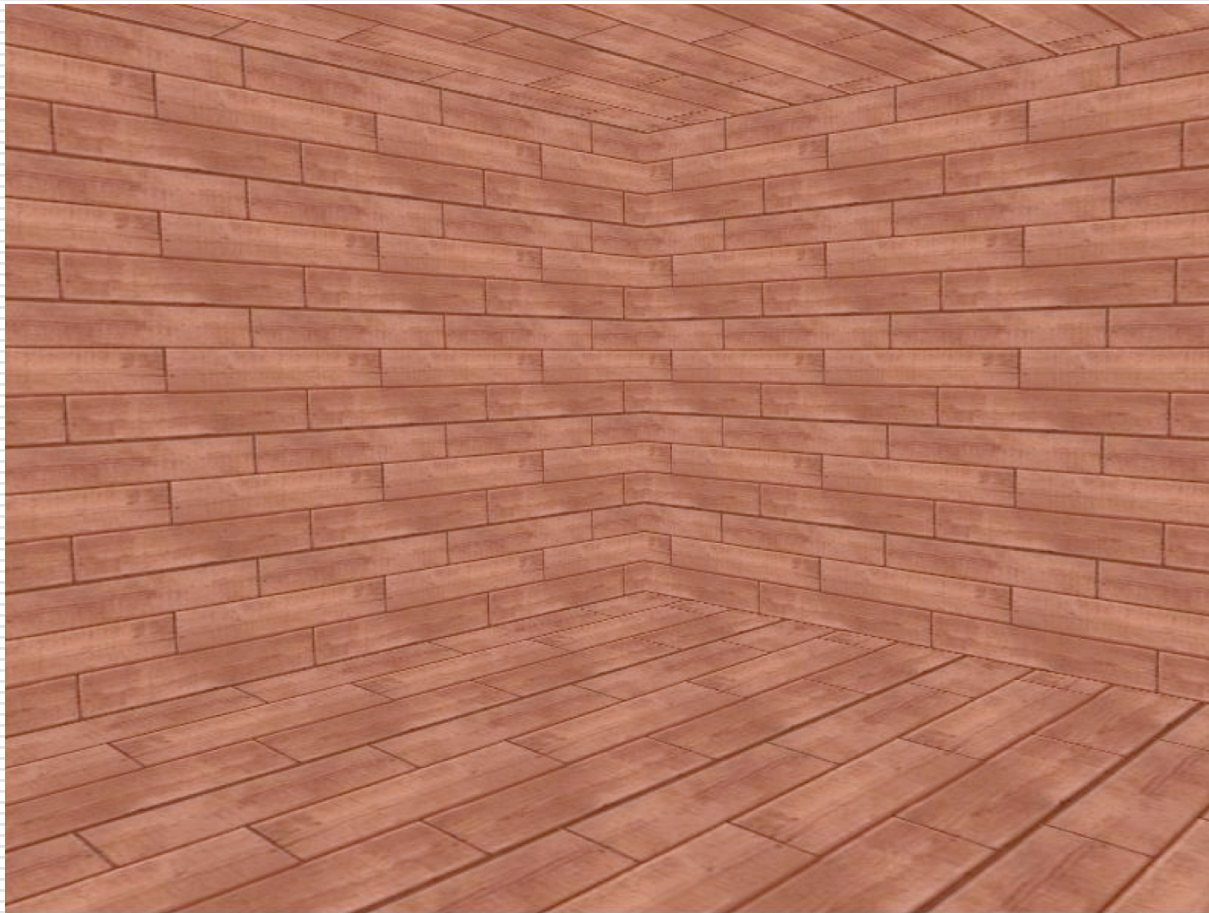
Without Ambient Occlusion



With Ambient Occlusion



Example of Blending



Blending Result



Skybox Rendering

- Create ***really big*** a cube around the world
- Texture each side with a sky texture

Sources of Textures

- Computer-generated
 - Complete control, might not be realistic
 - Generate a repeating pattern
 - Generate a random pattern (like noise)
 - Simulate physical properties

- Digital camera
 - Realistic, but hard to control
 - Can stitch into mosaic

- Hybrid
 - Start with a photo, edit as necessary

Resources

- Nice place for textures (pay)
 - <http://shop.3dtotal.com/>