



---

# IMGD 3000 - Technical Game Development I: Texturing

by  
Robert W. Lindeman  
gogo@wpi.edu

---



## 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

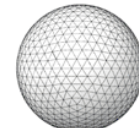
## Mapping to Models

- ❑ Objects are made from
  - Geometry (a.k.a., polygons)
  - Lighting
  - Textures
- ❑ Vertices and connectivity
  - Triangles
  - Triangle-strips
  - Meshes
  - Patches/surfaces
- ❑ More on this next time!



## 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



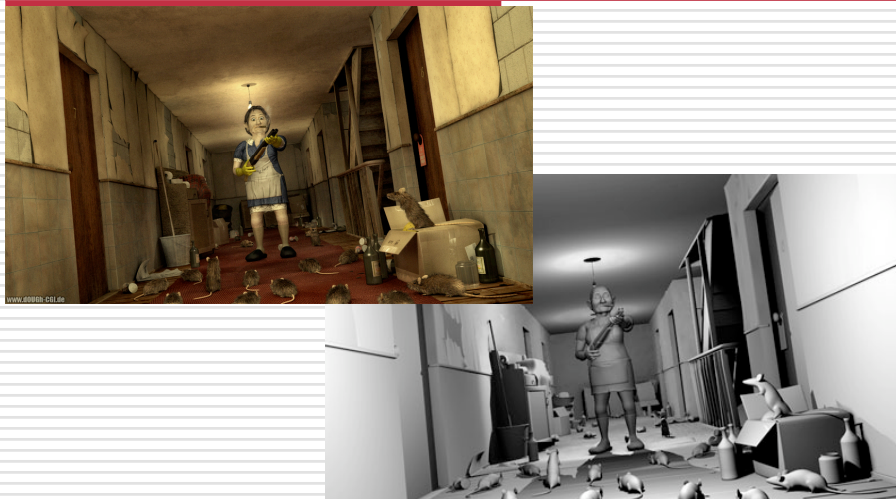
Sphere with texture

# Scenes



R.W. Lindeman - WPI Dept. of Computer Science  
Interactive Media & Game Development

# Texture Mapping Example



R.W. Lindeman - WPI Dept. of Computer Science  
Interactive Media & Game Development

## Texture Mapping Example



R.W. Lindeman - WPI Dept. of Computer Science  
Interactive Media & Game Development

## Bump Map Example: Texture



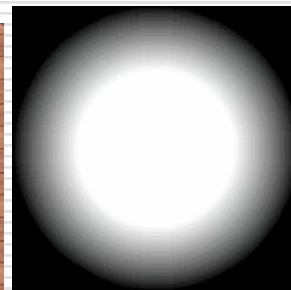
R.W. Lindeman - WPI Dept. of Computer Science  
Interactive Media & Game Development



## Bump Map Example: Bump Map



## Example of Blending



## Blending Result



## Skybox Rendering

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

## 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/>