POV-Ray

- Persistence of Vision Ray Tracer
  - http://www.povray.org/
  - Proprietary license (not GPL, etc.)
  - Source freely available
  - v3.6.1 (27 January 2005) – current as of 31 January 2005
- Text file-based description language
  - Lighting
  - Objects
  - Camera

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OS Support for POV-Ray

- Windows (95+)
- Linux (x86, glibc 2.2+)
- Macintosh (OS 9.2+)

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POV-Ray Features

- Large library of shapes and samples
- 24-bit color
- Spot lights and area light sources
- Phong and specular shading
- Textures, bump maps
- Partial rendering
- Progressive rendering
- Animation
- Quality/efficiency levels (12)
- Transparent surfaces
- Refraction
- Photons/caustics
- Chromatic dispersion (prism)
- Parametric surfaces (lathes, surfaces of resolution (SOR))
- JPEG/TIFF textures
- Outputs PNG/TGA/BMP
- Constructive (and subtractive) solid geometry (CSG)
- Landscapes through smoothed height maps

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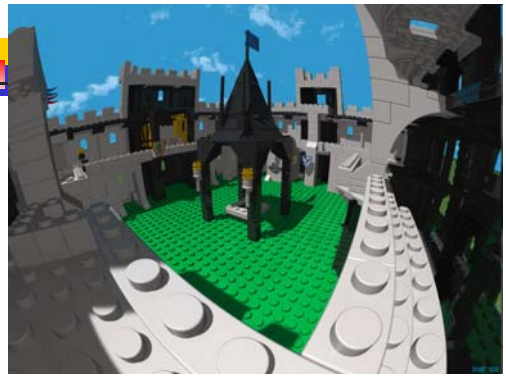

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Caustics and Photon Mapping

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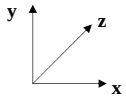
POV-Ray Basics

- Left-handed coordinate system



- Rendering controls
  - Output image size
  - Anti-aliasing
  - Jittering

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POV-Ray Sample Code (1)

```
#include "colors.inc"
#include "shapes.inc"
#include "textures.inc"

camera {
    location <0,2,-3>
    look_at <0,1,2>
}
```

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POV-Ray Sample Code (2)

```
light_source {
      <2,4,-3>
      color White
  }
sphere {
      <0,1,2>, 2
      texture {
          pigment {color Yellow}
          finish {phong 1}
      }
  }
```

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