Introduction to PBRT-V3

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- **PBRT**
- **Cinema 4D**
- **Wavefront Obj**
- **Blender**
- **Maya**

```
LookAt 3 4 1.5  # eye
       .5 .5 0  # look at point
       0 0 1    # up vector
Camera "perspective" "float fov" 45

Sampler "halton" "integer pixelsamples" 128
Integrator "path"
Film "image" "string filename" "simple.png"
     "integer xresolution" [400] "integer yresolution" [400]

WorldBegin

# uniform blue-ish illumination from all directions
LightSource "infinite" "rgb L" [.4 .45 .5]

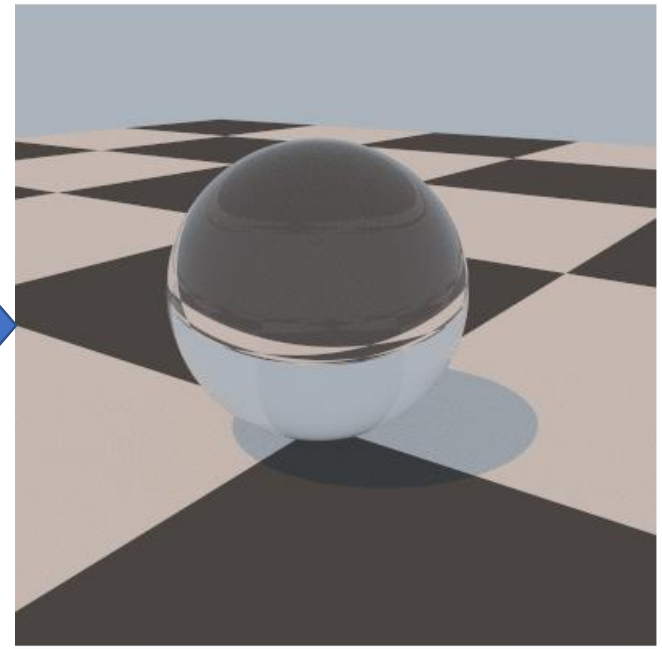
# approximate the sun
LightSource "distant"  "point from" [ -30 40  100 ]
   "blackbody L" [3000 1.5]

AttributeBegin
  Material "glass"
  Shape "sphere" "float radius" 1
AttributeEnd

AttributeBegin
  Texture "checks" "spectrum" "checkerboard"
          "float uscale" [8] "float vscale" [8]
          "rgb tex1" [.1 .1 .1] "rgb tex2" [.8 .8 .8]
  Material "matte" "texture Kd" "checks"
  Translate 0 0 -1
  Shape "trianglemesh"
      "integer indices" [0 1 2 0 2 3]
      "point P" [ -20 -20 0   20 -20 0   20 20 0   -20 20 0 ]
      "float st" [ 0 0   1 0    1 1   0 1 ]
AttributeEnd

WorldEnd
```

PBRT → HDR →



PBRT Input File

```
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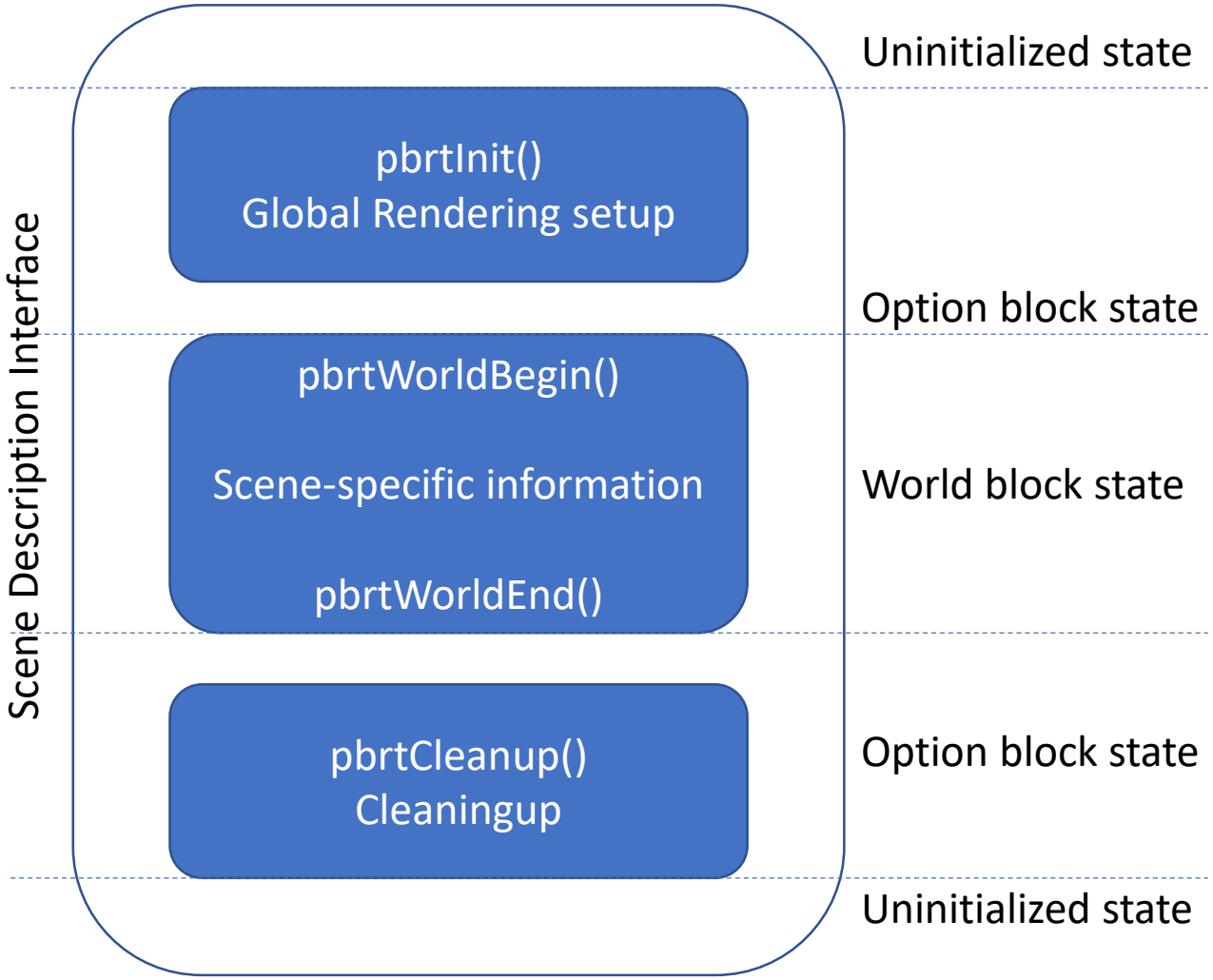
AttributeEnd

WorldEnd
```

PBRT Rendering States



Rendering States

- Option Block
  - Initialization
  - Tranformation
  - Rendering option
  - Media
  - Sampler
  - Accelerator
  - Integrator
  - Camera

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     "integer xresolution" [400] "integer yresolution" [400]

WorldBegin
```

- World Block
  - Scene definition/graphics states
  - Texture and material parameter
  - Shapes
  - Materials
  - Scattering volumes
  - Lights

```
WorldBegin

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AttributeBegin
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AttributeEnd

WorldEnd
```

Excercise 1

- Download the provided head model from blackboard and lighting PBRT scenes and render it using pbrt-v3
  - Commit on your GitLab: the rendered .png image and .pbrt input file in a folder called Lab2_pbrt

References

- PBRT user Guide: https://www.pbrt.org/users-guide.html
- PBRT file format: https://www.pbrt.org/fileformat-v3.html
- PBRT Scenes: https://www.pbrt.org/scenes-v3.html