Computer Grpahics
VTK

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Overview

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VTK
Texture example

```python
1  import vtk

3  # sphere object
   sphere = vtk.vtkSphereSource()
5  sphere.SetThetaResolution(50)
   sphere.SetPhiResolution(50)
7  sphere.SetRadius(2)
   sphere.Update()

9
```

VTK
Texture example

```python
# image
reader = vtk.vtkJPEGReader()
reader.SetFileName("wall.jpg")

# Create texture object
texture = vtk.vtkTexture()
texture.SetInputConnection(reader.GetOutputPort())
```

VTK
Texture example

```
1  # Map texture coordinates
   map_to_sphere = vtk.vtkTextureMapToSphere()
3  map_to_sphere.SetInputConnection(sphere.GetOutputPort())

5  # Create mapper and set the mapped texture as input
   mapper = vtk.vtkPolyDataMapper()
7  mapper.SetInputConnection(map_to_sphere.GetOutputPort())
```

VTK
Texture example

```
1  #actor
   sphere_actor = vtk.vtkActor()
3  sphere_actor.SetMapper(mapper)
   sphere_actor.SetTexture(texture)
5
```
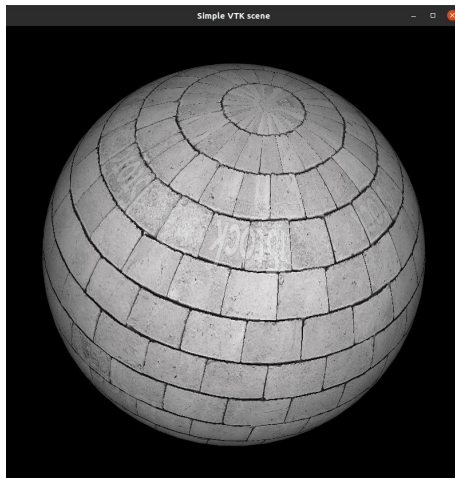
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VTK
Textures

Figure: VTK texture example.

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VTK
Texture example

```
import vtk

# cube
cube = vtk.vtkCubeSource()
cube.SetXLength(20)
cube.SetYLength(20)
cube.SetZLength(20)
cube.Update()
```

VTK
Texture example

```
# do the same that sphere but use:
2 map_to_plane = vtk.vtkTextureMapToPlane()

4 # instead of:
  map_to_sphere = vtk.vtkTextureMapToSphere()
6
```
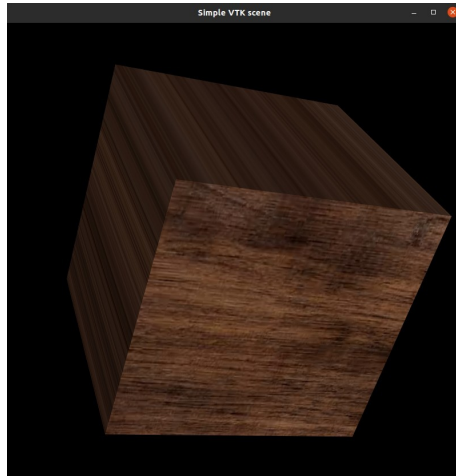
VTK
Textures

Figure: VTK texture example.

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VTK
Animation example

```
 1  import vtk

 3  def callback_func(caller, timer_event):
      cube_actor.RotateZ(1)
 5    render_window.Render()

 7  # source code for cube, mapper, cube_actor,
    # renderer, render_window and interactor
 9  ...

11  interactor.Initialize()
    render_window.Render()
13  interactor.CreateRepeatingTimer(1)
    interactor.AddObserver("TimerEvent", callback_func)
15  interactor.Start()

17
```

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VTK
Falling sphere

source code: **10_fall_sphere.py** and
11_fall_sphere_gravity.py

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VTK
Bouncing sphere

source code: **12_collision**

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Questions?