RadView: OpenGl Viewer for Radiance Scenes

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Motivation

- Quick overview of complex scenes
- Easy edit-view-edit cycles
- Interactive views
- Visualisation of simulation results at grid points (daylight factor)
- Should run under Linux, MacOS and Windows
- rshow
Main Window

Tree view
The scene as a tree of files generators and modifiers

Render window
Use the mouse to locate the camera

Log view
Informations, warnings and errors
Supported Radiance primitives

Geometry
- all except source
- including mesh
- rad → mesh by vtk exporter

Materials
- plastic
- transparent materials
- colorpict (some cases)
Features

Using the tree view and picking

Selection of elements

Selection of individual elements by

- picking in the render window
- highlighting items in the tree view
Clipping the scene

Specifying clipping planes by using a box widget
Toggling between clipped and unclipped view
Grid Generation

Polygons
One or more polygons can be selected for grid generation

Options

<table>
<thead>
<tr>
<th>grid spacing ():</th>
<th>0.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>distance from boundary ():</td>
<td>0.0</td>
</tr>
<tr>
<td>distance to plane ():</td>
<td>0.85</td>
</tr>
<tr>
<td>normal vector ():</td>
<td>0, 0, 1</td>
</tr>
</tbody>
</table>

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Extending

RadView can serve as a GUI for special tasks as shown for daylight factor calculation.
Software Packages used for Development of RadView

RadView is written in Python www.python.org

VTK is used for rendering and visualisation
http://www.vtk.org

Qt for the GUI
(Python bindings by Phil Thompson
www.riverbankcomputing.co.uk

Polygon clipping library by Alan Murta
Python bindings by Jörg Rädler
www.dezentral.de

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Supported Operating Systems

RadView runs on Linux and Windows and possibly on MacOS (X)

- Python, VTK and PyQt are available for all of the target OSs
- Development Platform is Linux
- Minor dependences are expected:
  - handling of files and directories
  - process management
- Since RadView is free software no special licenses are required for Linux an MacOS
- a commercial licence of Qt/PyQt is required for Windows
RadView on the windows operating system

Enthought Python is a good starting point – it comes with VTK
Future Work

- dialog for camera settings
- Animation path’s
- better camera support
  - fisheye views
  - dialog for clipping planes and view angle
- Better support for materials
- Speed improvements by reimplementing parts of the code in C
- fixing bugs