What's New in Radiance for 2017?

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Anywhere Software / LBNL / others
Bugs Fixes & Related

* Fixed issue with multiple records on picture output in rcontrib & rfluxmtx
* Fixed Klems normalization (wrapBSDF)
* Fixed old bug: -aa 0 ignored textures
* Added MAX2SHADE macro to avoid long start-up times with many sources
* Fixed orientation of Reinhart & Tregenza sampling in rfluxmtx
Contributions

- Roland Schregle added multiprocessing to photon-map routines
- Worked with Rob Guglielmetti to get it to compile smoothly under Windows (where MP is not supported)
- view360stereo.cal by Mark Stock
- evalglare fixes from Jan Wienold
Feature Additions

* New `getinfo -a` option
* Added `genBSDF -recover` option
* Rewrote `bsdf2rad` for better BSDF visualizations
* Improved handling of “view” component in Klems & tensor tree BSDFs
Getinfo -a Option

- Appends the specified arguments as individual lines to information header
- Reads from stdin & writes to stdout

Add fisheye view to a picture:
```
getinfo -a "VIEW= -vta -vh 180 -vv 180" < orig.hdr > modified.hdr
```

Add two comment lines to picture:
```
getinfo -a "# Comment 1" "# Comment 2" < orig.hdr > modified.hdr
```
genBSDF -recover

* Starting genBSDF now prints to stderr:
  
  Recover using: /usr/local/bin/genBSDF -recover /tmp/genBSDF rndm

* If the calculation is interrupted, running this picks up where it left off in the process
  
  * Don’t forget to redirect the new output!

* Feature request from Lars Grobe
New bsdf2rad Program

* Original was used for debugging
* Created surface mesh of scattering for given incident direction (Θ,Φ)
* New version arranges a selection of incident angles on front & back-facing hemispheres
Old bsdf2rad koolshade_tt.xml 38 27

Old bsdf2rad
New bsdf2rad

Back (left) and front (right) hemispheres of BSDF material illuminated from directly overhead
New bsdf2rad (1)
New bsdf2rad (2)

Selection of incident directions

Arrows indicate mirror & view directions
New bsdf2rad (3)

Tensor tree XML

BSDF
652.96875
68.36485
7.15770
0.74940
0.07846
0.00821

BACK

Koolshade

FRONT
New bsdf2rad (4)

Klems XML

Back

koolshade_klems

Front
New bsdf2rad (5)

Original SIR (interpolant)

Cannot render BSDF appearance
Close-up of Front Reflection

Klems

Tensor Tree

SIR
Close-up of Back Reflection

Klems

Tensor Tree
Overview of Front Transmission

Klems

Tensor Tree
Overview of Back Transmission
Close-up of Front Transmission
bsdfview script

* Creates rad input file for given BSDF
* Starts rad in interactive mode
  * use `-t` option to start trad, instead
* Provides a number of standard views
* Keeps octree around until OS reboot
Improved Handling of “View” Components

* HEAD m_bsdiff.c now detects strong “view” component & treats specially
* Shadow-testing now functions through shades, venetian blinds, etc.
* Both Klems & tensor tree supported
* Direct view through such systems also
Example Shade Model
Model Interior Side
Actual Interior Side
Tensor Tree XML
Klems XML
Office Model
Window View Fix
Official 5.1 Release

* Last official release was 2 years ago
* New release includes significant improvements & bug fixes
* Reasonably stable point in development