SIGGRAPH 2011
Advanced Production Techniques with mental ray and iray

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NVIDIA ARC, Training & Special Projects
Look development: using iray in

- Design
- Entertainment

Motion blur / Depth of field for shiny stuff
Approximation to brute force rendering
Variation across large numbers of objects
Technology Demo: AO pass with GPU
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mental ray 3.9 standalone using iray

Use Python script available on forum for UI from Maya

Translates scene to mi file and renders with standalone using iray

- iray settings
- manage render iterations
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Render single frame for look reference

Choose approximating techniques required based on reference, eg

- Trace Depth settings
- Indirect technique, GI/FG/IP/Caustics
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Typical Issues

Rasterizer not giving correct results for highly reflective and refractive surfaces
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Rasterizer not giving correct results for highly reflective and refractive surfaces

Tune sampling for static scene, which gets approved, ...

then turning on motion blur increases render time significantly
mental ray 3.9 feature

Simplified sampling control with
unified sampling

One major sampling control with
samples quality

... sampling in both space and time
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Improved raytraced motion blur

bsp2 speed improvements

Rotating reflections preserved

accurate normal handling in motion
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**Approximation to brute force rendering**

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Typical Issues

Pipeline needs complete redesign for single, constrained render engine

Inflexible shader and pass options limit look control and approval process
Approximation to brute force rendering

mental ray 3.9 feature
Path tracing approach sharing iray tech
unified sampling
Flexible shader choices allow trade-offs
traditional or BSDF
Multi-pass supported traditionally, flexibly
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Typical Issues

Too many materials required for simple variation, potentially using thousands of shader networks

Fixed naming or types of attributes limit attribute and therefore material flexibility
Variation across large numbers of objects
mental ray 3.9 feature

Access attributes in user data attached to any scene element with

user data shaders

Use existing shader knowledge by adding component shader to any input

Script publicly available to ease use
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Tech Demo: AO pass with GPU
Technology Demonstration: Ambient Occlusion pass with the GPU
Technology Demonstration: AO pass with the GPU
Thanks!

Special thanks to:
mental ray team
iray team