SIGGRAPH 2011

Advanced Production Techniques with mental ray and iray

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NVIDIA ARC, Training & Special Projects

NVIDIA

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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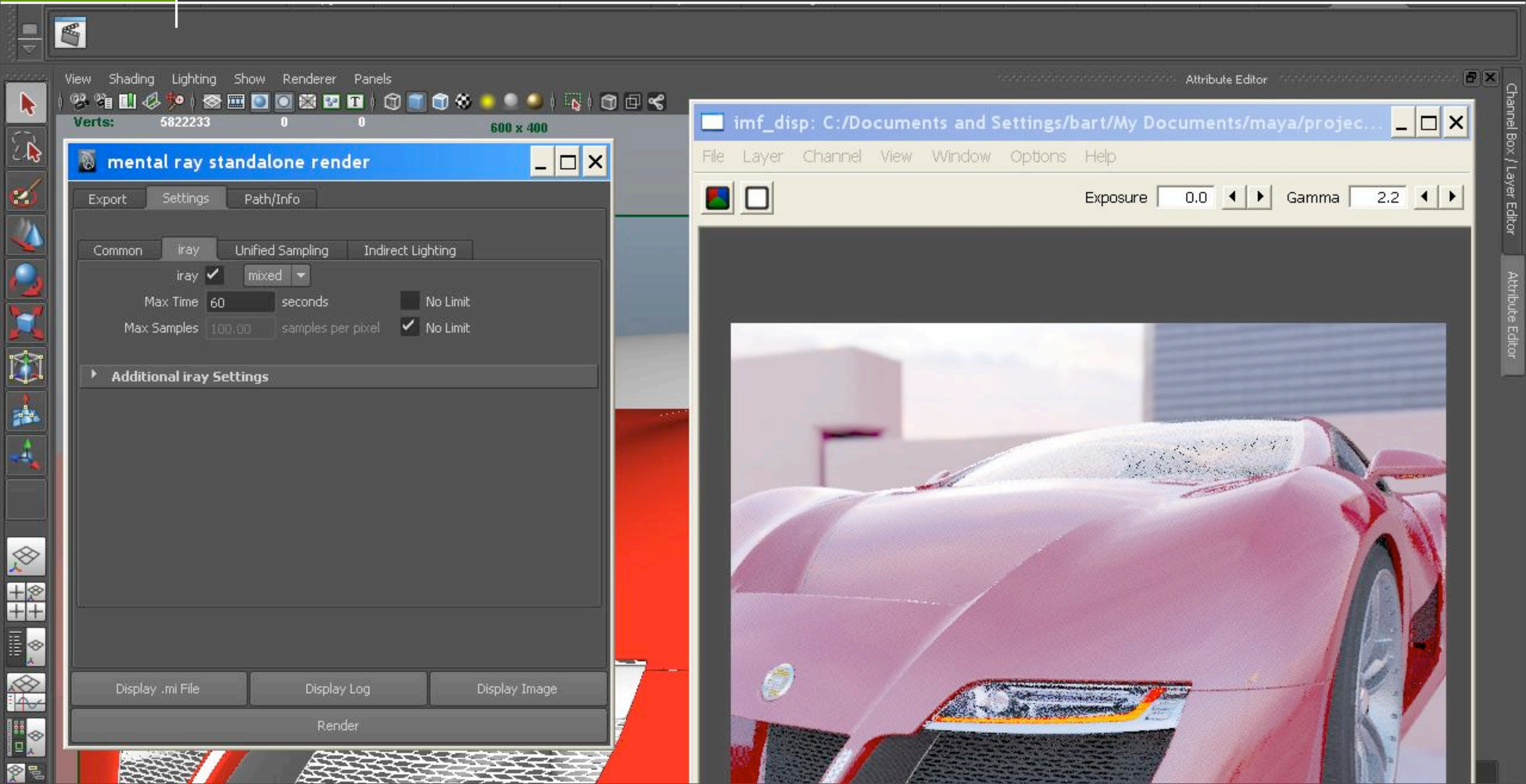
mental ray 3.9 standalone using iray

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

Look development using iray in Entertainment



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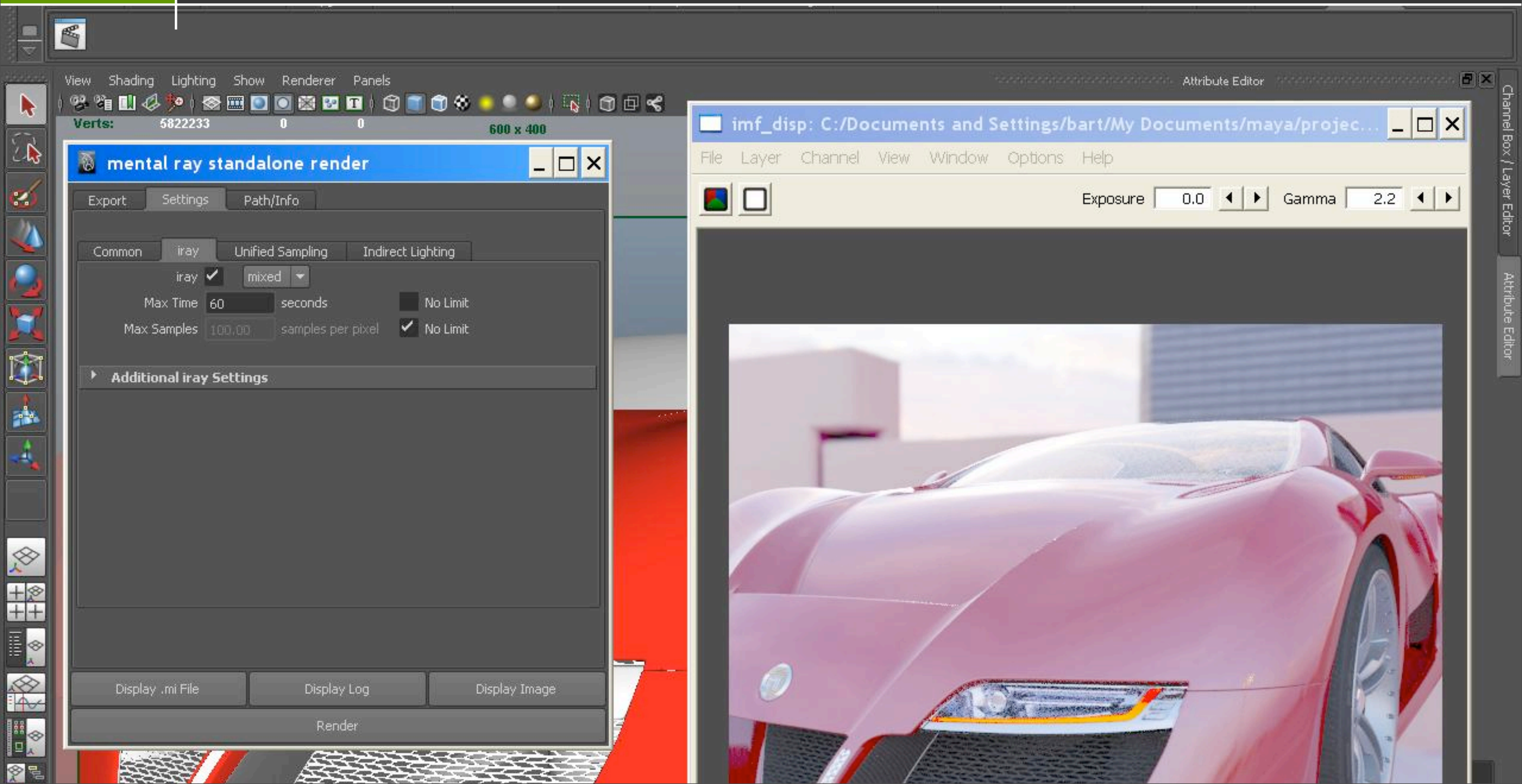

mental ray 3.9 standalone using iray

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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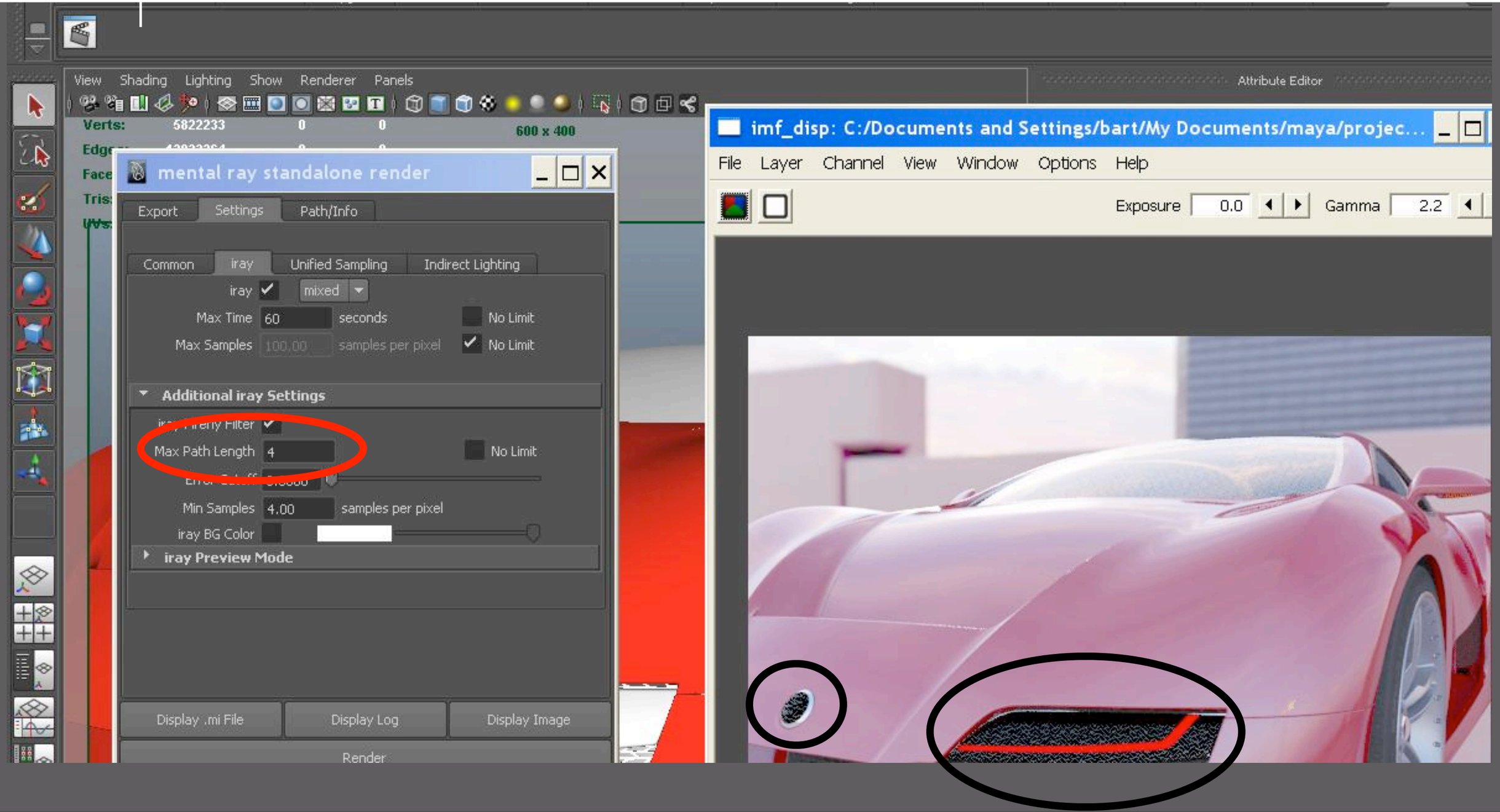

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Typical Issues

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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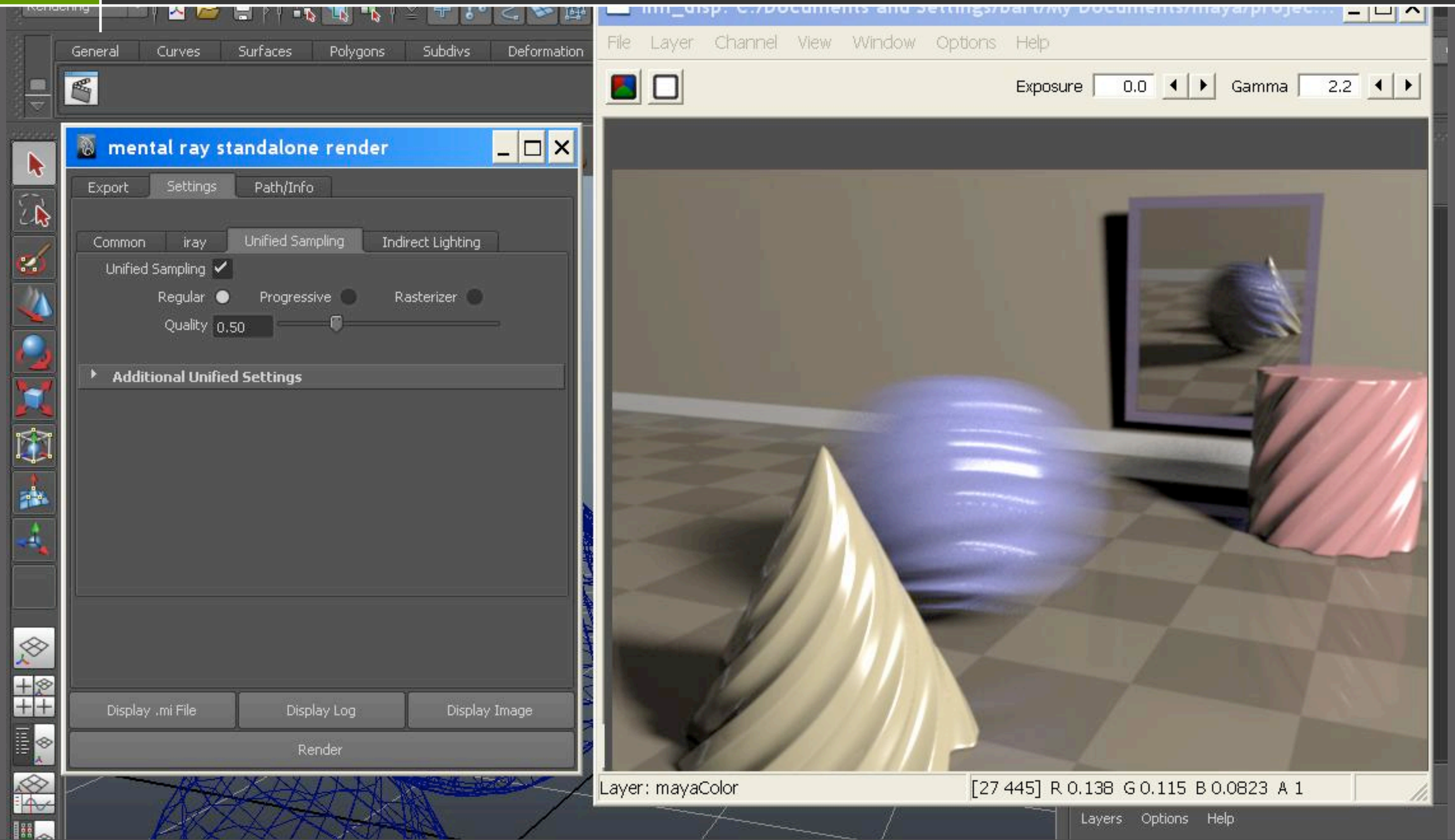

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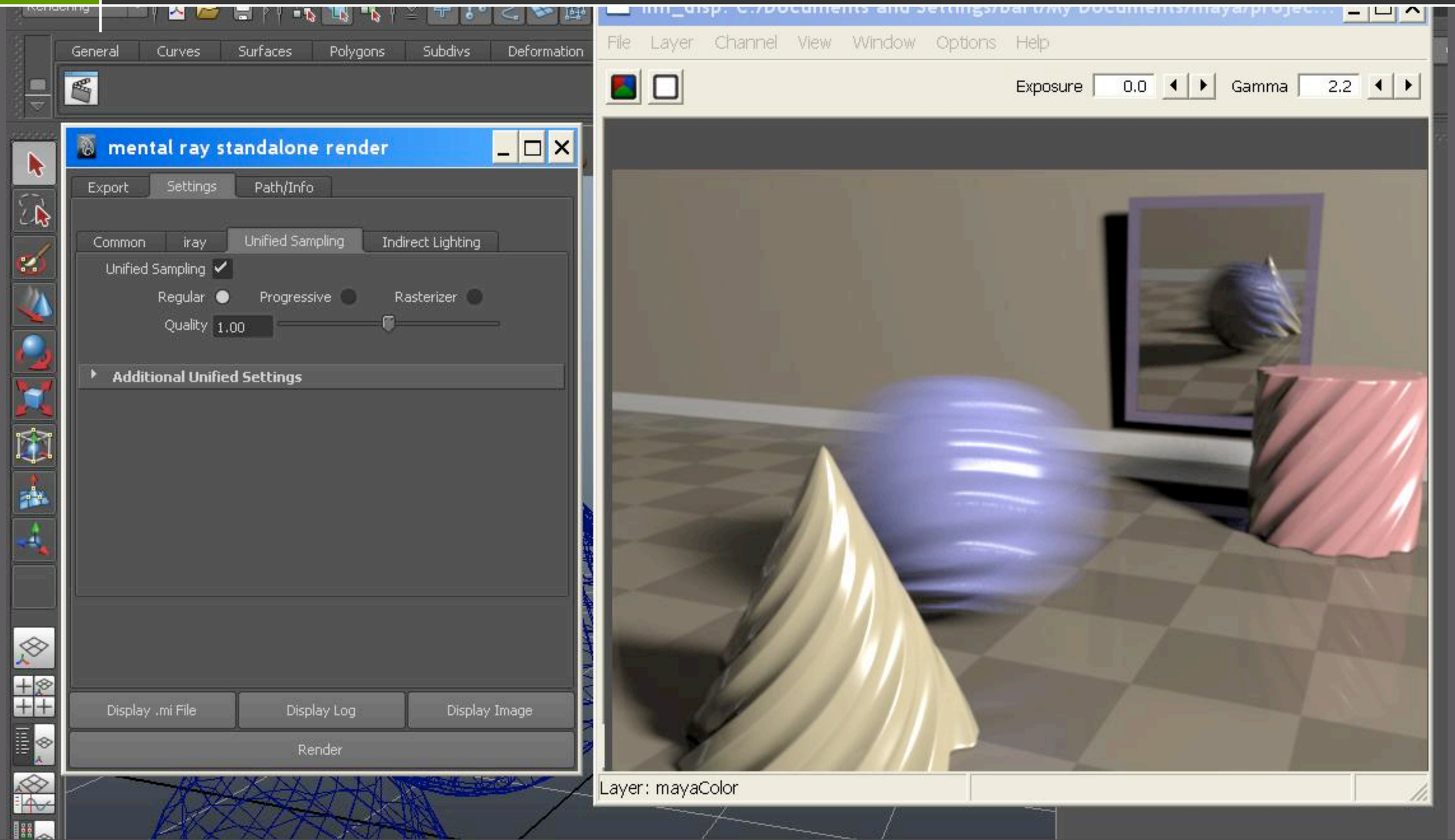

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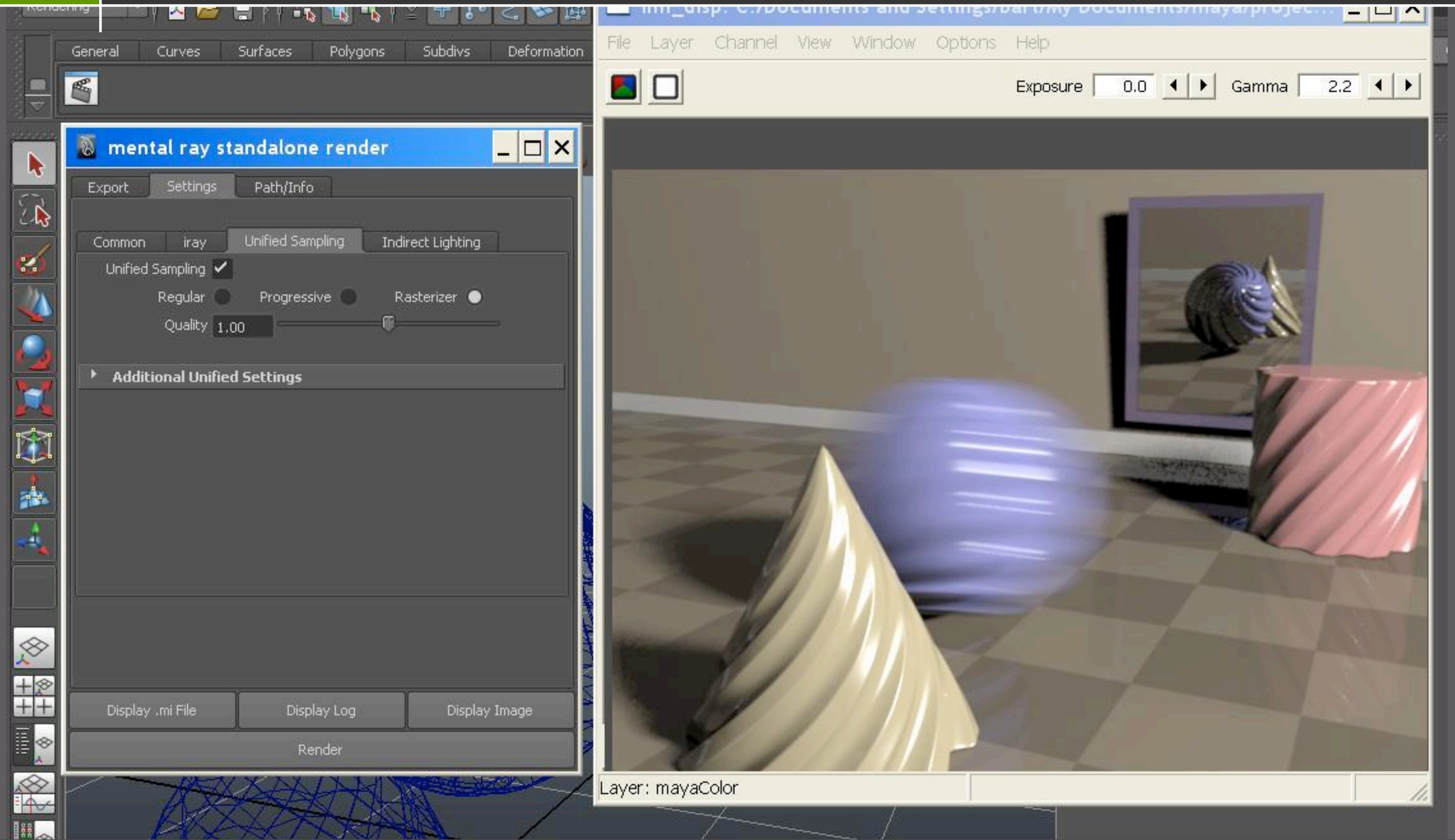

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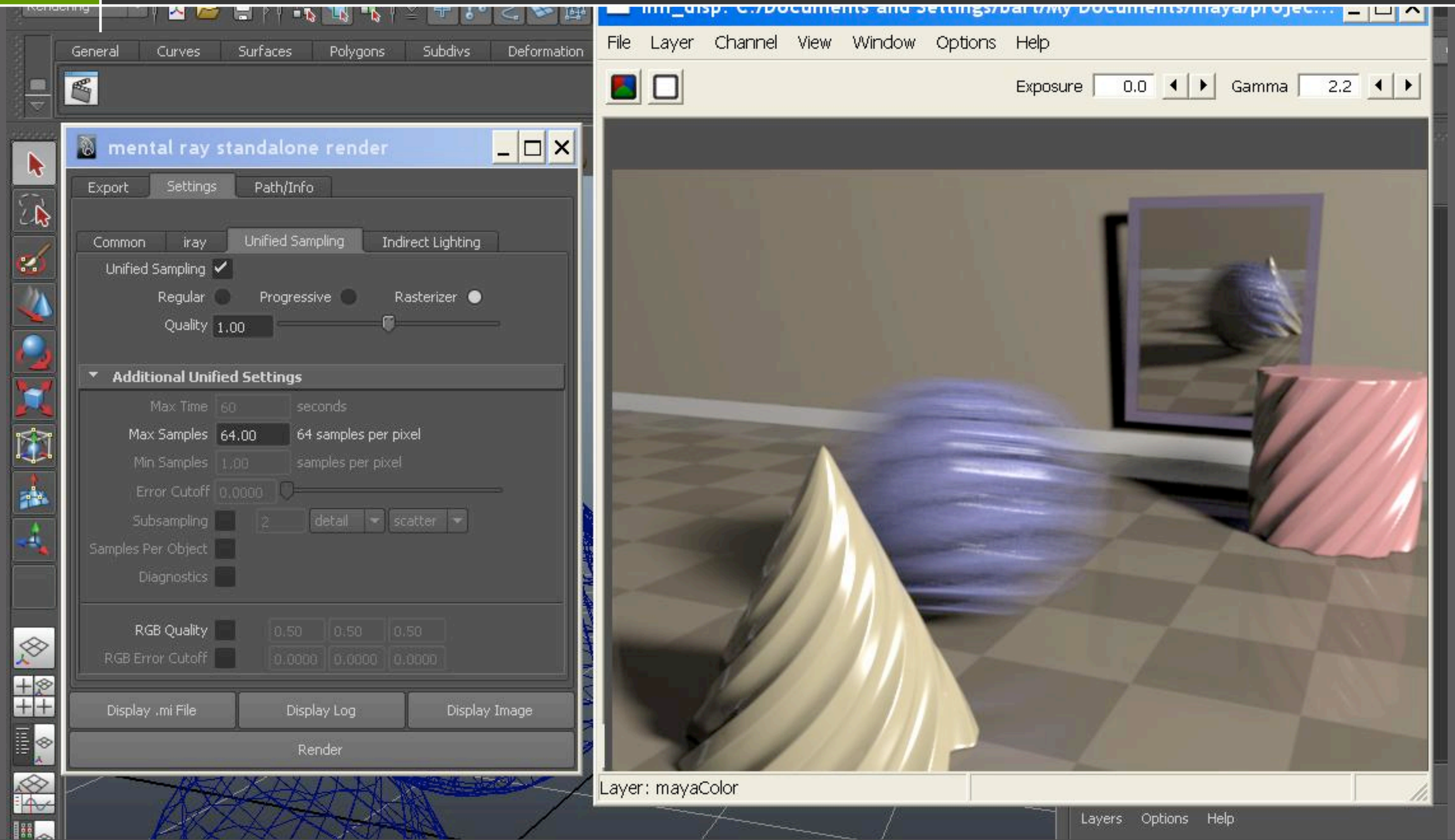

Motion blur / Depth of field

mental ray 3.9 feature

Improved raytraced motion blur

bsp2 speed improvements

Rotating reflections preserved

accurate normal handling in motion

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Approximation to brute force rendering

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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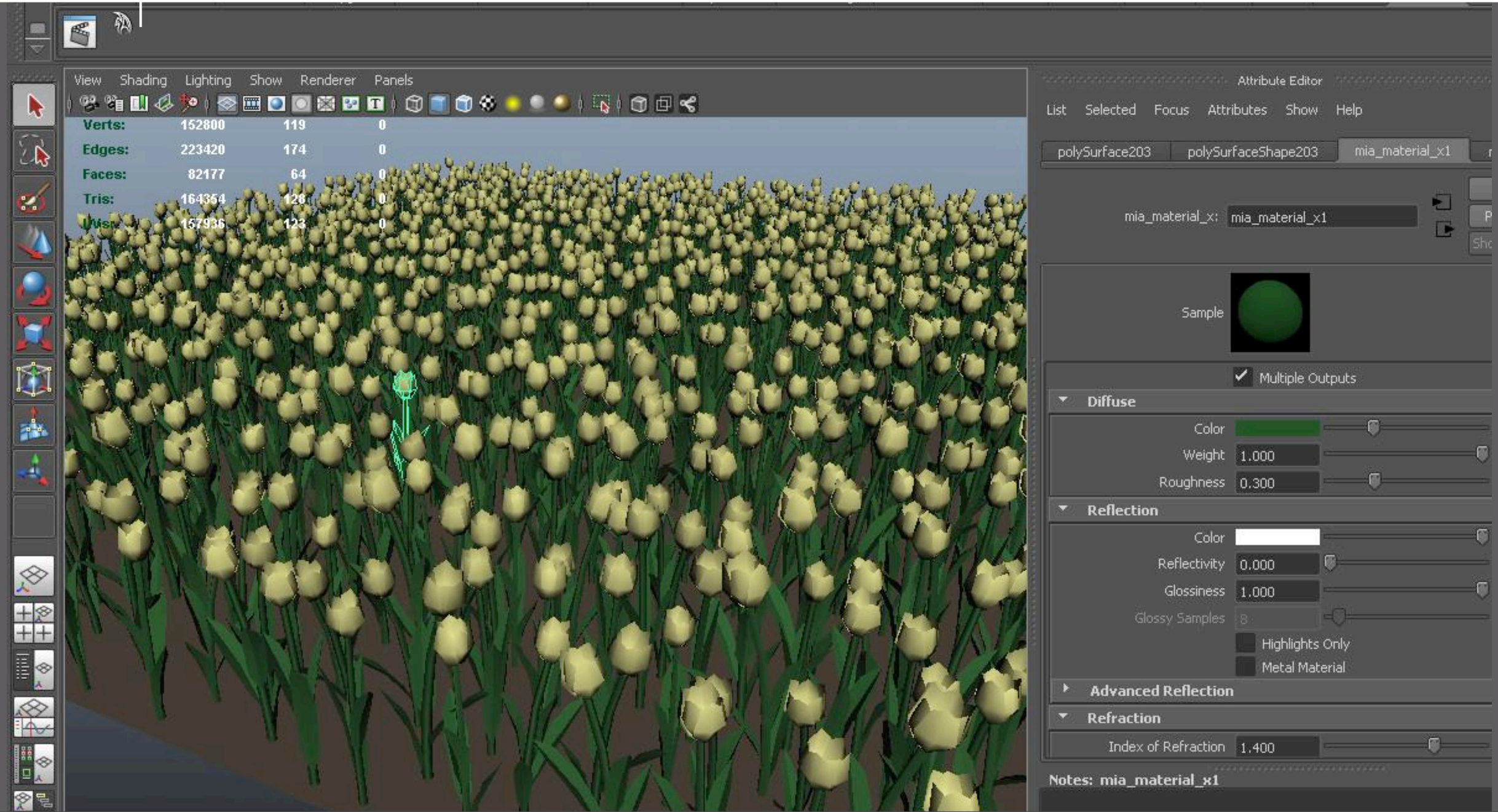
Typical Issues

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



Variation across large numbers of objects

mental ray 3.9 feature

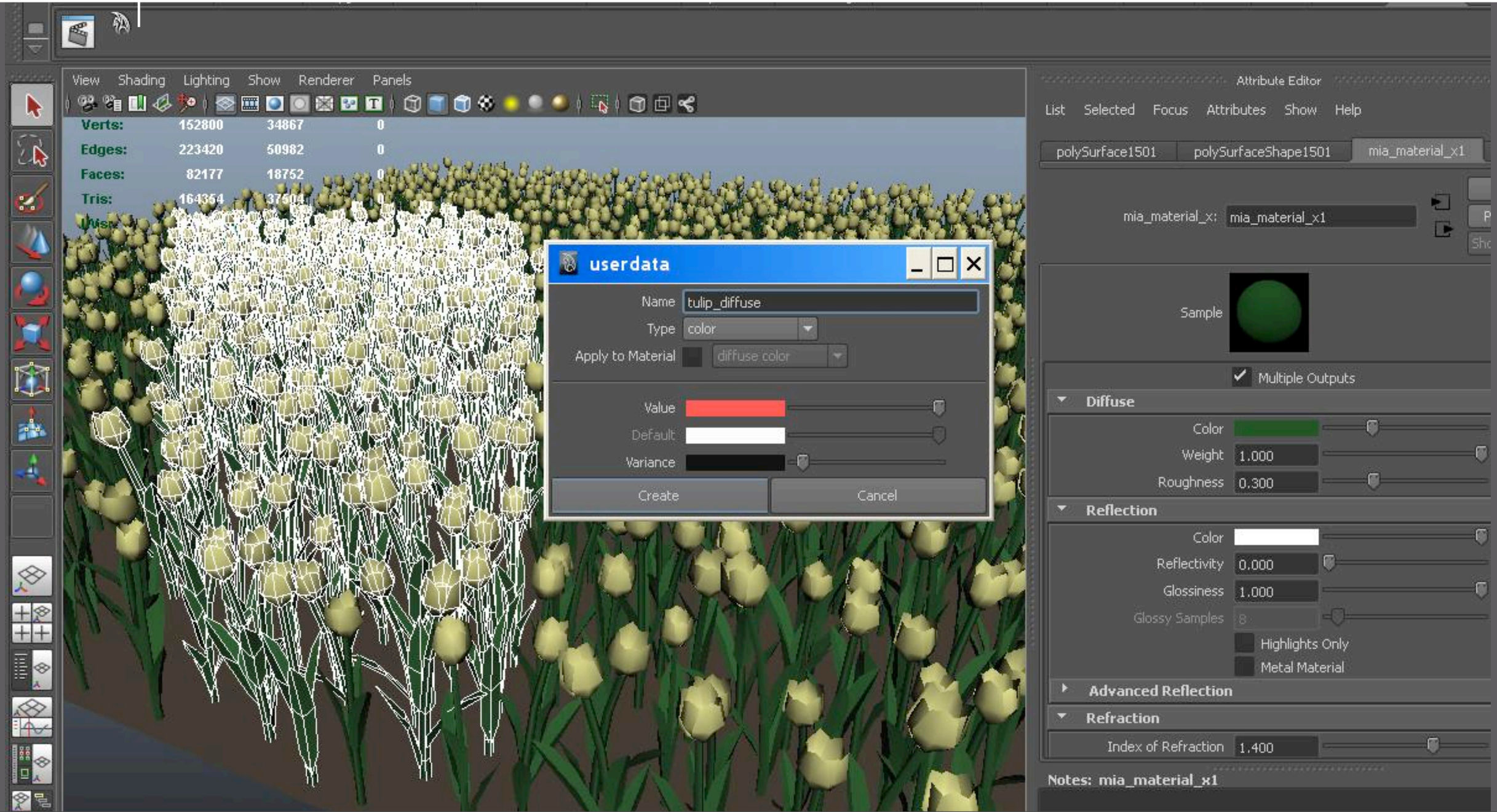
Access attributes in user data attached to any scene element with

user data shaders

Use existing shader knowledge by adding component shader to any input

Script publicly available to ease use

Variation across large numbers of objects



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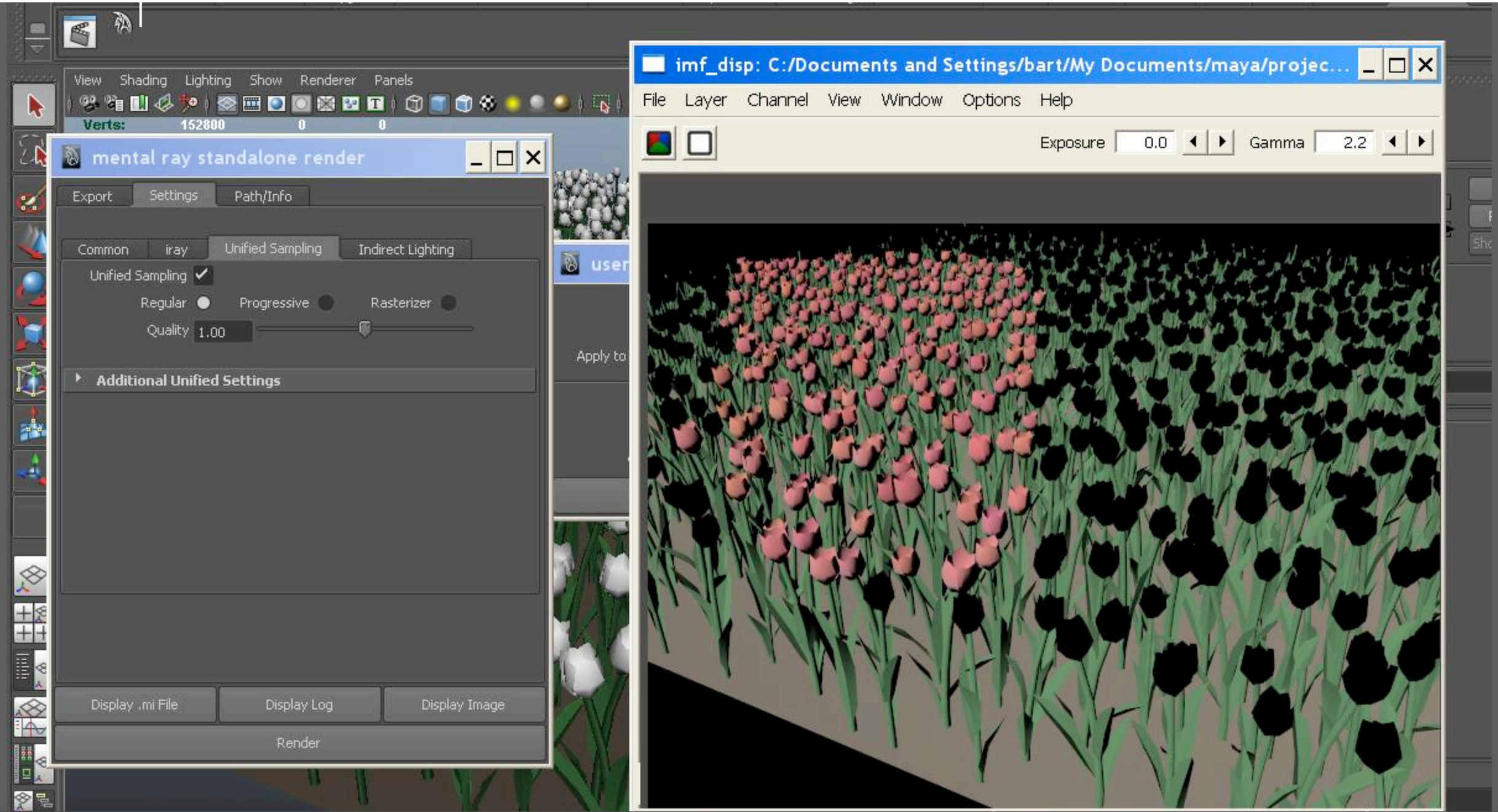

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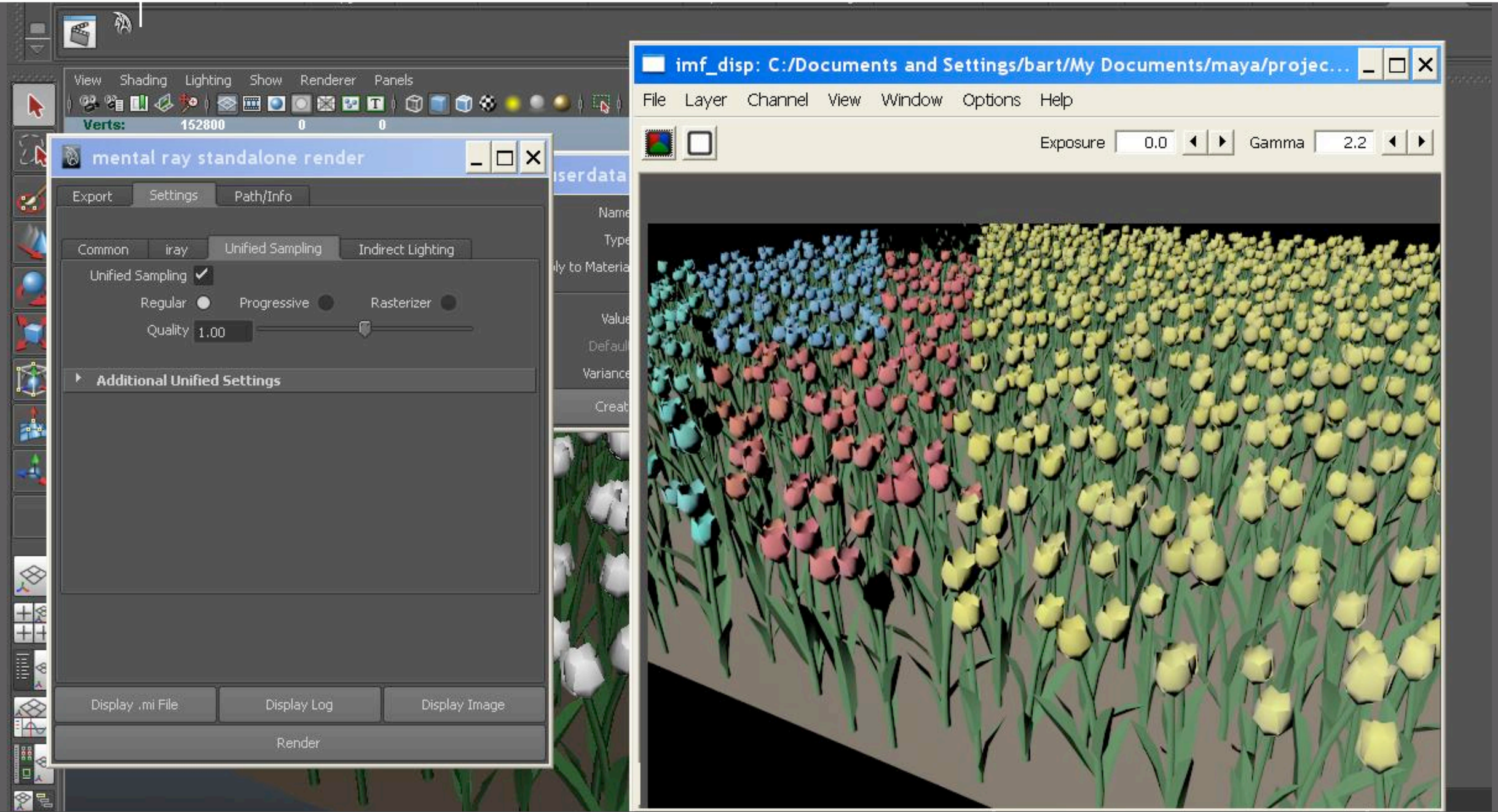

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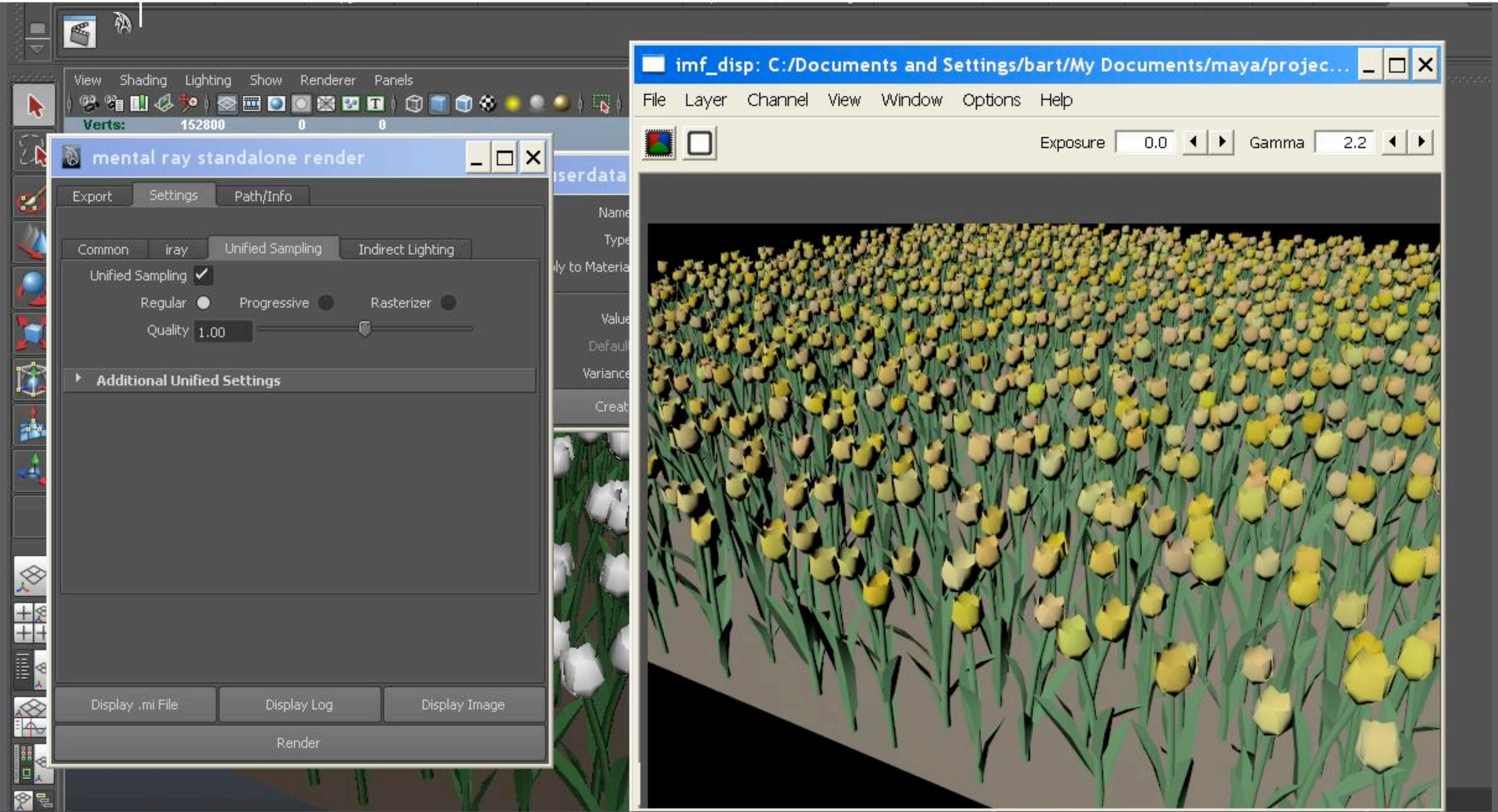

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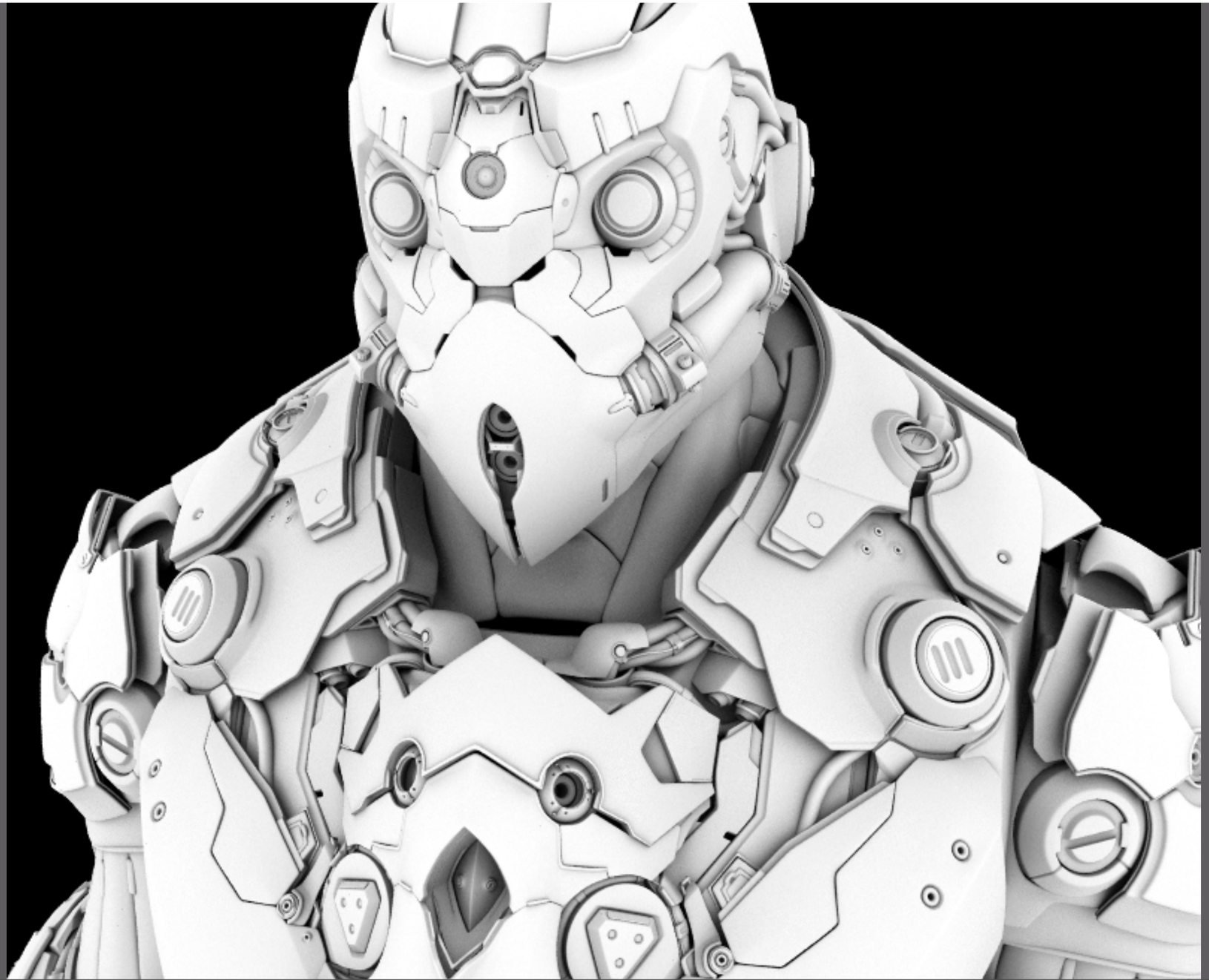
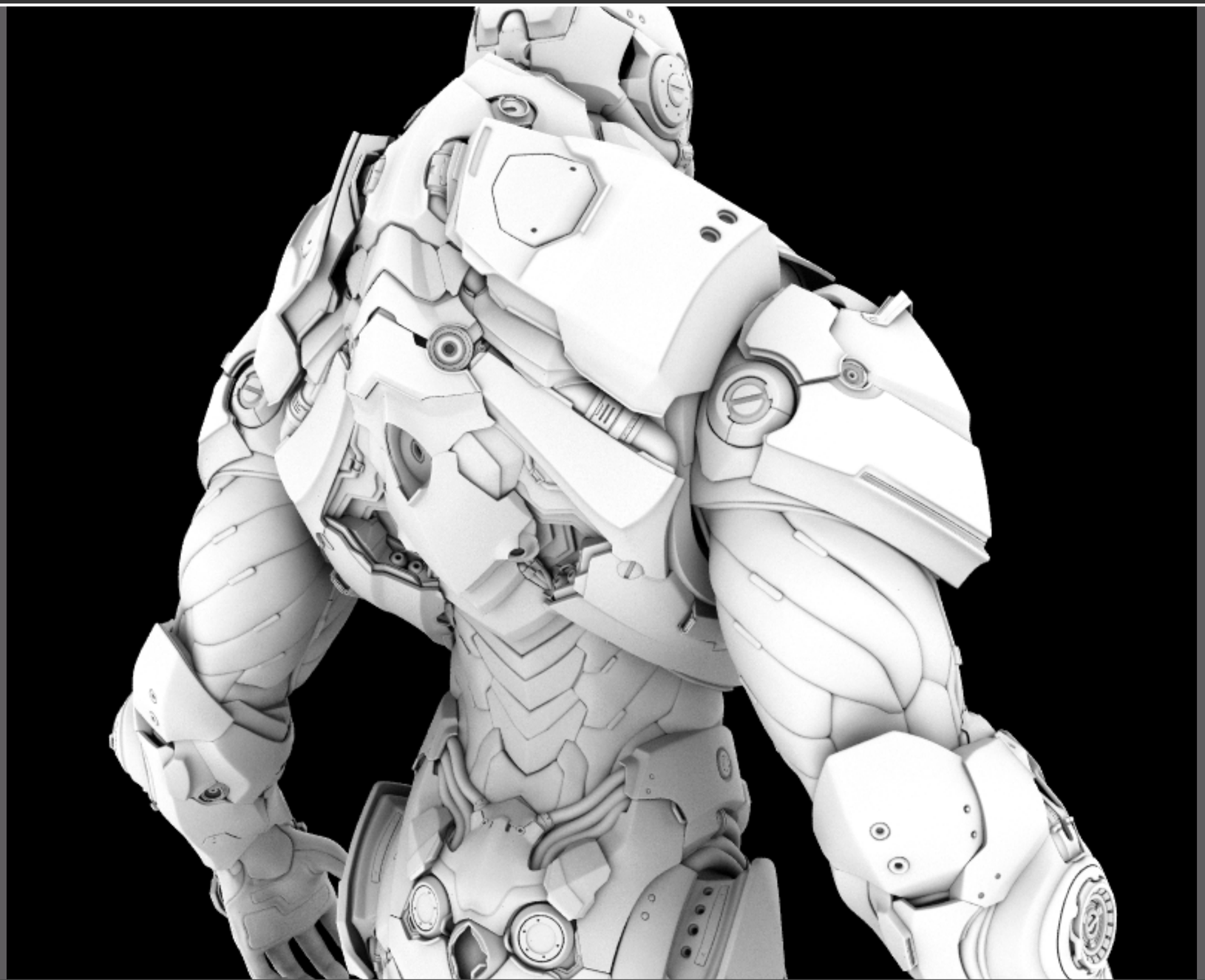
Technology Demonstration: Ambient Occlusion pass with the GPU

Technology Demonstration: AO pass with the GPU



Technology Demonstration: AO pass with the GPU



Thanks!

Special thanks to:

mental ray team

iray team