

# Wireframe Rendering

Anti-aliased Contour Shading with mental ray  
and "Lighted" wireframes

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tutorial by Bohdon Sayre

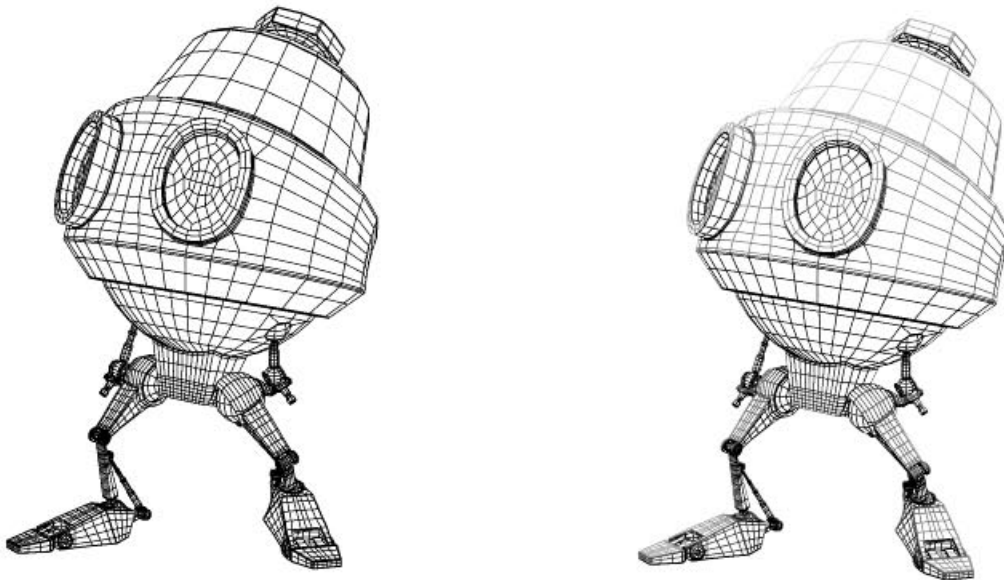
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# 1. Intro

## What's in this tutorial

This Tutorial will cover how to create a rendered wireframe for your model. There are several ways to create a wireframe for your model, but we will specifically cover **Mental Ray contour shading**. Additionally, we will cover compositing techniques that allow you to create “lighted” wireframes. This is useful because it helps prevent dense wireframes from darkening the shading of your model.



# Render Globals

## Set up Mental Ray

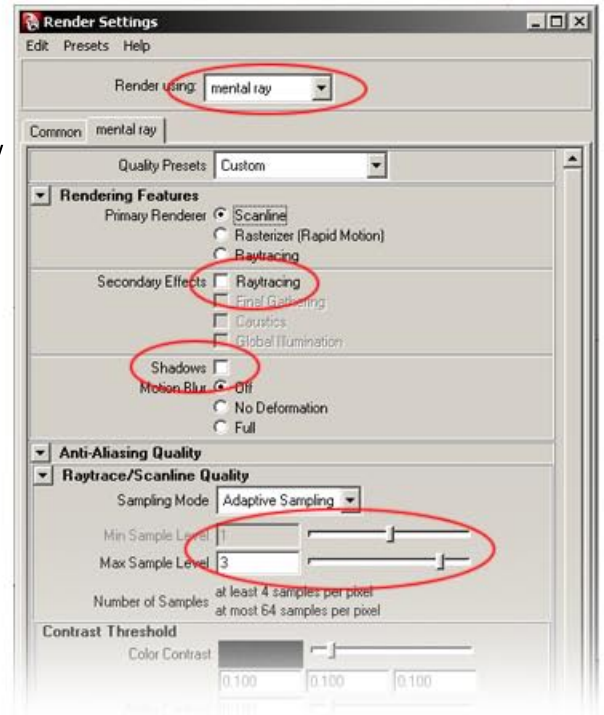
1. First make sure the mental ray plug-in is loaded.

Go to *Window>Settings/Preferences>Plug-in manager* and check "loaded" next to *Mayatomr.mll*

2. Choose **mental ray** as your renderer in the Render Settings window and go to the mental ray tab.

Turn off **Raytracing** and **Shadows**, they aren't needed for contour rendering.

Set your **raytrace/scanline samples** fairly high, this will affect the quality of the contours later.



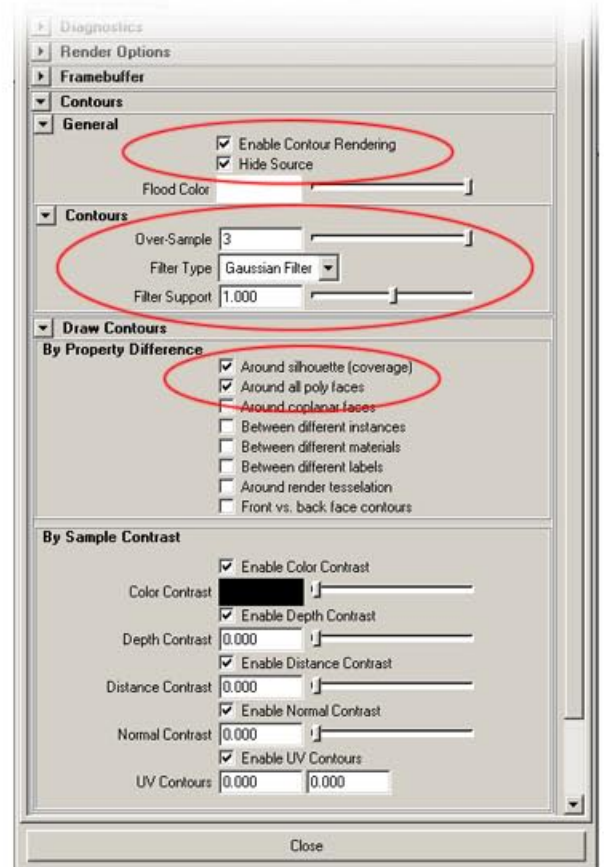
## Enable Contour Rendering

Under Contours check **Enable Contour Rendering** and **Hide Source**.

Now turn up **Over-Sampling** to 3, and change the filter to **Gaussian**. This will cause the contours to be anti-aliased.

To get a standard wireframe for your model, check **Around silhouette** and **Around all poly faces**.

NOTE: I use a white Flood Color so that a black wireframe is on top of a white background. Only the alpha channel will be used in compositing so it doesn't matter what the Flood Color is set to.



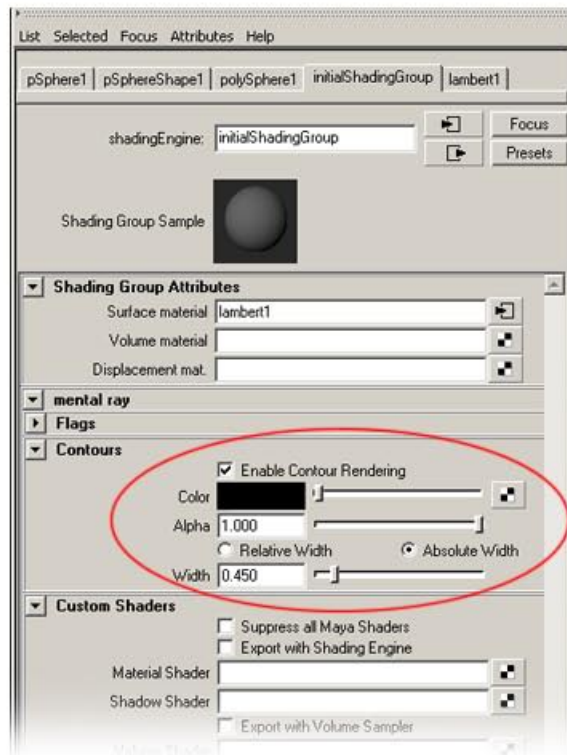
# Creating the Shader

## Assign the default shader

1. The wireframe won't have any shading, so we can use the default lambert1 as our shader.
2. Assign the lambert1 shader to all of the objects in your scene that you would like to have a wireframe.

## Enable Contour Rendering

3. Select one of the objects and in the Attribute Editor find the tab labeled **initialShadingGroup**.



Check **Enable Contour Rendering** and change the contour **Color** to black.

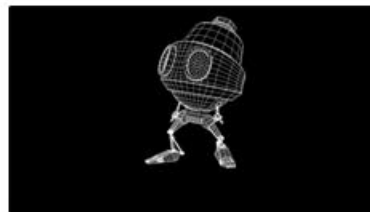
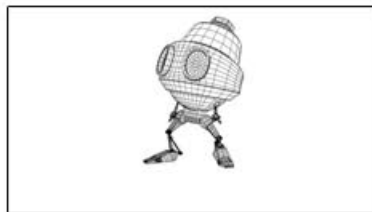
You might want to lower the **width** before doing your first test renders. I usually find something around .600 is good.

NOTE: Because only the alpha of the final renders will be used in compositing, it doesn't matter what contour Color or Flood Color is used. To preview your images in the same way as below, however, use a white flood color and black contour color.

RGB

Alpha

flood color: white  
contour color: black



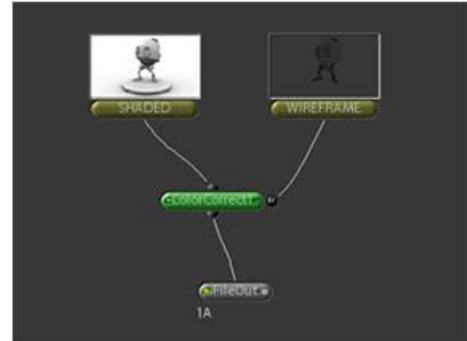
## Batch Render

Once you have the image above and have checked that the alpha channel exists, batch render your animation. For Ringling students this means 853 x 480 px and the Maya IFF format (used in Shake later).

# 4. Compositing and “Lighted” Wireframes

## Shake Tree

1. In Shake, create a **fileIn** node for your shaded animation as well as the wireframe animation.
2. Select the shaded fileIn node and add a **ColorCorrect** node under the Color tab
3. Drag the wireframes output into the **Mask** of the ColorCorrect node
4. Create a **fileOut** to complete the tree. I recommend rendering the animation as a TGA sequence so it can be imported into Premiere.



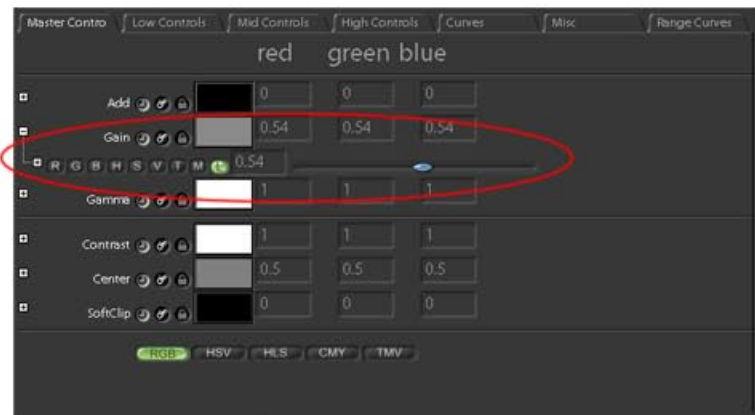
NOTE: If you have a colored animation (not black and white) you may want to create a Saturation node with a value of 0 (also masked by the wireframe). This will give you a black and white wireframe on a colored animation. Tree seen here:



## ColorCorrect Settings

5. In the ColorCorrect node's options, simply lower the Gain under the Master Controls tab.

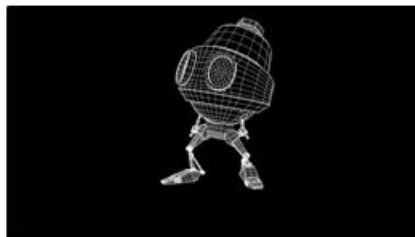
For a completely **Black wireframe**, set the Gain all the way to 0. For a **“lighted” wireframe**, set the Gain somewhere around .6



NOTE: The concept behind this compositing technique is simply to use the color of the shaded render and darken it (seen below). By masking the color correction node with the wireframe, the darkening only occurs where the wireframe is.



masked by



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# Final Composite

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This compositing technique can be applied in many ways. Colored wireframes can be created easily in Shake using only the color correct node. For professionalism, however, I would stick with black and white.

If you want to avoid shake, and only need a black wireframe, the images can be batch rendered out of maya as TGAs and multiplied over your shaded animation directly in Premiere. This can be done by applying an Arithmetic effect to the wireframe animation (found in *Video Effects>Channel>Arithmetic*). Change the operator to Multiply and you have the final composition.

For questions or comments feel free to email me at  
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