

Oso Furry

Oso Furry is a recoded Iray Uber shader to create displacement fur-like effects.

Normally if you are setting up a displacement fur effect, you would plug a noise map into Displacement Weight and set tiling to some high value. The problem is that you can't also add a map to make some areas of fur longer than others. You could layer noise and a length map in LIE or a photo editor, but then the noise can't be tiled much in a map that's likely, at most, 4096x4096.

Oso Furry uses a procedural noise generator to create the basic noise displacement pattern, and then also takes a Fur Length map to adjust the noise over the figure or prop.

Fur Length Minimum and Maximum correspond with Displacement Minimum and Maximum.

Oso Furry can be applied to a surface directly. This works well for clothing or other props, but is not recommended for figures.

For figures, Oso Furry is best applied to a geometry shell. There are several default fur props (geometry shells) included, for G8M, G8F, Millennium Cat and Millennium Dog. To adapt these fur props to a different texture, replace Base Color and Glossy Color with the appropriate maps of the figure. For example, the MilCat colors should be filled with whatever breed texture you intend to use.

You can also skip the maps entirely and use a simple color; this can create an interesting effect, where the underlying skin and fur are different.

If extra zones are added, such as with a G8 tail or Daz Dragon 3 Wingless, apply the Oso Fur shader to the extra zone and copy over one of the other zones. Copy over appropriate maps for base and glossy color, if maps are being used.

The fur effect created is often a little darker than the texture looks on a smooth surface. This is, in part, due to all the shadows created by the hairs. The high glossy values are used to help balance that. If Furry is being used for a new product, it might be worth making a lower Vibrance/higher brightness version of the texture map to use for the fur. You can also use a completely different pattern for the fur than the skin underneath.

The Oso Furry Base Surface shader sets up a different, translucency based effect. This can be useful, skipping the whole geometry shell and just making the surface furry. However, this will require a decent mesh density and subdivision.

One fun and easy use for this shader is on a sphere with, say, 256 segments and sides. You can flatten it and make a variety of interesting, very high quality furry effects.

How To: Geometry Shell

Geometry Shells are a special clone of a surface that follows the prop or figure. Pose the figure, the shell moves the same way. It has a Mesh Offset (in Parameters/General), which defines how far it sits from the surface. Mesh Offset can be negative, placing it within the figure.

Another important detail is setting visibility, which flags which surfaces in a shell are visible. Select the geometry shell, and look at Parameters tab, Geometry Shell/Shell/Visibility/Surfaces. There is a list of all the surfaces. They default to On, and can be flagged Off.

For fur on a figure, it's best to hide everything that isn't skin (pupils, teeth, etc). With the included fur props, these have already been flagged Off and Mesh Offset set to .1.

With Mesh Offset .1, the surface looks completely furred and the space between hairs is also filled in. If you want more of the underlying surface to show or have more sparse fur, it can be a good idea to set Mesh Offset to -.1 so that the fur is set just below the skin and fur pokes out.

Fur Settings

Cutout Opacity

This is set to .5, softening the look of the fur and letting light through. You could manage this with translucency, but the effect is difficult to manage and slower, while not often looking better. If you do experiment with translucency, you will want to put any base color maps into translucency color, too.

Included texture sets include a Fur transparency map that hides some parts of the fur, such as the nose on G8M/F. You are encouraged to make your own transparency maps; it's recommended to use a fairly extreme black and white mask for transparency, and then use it as a base for fur length (or vice versa).

Fur Length

This is basically Displacement weight (with included noise). It must be filled in with some map before any displacement occurs; a simple white tile is provided to switch it on if you don't have a length map you want to use.

Fur Length Minimum/Maximum

Just like Displacement Minimum/Maximum, governs the range of displacement of the fur. Minimum can be negative, pushing the base of the fur downward.

Fairly low values are recommended for figure fur; if fur gets too long the limitations of displaced fur start becoming more apparent.

Fur SubD

This sets the sub division of the surface. This is useful for applying to a geometry shell for fur; if Furry is being applied to a base figure and not a shell, leave this at 0; you are best off increasing the figure's SubD.

Displacement in Iray relies on displacing a mesh. The higher the subdivision, the better the fur effect will look. 5 is a good starting point, but you may find yourself going as high as 8 to try to salvage really simple meshes. Save before trying high values!

At longer ranges, a lower subd might be sufficient, and will render faster.

Fur Scale

The scale of the generated noise. If this scale is set too high and the dots are too close together for the mesh resolution, they basically start melting together. The effect ends up looking like the fur is melting into blobs.

You can create a spikey look with lower fur scale, and at very low scales (such as .01) the surface begins to look more like a craggy surface.

Fur Tip Width

This controls how wide the tip is, basically 'fattens' and expands each noise dot's center.

For fur, you want to leave this at 0. For other odd effects (like islands, hairbrush bristles, and so on), you should experiment with low fur scale and see how it looks.

Fur Base Width

How far each dot of noise fills the space. Effectively this will control how dense the fur looks; at lower values, hairs will start looking more spaced out, at higher values more jammed together.

Lower values can help give fur a more ragged look.

How To: Clothes

Clothes can be tricky; they are fit to the underlying figure, so poke-through happens easily.

One approach is to hide sections of the Geometry Shell that are underneath a given article of clothing, but this can be tricky to line up completely.

Another approach that often works is to add a push modifier to clothing. You will have to experiment a little, but .2-.4 should be enough in most cases.

You can also edit the cutout opacity map of the fur and black out parts of the body that is underneath the clothing. This will be difficult without a good 3d paint program, however.

Alternately, you can render two images, one with fur and one without, and then carefully erase the fur layer to reveal a no-pokethrough layer.

Limitations

Displacement in Iray relies on the quality and density of the mesh. It is very hard to create convincing displacement with low density or uneven meshes, meshes where some areas are high density and some low density.

It will be difficult to use Oso Furry effectively on figures with uneven meshes, because subdividing it still results in an uneven figure. For example, a Genesis 8 Male figure has higher density on the face than the rest of the body. The fur will usually turn out well, but if that figure also has a morph that makes the chest and torso particularly large, the effect may start to break down.

Generally, you will end up subdividing for the lowest mesh densities of your figure.

With props, the problem can be even more acute. Trying to make a furry pillow can be rough when large sections of the main surface are a few big polygons and then the edges are much more dense.

The other big limitation of displacement is that the surface is displaced at right angles to the surface. Displacement happens 'out,' you can't angle it along the surface. For medium to long fur, this can look a bit unnatural. Really 'craggy' surfaces look more natural because the fur angle will vary more.

Benefits

While fibermesh, fiberhair, and other technologies can look a bit better and more natural, they are also hard to create, set up, and take significantly longer to render.

A convincing fibermesh fur can be millions of polygons, and possibly close to a billion to do it right.

Oso Furry scenes are easy to save, and can quickly be adjusted to higher or lower fidelity, and will usually run faster than other approaches to fur.

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