

Stylized Hatching

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The Stylized Hatching mainly happens in a DisplayFilter node, with optional information on a per-object basis from PxrStylizedControl.

Can be used on its own for simple cool styles or combined together (daisy-chained) with other Hatching nodes, or Toon & Lines nodes. When daisy-chaining Hatching with the other Stylized nodes, an ideal order is Hatching, then Lines on top. You can combine multiple Hatching and use the Mask/Input Mask feature on the node to mask them together based on different input signals (light sources, camera range, ...).

Result

- **Disable** - turns this node off, and shows the previous beauty of the daisy chain if another DisplayFilter connected before this one, or just the regular beauty render if no other DisplayFilter node connected.
- **Hatching On Color** - Ignore albedo color for base color and use a given color for all objects.
 - Hatch On Color - Use this color for all objects.
 - Hatch On Background - Use background color or texture for object albedo color. The texture will swim if there is movement.
 - Add Spec - Add specular contribution to hatching
- **Hatching Comp** - auto composite that adds the hatching to the previous beauty
- **Hatching Blend** - grayscale showing just the hatching texture blending (if shows up red your hatching textures need to be 3 color RGB not single channel float)
- **Signal Luminance** - correct RGB weighting for converting color to grayscale, currently not used in any modes, just a visualizer
- **Signal Energy** - the internal "white shader pass" that this node creates and uses to blend the hatching
- **Triplanar Test Colors** - preview of triplanar blending, with solid colors

Input Page

Signal

Name of a color AOV to use for the signal to hatching. Typically diffuse can put any light AOV here. This AOV has to be set up in Maya/Katana/Houdini or DisplayFilter will exit.

Mode

Under the hood a white shader approximation is created based off the Signal AOV to drive the Hatching.

mono - single channel

average - average of RGB components of Signal AOV

Div Albedo AOV - divide Signal AOV lighting results with a pure albedo from NPRAlbedo AOV or albedo AOV

Div NPRAlbedo AOV - divide Signal AOV lighting results with a pure albedo from NPRAlbedo AOV or albedo AOV. Must set Albedo Color in PxrStylizedControl Pattern node.

Invert Signal

Inverts the grayscale input signal. See [example demo video](#):

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Override Signal by Camera Range

Instead of reading the Input Signal, replace by Camera Range. See [example demo video](#) in Maya and [Katana](#).

Camera Range Page

Camera Range Mask Switch

Mask out regular hatching (When Visualizer on Hatching On Color, Hatching Final) by Camera Range defined by Z_min and Z_max below

Z Depth Mode

Slightly different Z depth data from these 2 sources

Cam Dist Z Min

Linstep Min on Z (blue channel from lineNZ)

Cam Dist Z Max

Linstep Max on Z (blue channel from lineNZ)

Remap Spline Swatch Select to use the Ramp spline below

Flip Min Max

Flip Min with Max

Z Min Hatch Frequency

Frequency at Cam Dist Z Min

Z Max Hatch Frequency

Frequency at Cam Dist Z Max

Input Remap Page

Gain

Pre gain the incoming signal (from Input/Signal)

Gamma

Pre gamma the incoming signal (from Input/Signal)

Enable Ramp

Use the float spline ramp below

Ramp

Use the float spline ramp below to remap the incoming Input/Signal after Gain & Gamma

Hatching Projection Page

Frequency

Higher numbers, higher frequency. For **Screen** start at 1. For **Triplanar** start at 0.005.

Projection

Screen - "Screen" or "NDC" coordinates to project Hatching textures. Will swim over animation and camera moves. Great for stills or non moving geometry.

Triplanar - Creates triplanar projection from NPRPtripplanar & NPRNtripplanar AOVs (written out from PxrStylizedControl).

NPRtexture Coords AOV - Uses XY coordinates from RED & GREEN channels of NPRtextureCoords AOV (set in PxrStylizedControl). This is useful for user to set any custom coordinate system, for example a camera projection.

Flip

Flip textures in "t" direction when using Triplanar Projection

Triplanar P

NPRPtripplanar - uses NPRPtripplanar AOV (set by PxrStylizedControl). This is by default P in object space.

P - uses factory P AOV

__Pref - uses __Pref AOV. Must set in DCC (Maya/Houdini/Katana) as "rest position", and create the AOV.

aov - Name of a custom color AOV to use for the triplanar blending of P. If set to "NPRPtripplanar": need to plug PxrManifold3d into PxrStylizedControl node to provide custom co-ordinate system. Can also be factory "P" "__Pref" "Pworld" if those AOVs are setup.

Triplanar P String

Conditional visibility: if **Triplanar P** set to **aov**. Name of a color AOV to use for the triplanar blending of P. If set to "NPRPtripplanar": need to plug PxrManifold3d into PxrStylizedControl node to provide custom co-ordinate system. Can also be factory "P" "__Pref" "Pworld" if those AOVs are setup.

Triplanar N

NPRNtriplanar - uses NPRNtriplanar AOV (set by PxrStylizedControl)

Nn - uses factory surface normal N AOV

__Nref - uses __Nref AOV. Must set in DCC (Maya/Houdini/Katana) as "rest position", and create the AOV.

aov - Name of a custom color AOV to use for the triplanar blending of N. If set to "NPRNtriplanar": need to plug PxrManifold3d into PxrStylizedControl node to provide custom co-ordinate system. Can also be factory "N" " __Nref" if those AOVs are setup.

Triplanar N String

Conditional visibility: if **Triplanar N** set to **aov**. Name of a color AOV to use for the triplanar blending of N. If set to "NPRNtriplanar": need to plug PxrManifold3d into PxrStylizedControl node to provide custom co-ordinate system. Can also be factory "N" " __Nref" if those AOVs are setup.

Error rendering macro 'multimedia'

com.atlassian.rendererv2.macro.MacroException: Cannot find attachment 'Hatching-Deform-N-Nref-800px.mov.mp4'

In the video above, the column on the left, N, shows the texture "swimming" through the triplanar Normal mask because the object is deformed. The column on the right, __Nref, shows the original N on the surface of the deforming geo, thus having the same texture even as the face orients in different directions. The only hatching texture changes are when the object goes in and out of shadow, as the hatching is based on lighting.

Triplanar Blending

A value of 0 has no blending, through to 1 for full blending.

Mode

1 value - 1 frequency for all hatching textures. Use **Frequency** parameter above.

8 values - 8 different frequencies for each individual hatching texture for custom results

Camdist Range - Uses camera distance to drive frequency of hatching textures

Light Signal Range - Uses Input/Signal to drive frequency of hatching

Hatching Freq Tex 1 - Tex 8

Conditional Visibility: if **Mode = 8 values**. Hatching frequency for textures 1-8. Each texture can have it's own frequency. For Screen start 1. For Triplanar start at 0.005.

Hatch Tex Color Mix

Select a coordinated set of hatching textures from the predefined collection. Or specify the directory name of your own custom set (will be expanded as dirname/dirname-01.tex, etc). Or pick 8 individual textures separately.

Hatching Color Page

Color From

Select which AOV to determine the coloring of the hatching

Color

Hatching color, if **Color From** is **Color Swatch**

Hatch On Color

Color to apply hatching to behind textures. Only visible when **Result** set to **Hatch On Color**.

Hatching Canvas Page

Enable

Switch to turn on Canvas mode

Canvas Color

Background or "paper" color outside of alpha

Canvas Texture

Provide background "paper" texture. If blank, automatically uses Canvas Color.

Hatching Textures Page

Type

Standard - Select hatching from several shipped presets

Custom - Provide your own directory with 8 textures (must be named *pxrStylized-customname-01.tex*). For examples look at: **C:\Program Files\Pixar\RenderManProServer-25.0\lib\textures\StylizedLooks**

Individual - Provide your own individual textures in *.tex* format

Texture Set

Select hatching from several presets

Toon Mode

Automatically replace textures with flat colors for a toon cel look. Still uses all blending remap settings to distribute flat colors. Ignores textures.

Progressive

Composites textures on top of each other if not originally created that way (each texture progressively is added to the previous one). Useful when using **8-val** frequency mode.

Invert

Invert order of progression of hatch texture lookups. For diffuse signals, typically left OFF (default).

Blending Page

Color Blend Signal

Replace tex1-tex8 with RED, ORANGE, YELLOW, GREEN, BLUE, INDIGO, VIOLET, TURQUOISE for previewing blending

Blending Mode

Select between Mix and Weighted blending. Mix is an auto blend between all textures. Weighted uses custom weighting functions with a Blending Hold and Blending Overlap

First Texture is White

Before the lightest texture, *tex1*, add solid color white

Last Texture is Black

After the darkest texture, *tex8*, add solid color black

Hold

Values above 0 keep each texture more prominent

Overlap

Overlap of the Bell Curve weighting function. 0.125 is minimum and blends 2 textures, higher values blend more up to 8 textures.

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Output Page

AOV

Name of a color AOV to use for this specific Hatching node. Default goes to **GREEN** channel of **NPRhatchOut**, use this for additional AOV support for use in compositing.

Channel

Which channel to write grayscale hatching output to

Mask Page

Light Mask Switch

Use light aov defined in signal_aov_string above as mask for previously daisy-chained Stylized shaders and/or physically based lighting

Alpha Hatch Switch

When using Light Mask, black areas of hatch are transparent to previously daisy-chained or physically based layers

NPR Mix

0: disables this Hatching Node and shows previous node if daisy chained, or original beauty if no previous Stylized Looks nodes. 1: full Hatching from this node.

Compositing Page

Mix

0: disables this Hatching Node and shows previous node if daisy chained, or original beauty if no previous Stylized Looks nodes. 1: full Hatching from this node.

Gamma

Gamma to final hatching, smaller numbers make it higher contrast. Try 0.5.

[Link](#)

Hatching Tips