

EdgeTool FxPlug Filter

Version 1.0

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Introduction

The EdgeTool filter was conceived as a solution, or at least a critical part of a solution to grainy regions of HDV video, and compression artifacts in the same. The idea was to isolate edges from low detail areas so that filters could be applied only to low detail regions without affecting edge sharpness. This process is relatively simple in a tool like After Effects or Shake, but to accomplish what we wanted in Final Cut Pro, we had to create a separate sequence with several layers and nest that sequence into our main sequence because of the limitations of a non linear editor as a compositing tool.

The final solution was to create a filter plug-in for FCP that would do edge detection, with controls for edge amplitude and contrast, and output options including alpha channel, RGB, and enhancement only. The Alpha channel option is merged with the existing alpha channel to allow the filter to be used with other filters that generate alpha channels. The RGB option can be used with various compositing modes for different effects, and the Enhance [only] option allow the editor to avoid multiple layers when all she wants is a median filter to smooth grain and/or compression artifacts. In order to provide a built in enhancement, we also added an optional median filter that operates on the YUV channels of the video with a stronger filter on the UV (color) channels than on the Y (luminance) channel which holds more of the image detail in chroma-subsampled video.

The filter does it's work in high precision, 32-bit floating point color space (128 bits/pixel) for high quality results. It is offered as an FxPlug plug-in that will work with Final Cut Pro (version 5.1.2+), Motion 2 or higher, and Final Cut Express (version 4+).

The Pitch

We believe many people will want this filter for a multitude of reasons. It's original use as a selective enhancement filter (for built in enhancement, soft focus filters, and even selective sharpening) is a strong selling point, but the filter can also be used for special effects and to enhance or limit special effects. We feel, this filter is a must-have filter, and we priced it so that just about anyone could justify adding it to their toolbox.

The Controls

Output Select - the output selection determines how the edge map will be presented back to the host application. If you select "alpha", the edge map will be sent back in the alpha channel. If you select "RGB", the edge map will replace the image with a gray-scale edge map. The RGB option is useful for visualizing the output while you adjust the amplitude and contrast of the edge map. Finally, the "enhance" option does not output the edge map at all. It will use it internally to control the median filter. If the UV Smoothing option is not selected (turned on), then no changes will be applied.

Course Edge Detection - edge detection method that favors lines over speckles or very fine details

Fine Edge Detection - edge detection that responds to finer details and speckles (single pixel blips)

Amplitude - multiplication factor for edge output (range of 1 to 100 equates to 0.1 to 10 x)

Contrast - minimum contrast is at 0 and maximum contrast is at 100; typically you'd want to use values from 3 to 15

UV Smoothing - switch controls YUV median filtering. If output option is set to "enhance", this switch must be selected or no changes will be applied. This filter can also be used with the "alpha" output option. It has no effect on RGB output.

Invert Output - inverts edge map. In most cases, you'll want to invert the edge map since that will cause effects to be applied to non-edge regions. If invert is not selected, effects will be applied to edges. That would be fine for special effects or sharpening filters, but for smoothing, the invert option should always be selected (on).

Installation

The EdgeTool filter is an FxPlug filter. Therefore, it must be installed in a folder named "FxPlug", inside a folder named "Plug-ins" that is located in the user's "Library" folder. You may need to create the "Plug-ins" folder and the "FxPlug" folder inside the "Plug-ins" folder, if this is the first FxPlug filter you've installed.