

# VIDEO: Going into depth: avoiding the pitfalls of 3D movie editing

So you've experimented with shooting in 3D, but the extra dimension throws up its own unique problems when it comes to editing it...

**W**e looked at shooting 3D content last issue, but obviously capturing video is only half of the process. To do something useful with the footage you've shot, you need to edit it. Just like recording in 3D, editing with an extra dimension brings a whole new set of challenges.

The first thing you have to bear in mind when handling 3D content is that you're presenting the viewer with far more visual information. As the brain is being tricked into thinking it's seeing a true three dimensional image, the viewer may want to explore the shot more than they would a flat image. As a result, especially if you're dealing with detailed shots, you need to leave the image on screen longer than you would in a 2D environment.

Where you might need to use fast cuts and scene changes to keep a piece visually interesting in 2D, the opposite is true in 3D. In 3D, the shots are already more visually interesting, so if you don't give the viewer enough time to take them in, the final result could be difficult to watch.

While it's possible to get a rough idea of the edit just watching in 2D, to get a real feel for how it's going to look in 3D, you need to be reviewing edits in 3D throughout the process. It's not necessary to watch everything in 3D while you're working, but it's important to go back regularly and watch the full 3D effect to get an idea of whether you're leaving enough time for viewers to see everything in a scene or if you're snatching it away too quickly before they've processed it.

To be able to do this, you'll need to equip your editing application so it can handle 3D. There are two main options for this: CineForm Neo3D ([cineform.com/neo3d](http://cineform.com/neo3d)) and Dashwood

Stereo3D Toolbox ([dashwoodcinemasolutions.com/stereo3dtoolbox.php](http://dashwoodcinemasolutions.com/stereo3dtoolbox.php)).

CineForm Neo3D works with most major editing applications, as you start by encoding your left and right images into a CineForm 3D QuickTime file, which can be edited in Final Cut Pro, Avid Media Composer or Premiere Pro. There's support for viewing 3D material on an external monitor during editing. At \$2995 (about £1900), though, it's not cheap.

Dashwood Stereo3D Toolbox is available in either as a \$1499 (about £1000) full suite or a \$99 (about £65) Lite Edition. Both versions include plug-ins for Final Cut Pro, Final Cut Express, Motion and After Effects, but no support for Premiere Pro. The Lite version supports adjusting and editing 3D footage



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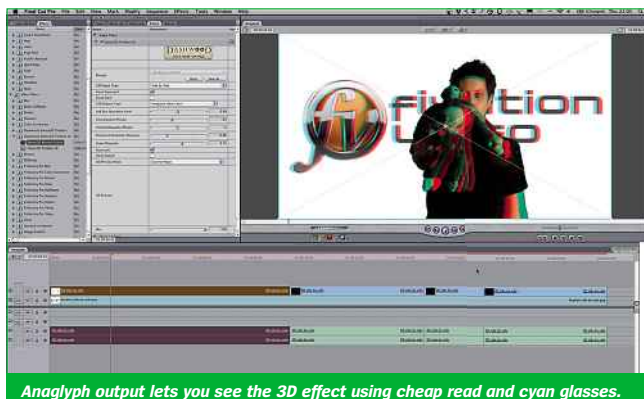
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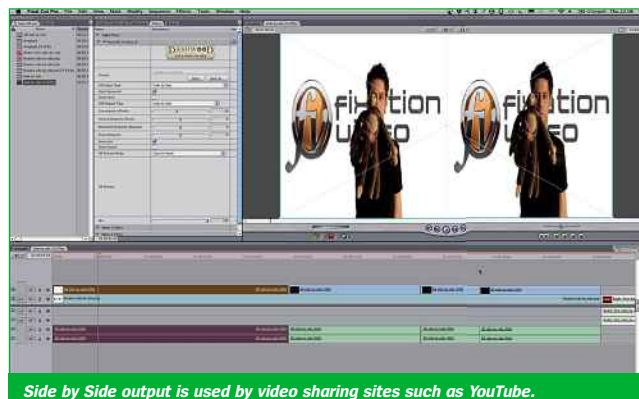
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in the host editing application and selected output options. The full suite gives you more 3D adjustment options, greater output support and extra features such as converting 2D text or captions to 3D. The Lite version provides everything you need to edit a 3D video from start to finish, but if you want more flexibility and features, the full suite offers considerably more.

Both Neo3D and the full version of Stereo3D Toolbox are aimed at professional 3D productions, where the cost will be just a fraction of the overall production budget. But if you just want to try out 3D to get a feel for



Anaglyph output lets you see the 3D effect using cheap red and cyan glasses.



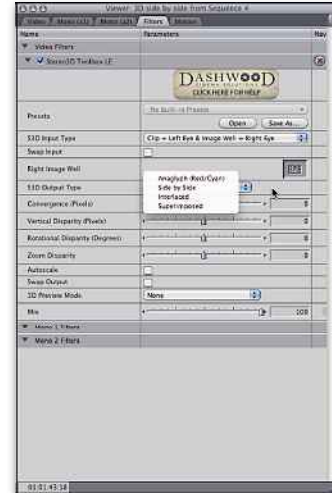
Side by Side output is used by video sharing sites such as YouTube.



▲ Noise Industries' FxFactory manages plug-ins and is necessary if you want to install Stereo3D Toolbox.



▲ Stereo3D Toolbox supports many different source 3D input formats.



▲ Stereo3D Toolbox Lite supports four 3D output options.

how it works and how to create it, Stereo3D Toolbox Lite is a bargain. In fact, if even that's too much for your budget, there's even a trial version available for free that includes full functionality but puts a watermark on any output so you can't distribute it.

Stereo3D Toolbox Lite comes as part of Noise Industries FxFactory plug-in installer and manager; you can download it from [noiseindustries.com/fxfactory/download](http://noiseindustries.com/fxfactory/download). Once it's set up and installed, the next time you fire up Final Cut Pro, you'll see a subfolder named Dashwood Stereo3D Toolbox LE in the Video Filters folder of the Effects tab. In there, you'll find two plug-ins: Stereo3D Monitor Scaler and Stereo3D Toolbox LE. The Monitor Scaler plug-in helps display content on a 3D monitor that has a lower resolution than that at which you're working.

The Stereo3D Toolbox LE plug-in does the main 3D work for you, helping you display and adjust 3D material directly in Final Cut.

The first thing you need is some 3D footage. Depending on what you used you shot your footage, you'll end up either with two separate shots for each eye or a single shot compressed horizontally, so it's the same width and height as a regular frame of video, but has the left and right images side by side squeezed into half the space they'd normally have. Stereo3D Toolbox LE can handle both of these formats. If you're using a Side by Side clip, drop it on the timeline and apply the Stereo3D Toolbox LE plug-in to it. Load the clip into the Viewer and click on the Filters tab. In the Stereo3D Toolbox LE settings, navigate to S3D Input Type and choose Side by Side.

If your left and right images are in separate files, you need to create a stereo pair in Final Cut. Place the left clip on the timeline and apply the 3D filter to it. For input type, choose Clip = Left Eye & Image Well = Right Eye. This will assign the clip on the timeline to the left eye. To assign another clip to the right eye, drag it from the bin onto the film clip icon next to the Right Image Well caption. Once the clips have been paired, they'll behave as a single clip when it comes to cutting and moving pieces around the timeline.

If you get your left and right clips muddled up, which is very easy to do when dealing with 3D material, you can just tick the Swap Input box and it will reverse them for you.

The next consideration is the output type. The Lite version of the plug-in only supports four formats: Anaglyph, Side by Side, Interlaced and Superimposed. The latter isn't a real 3D format – no true 3D displays can decode it and present a three dimensional image – but it can be useful for correcting alignment issues or seeing how far apart the left and right images are to gauge whether the movie will cause the audience eye strain.

If you don't have a 3D monitor, Anaglyph will let you see the 3D effect with nothing more than a pair of cheap red and cyan glasses. If you want to export for something like YouTube, choose Side by Side. You can change the output format at any point, so you could use Anaglyph while you're editing, and then set it to side by side for final export.

Once you've got your clips paired up, the next stage is to adjust any disparities between the two images. If your footage was shot on two separate cameras, aligning them exactly during shooting is almost impossible. To get a decent 3D effect, however, it's important to correct any alignment errors. The easiest one to correct first is the vertical disparity – if one

image appears higher or lower than the other when viewed using the Superimposed output setting, then this needs to be corrected. Use the Vertical Disparity slider to move them so they're directly on top of one another. If the images then appear correct in one part, but out somewhere else, the rotation may also need adjusting using the Rotational Disparity slider. Finally, use the Zoom Disparity slider to compensate for any differences in zoom between the two lenses.

When the two images are lined up, you can then play with the convergence, which changes how far in or out of the screen the 3D image appears. Move the slider left and the image will be pushed back into the screen; move it right and it will come out of the screen. Be wary about pushing the image too far in either direction, though, as if the distance between the two images is too great, it could cause eye strain.

Once you've finished, you may find the edges of the image appear warped or jagged. To correct this, click the Autoscale box and the image will be increased to hide any uneven edges where the two source images no longer match up due to the adjustment.

When you've finished tweaking your 3D movie, export it and get ready to wow and amaze anyone who sees it.



▲ If your images aren't aligned vertically, you can correct this by altering the vertical disparity.