Making 3D Photographs with an Ordinary (2D) Digital Camera

It's easy to make 3D photographs with a regular 2D camera that can be viewed with "Anaglyph" (red/cyan) glasses. The glasses they handed everyone who saw Spy Kids 3D, for example, will work fine.

3D images are formed in your brain when it receives two images from your eyes. If you can figure out a way to deliver a separate image to each eye when looking at a photograph, you brain will see three dimensions. One easy way to separate left and right images is to encode the left and right pictures using different colors, and using color filters on cardboard eyeglasses to distinguish them.

Find a subject

You need something that doesn't move if you're shooting 3D with one camera. You can do portraits if your subject is good at holding still and is sitting down.

For our example here, I'm photographing the items on my living room coffee table:

Figure 1 – My living room coffee table

Get a tripod or find something in the room to serve as a horizontal reference.

It's important that the camera be level for both shots. While I used a tripod here, I could have used the vertical stripes on the paneling as a guide, making sure that they are horizontal in the shot.

Put the camera's lens on a wide setting

You don't have to be all the way wide-angle, but it should be "normal" (i.e., images appear the same size as they do to your eye) or wider.

Take two pictures

Take a pair of pictures, left first and then right. Move the camera horizontally only about 2.5 inches.

Whatever you do:

- DON'T move the camera more than 2.5 inches. That's how far apart your eyeballs are. You'd think you'd get even better 3D if the two shots are farther apart than that, but you won't
- DON'T "toe in" the camera (i.e., don't turn the camera toward the subject as you move it.). Just move it horizontally without turning the camera lefr, right, up, or down

You may want to take several pairs of pictures. Always shoot two at a time so you can be sure that the first one in a pair is left, and the second one is right

Get A (Free) Copy of Callipygian3D

Download the software from callipygian.com. Windows XP is recommended for it.

Read the manual, install it, and run it.

Drag the LEFT image into the LEFT blue panel, and the RIGHT image into the RIGHT blue Panel

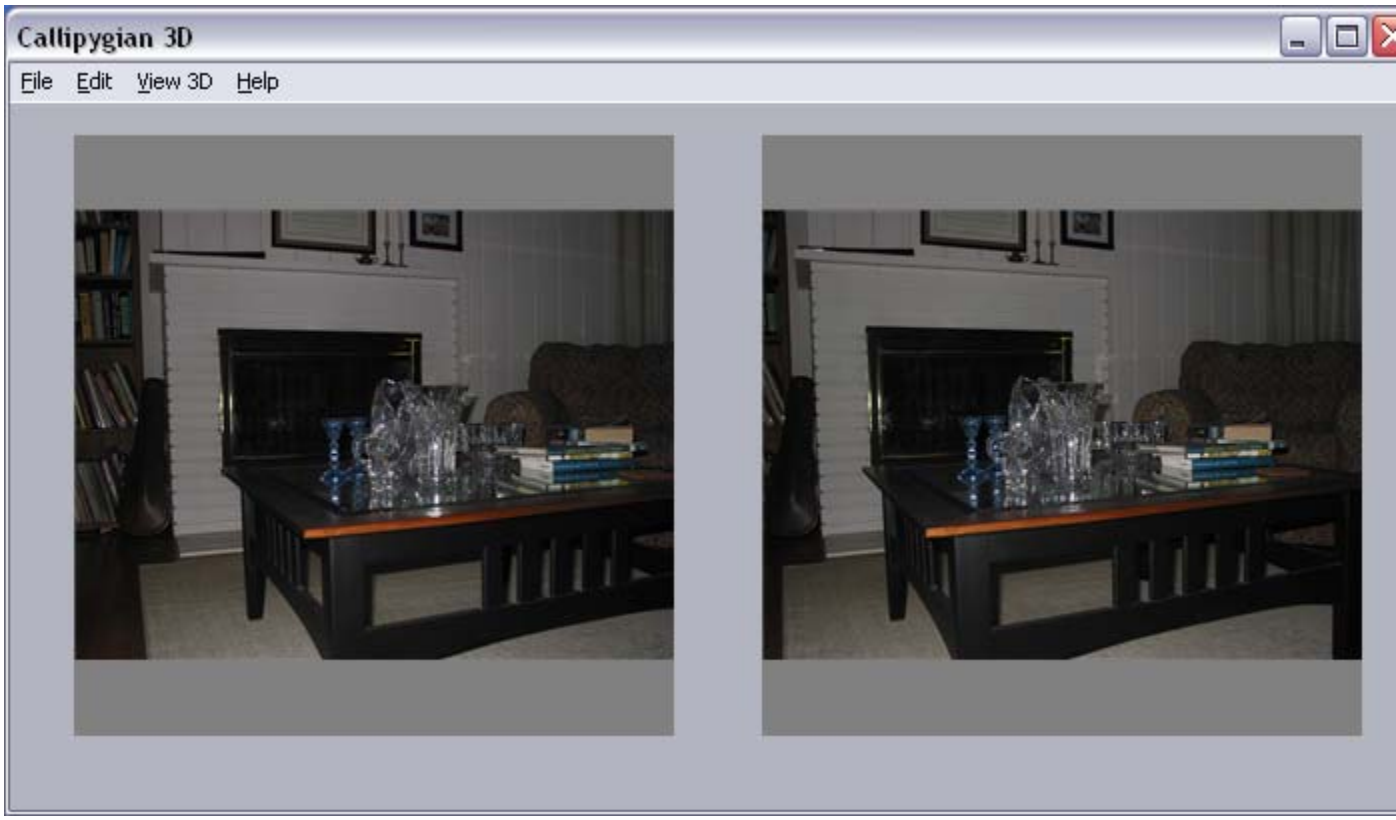

Figure 2 – Callipygian 3D with left and right views loaded.

Select the ROI and the Approximate Stereo Window

Use the mouse to select the Region of Interest in the LEFT image. You'll see a corresponding rectangle drawn in the RIGHT side.

Move your mouse inside the rectangle on the RIGHT side and drag the rectangle so that the LEFT hand image's selection shows slightly less on the left side than the RIGHT hand image does. This is "setting your stereo window:" Even though the camera may show more on the left in the left image, the final stereo picture needs to show less on the left hand border of the left image for your eyes/brain to see a good image.

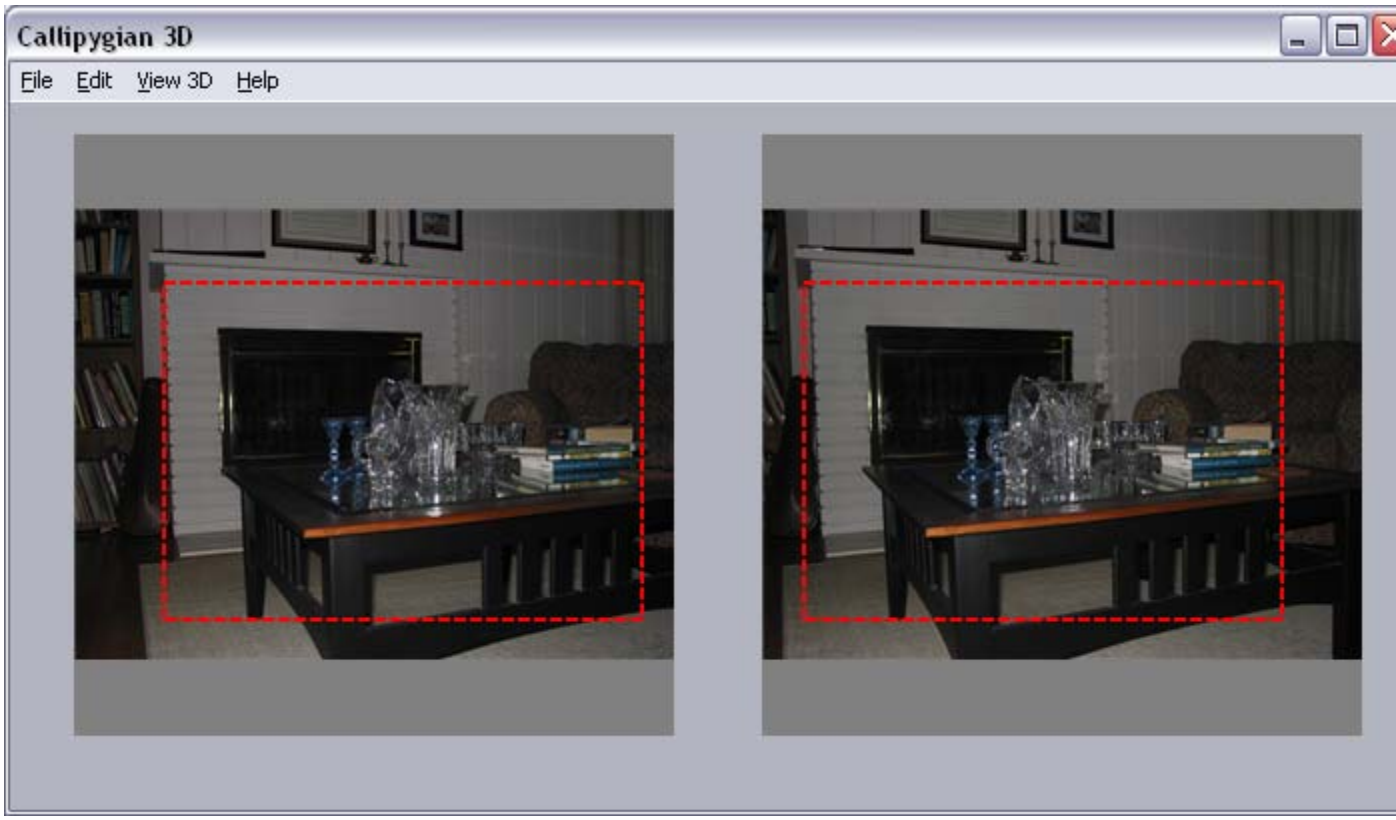

Figure 3 – We made a selection on the right side, and then shifted the rectangle on the left over (using the mouse) so that the left image's left edge shows *slightly* less than the right image's left edge.

Fine Tune the Stereo Window

Select View-3D Anaglyph from the main menu. Using the sliders on the right and the bottom, try making the **closest** object in the left and right images line up. This will ensure that everything will appear "behind the glass" when viewed with 3D glasses

Now, put on your 3D glasses. You may want to try sliding the horizontal slider a bit to adjust the stereo window. Often it's acceptable to have items in the extreme foreground stick out a bit. Or you can choose to get left and right registered perfectly on a subject's face or primary subject.

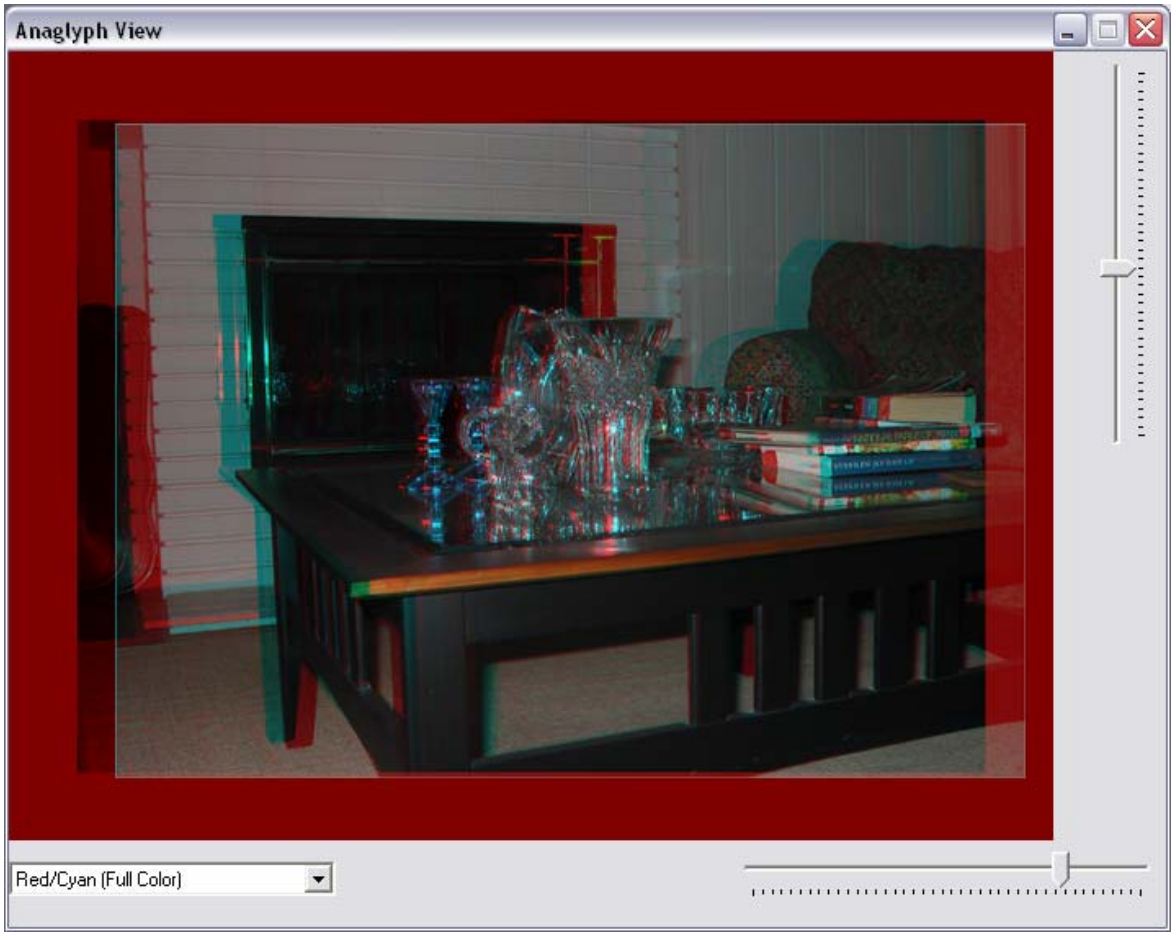

Figure 4 -- Stereo Window adjusted to allow front edge of table to stick forward a bit.

Generate a 3D Image

From the main menu, select File->Save 3D view and save your image. This image will be the same resolution as your original, cropped down for the view and window you selected.

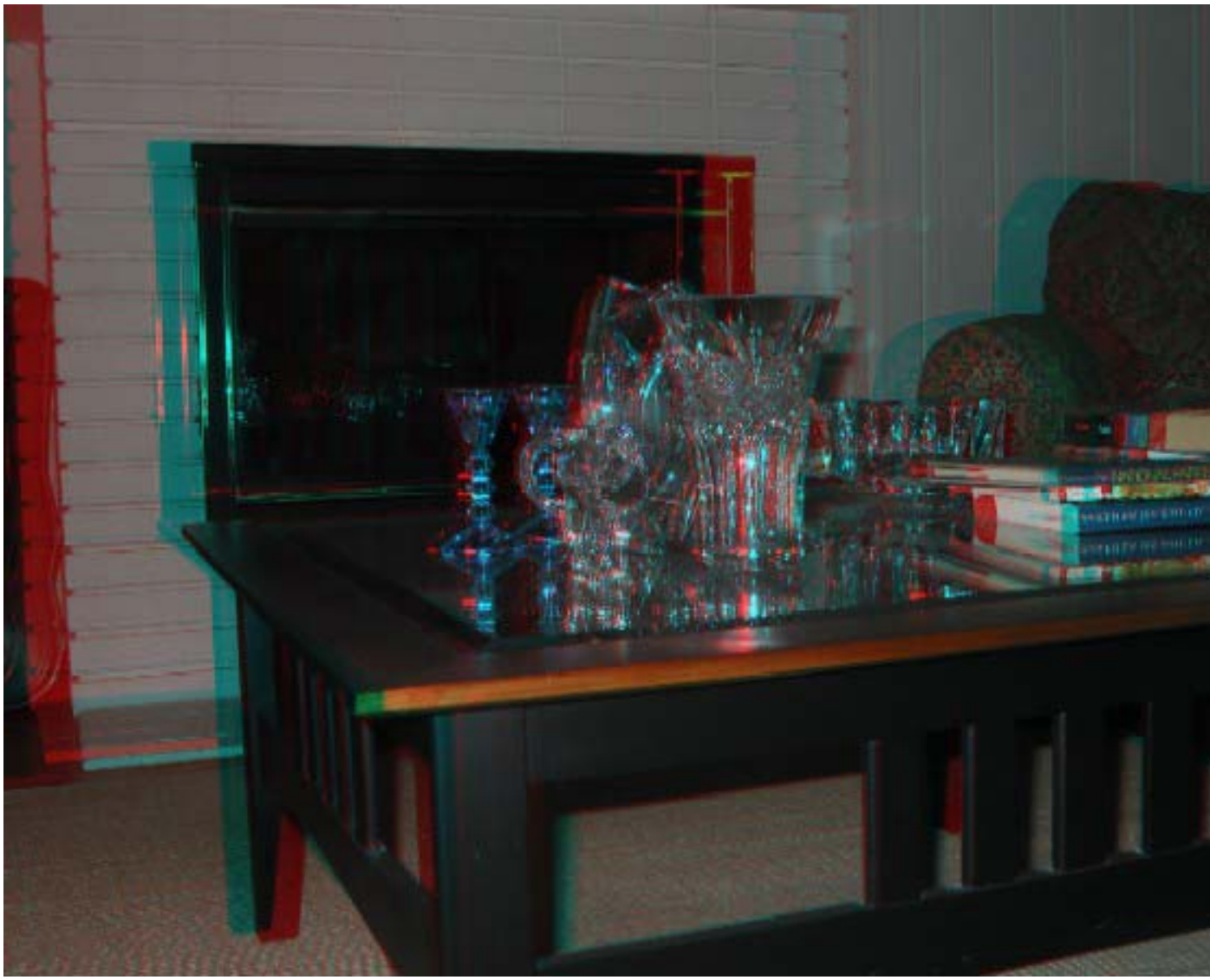

Figure 5 – Final 3D Anaglyph of my coffee table