How to Produce a Phantogram

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Photos © Eugene Mitofsky

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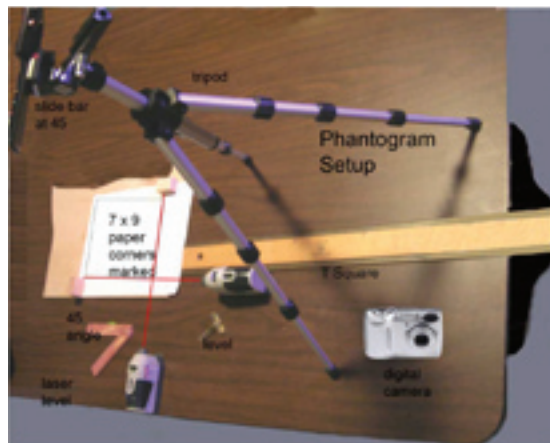
To see in 3D, two different perspectives of an object are needed. An anaglyph photograph is a 3D print viewed with red/cyan glasses. The glasses control which eye sees which perspective. The red side of the glasses limits the left eye to see one image, and the cyan side of the glasses limits the right eye to see the other image. The brain puts the two images together and *tells* us there is depth.

A phantogram is a special type of anaglyph 3D print. The phantogram is viewed with the print flat on a table and the person viewing the image views the print at approximately 45 degrees, the exact angle at which the photograph was taken. The image will appear to be *standing up* exactly like the original, in 3D. Since people are different heights, the viewer needs to move around a little to find the *sweet spot* or the exact height and angle of the camera during the photographing of the object.

Making a phantogram takes special camera setups and a computer to handle the two images. *Just out of Reach*, a phantogram of a wallet with $10 and $20 dollar bills showing, was created in the following manner.

A single digital camera was placed on a slide bar, which enabled one to conveniently move the camera to the right and left. The slide bar/camera was placed on a tripod. The tripod was adjusted so that the camera height was 30" away from the subject and tilted at a 45-degree angle. The wallet was placed on an 8.5 x 11 sheet of white paper, making sure that when viewed through the camera, the top of the wallet was entirely visible within the white paper. A small dot was placed in each corner of the paper.

The wallet was aligned so that it was exactly 30" from the tripod horizontally. The camera, at a height of 30", was aimed at the wallet at a 45-degree angle. Great care was taken that the edges of the slide bar were exactly parallel to the table and square to the paper. T-squares were used, along with laser pointers and rulers to set up the rig. The more time put into aligning the camera, the greater the success.

The camera was moved approximately 1" to the left and a picture was taken. The camera was moved 1" to the right of the initial position and the second picture was taken. Each image was saved with file names ending in _L or _R for identification. The images were photographed with a Nikon® digital camera at f4.5 with 1/40sec exposure at ISO-50. Two blue bulbs were used to light the wallet.
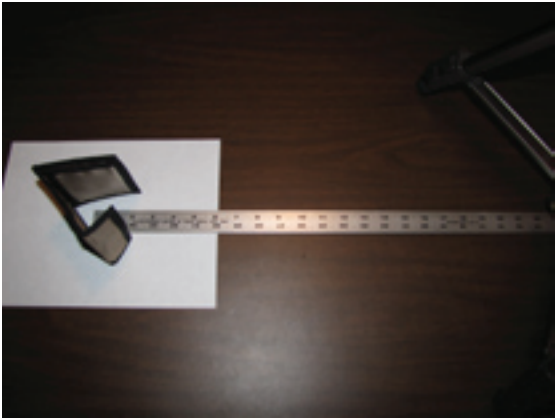
Using Photoshop®, the crop tool was chosen and *crop perspective* was checked. Each image was cropped, aligning the crop tool to the dots in
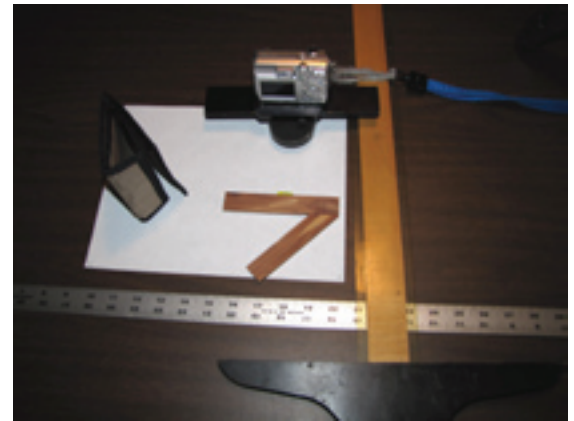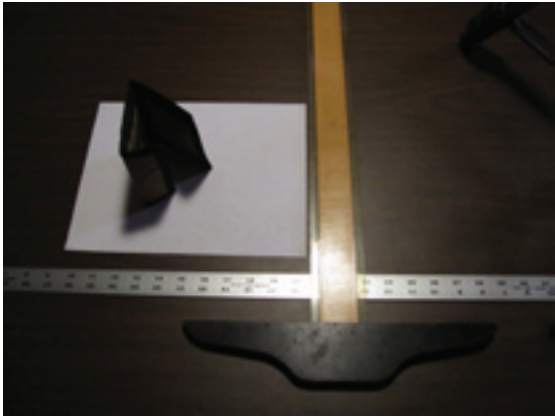

Object height 5 inches tall

Equipment used

Measuring height distance table to camera

Measuring horizontal distance from camera to subject

45 degree angle with level (homemade)

Squaring background parallel to camera

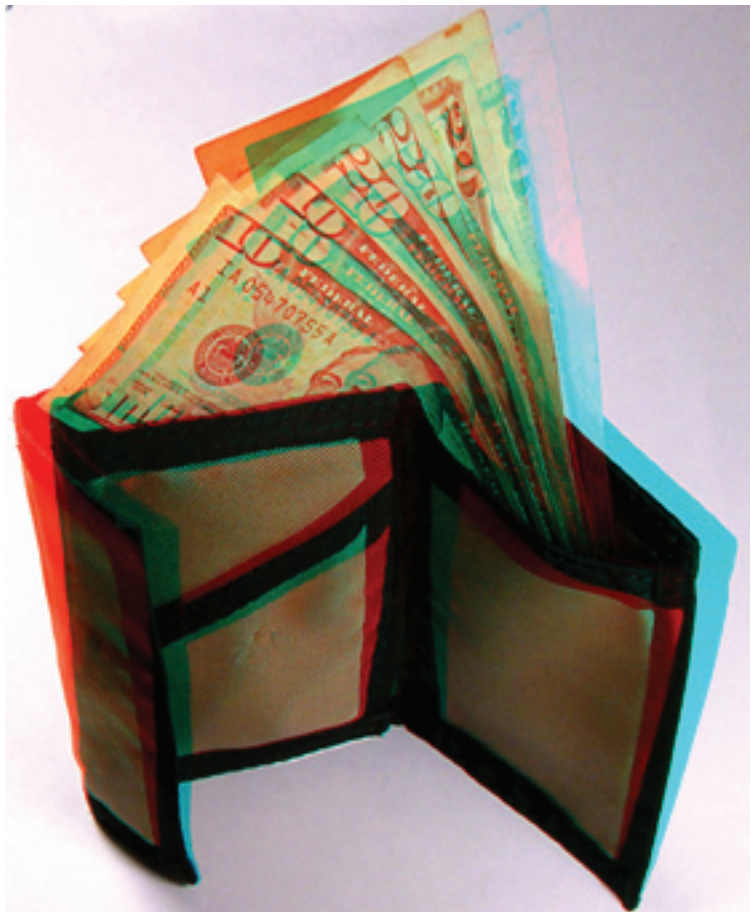
Adjusting camera to a 45 degree angle

the corners. The images were resized to the exact dimensions of the paper (8.5" x 11")

Still in Photoshop, the anaglyph image was created. The **left image** was selected, then the Channel palette was opened and only the red channel was selected. On the toolbar, go to Select>All and then Edit>Copy for the left image (red channel only). Using the **right image**, the red channel only was selected, and the left image was pasted (Edit>Paste) into the right image's red channel. Back on the Channels palette the RGB icon was selected producing the phantogram as an anaglyph. The phantogram was then printed.

Eugene Mitofsky is a PSA 3 star exhibitor and judge. He is a member of the Chicago Stereo Camera club. ◼

Camera on slide bar

Just Out of Reach