

Adobe Photoshop

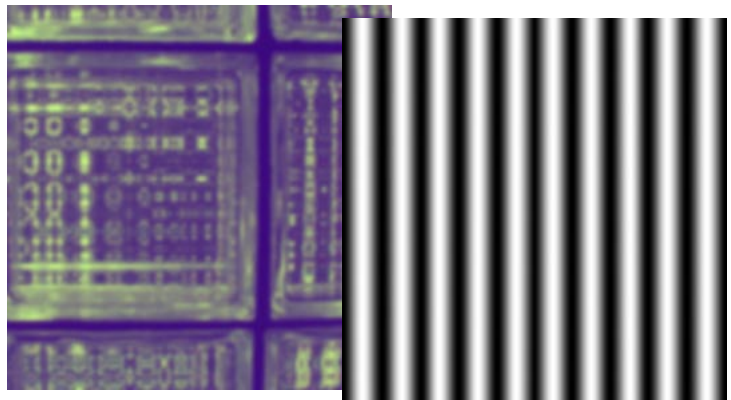
Using the Displace filter in Photoshop with Julieanne Kost

Software needed Adobe Photoshop 5.0 or later



Don't listen to them - those skeptics out there that give you that face when you tell them that you love to use filters. You and I know the truth...not all filters are created equal! They aren't always obvious when used and certainly can create incredible effects when used with settings that are different than their defaults!!! This is especially true with the Displace filter. And, although it's interface may appear simple at first glance, there is nothing amateur about the options it offers or the alterations it can create. This tip and technique explains and gives examples of the usefulness of this filter.

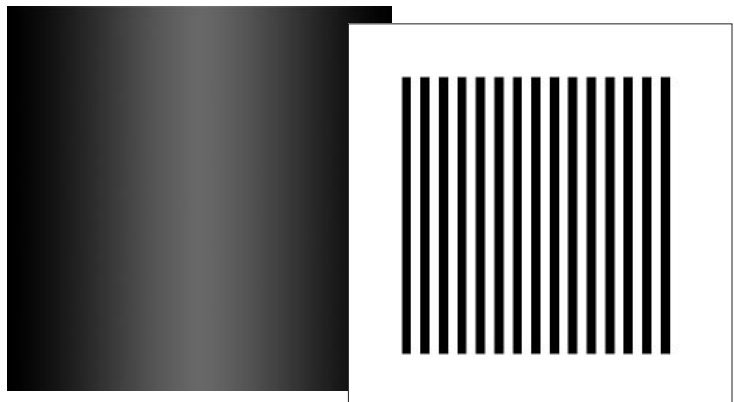
What is involved. The Displace filter uses two images to create it's effect. The original image, and a second one - the displacement map that you use to displace or distort the first one. The image contained in the map will vary greatly depending on the effect that you are trying to achieve. These are two examples of displacement maps, one, a gradient, the other a blurred image.



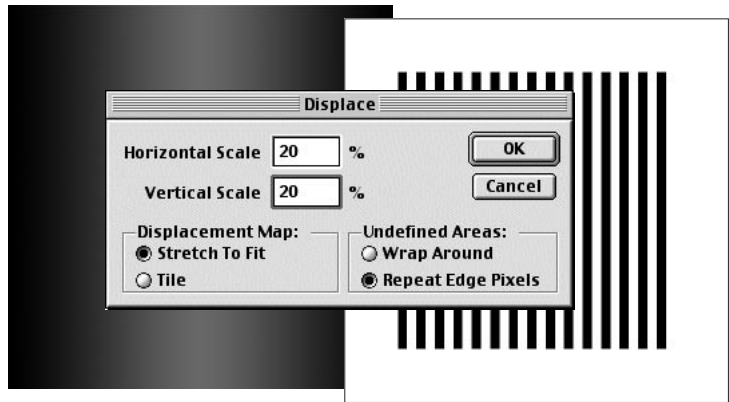
How it works. The amount of displacement is determined by the values in the image chosen as the displacement map. The Displace filter shifts a selection using a color value from the displacement map - 0 is the maximum negative shift, 255 the maximum positive shift, and a gray value of 128 produces no displacement.



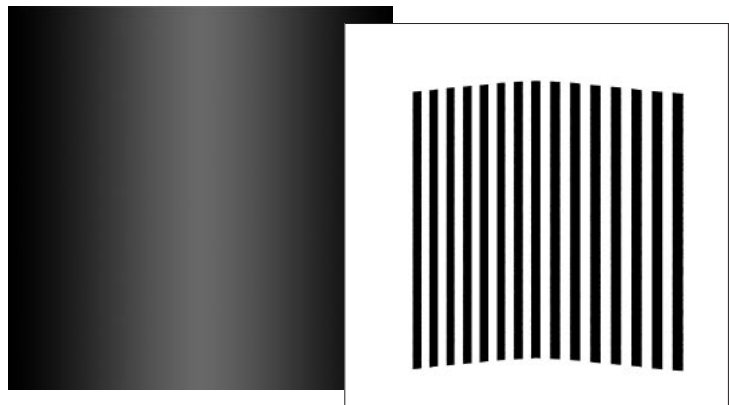
Displacement Maps. Both grayscale and color images can be used as long as they are flattened files or are saved with the Include Composite Image With Layered Files option selected in the Saving Files preferences. However, in each case, the displacement works differently. Looking at the grayscale scenario first, we'll start with an image containing black stripes and a displacement map containing a gradation from black to 50% gray and back to black.



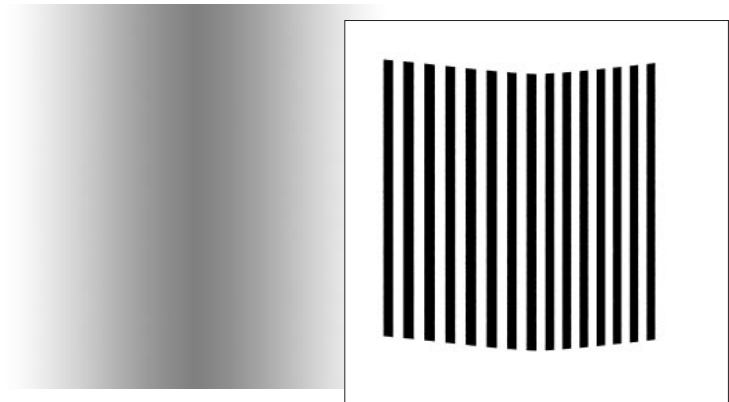
Displacing with Black. If a map has one channel (grayscale), the image shifts along a diagonal defined by the horizontal and vertical scale ratios. With the striped image targeted, select Filter > Distort > Displace. Offsetting the image by 20% in both the horizontal and vertical scales should be significant enough to see the effect. *Note: Since there is no preview, you might need to try a variety of settings until you find the correct one for your image.*



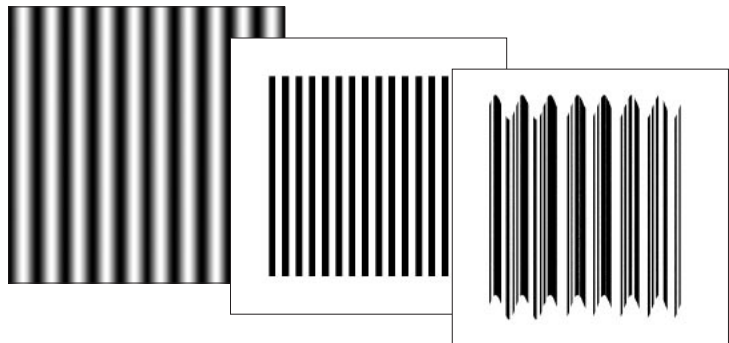
Select Stretch to Fit to resize the map, or Tile to fill the selection by repeating the map in a pattern. Choose Repeat Edge Pixels to determine how undistorted areas of the image will be treated. Then, click OK to choose the displacement map (the gradient). The distortion is applied. Notice that where the distortion map was black, the stripes were distorted 20% down and to the right. *Note: the distortion lessens as the gradient nears 50% grey.*



Displacing with white. Using a displacement map that graduates from white to 50% gray and back to white again, will shift the image in the opposite direction. In the Displace dialog box, keep the settings the same, and apply the white to gray displacement map. The resulting distortion moves the image up and to the left.

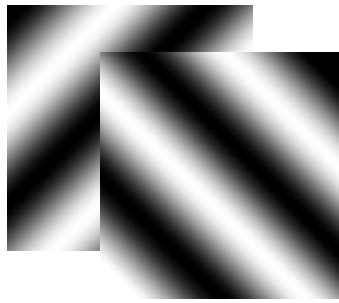


Complex distortions. Remembering these rules, more complex gradations can be created to displace images to achieve the desired effect. In this example, a multi banded gradient using both black and white was used to distort the original stripe file.

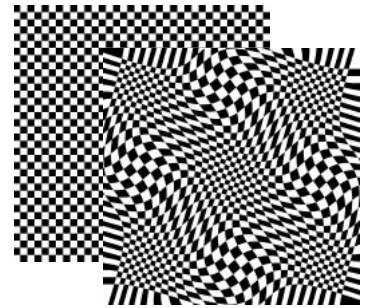


Displacement map, image and resulting displaced image

RGB documents. If the image used for the displacement map has more than one channel, the first channel (red) controls the horizontal displacement and the second channel (green) controls the vertical displacement. The blue channel is ignored. The advantage is, of course, more control. For example, this checkerboard image was distorted 60% using the red channel to move the image horizontally and the green channel vertically.

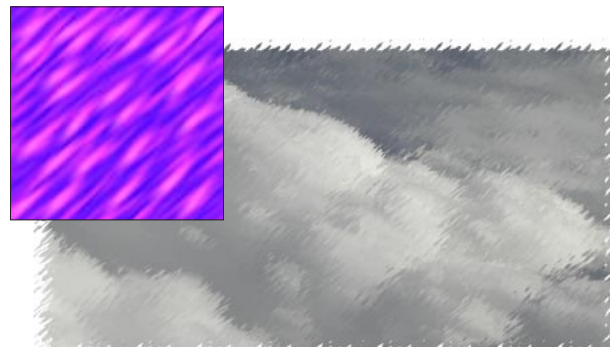
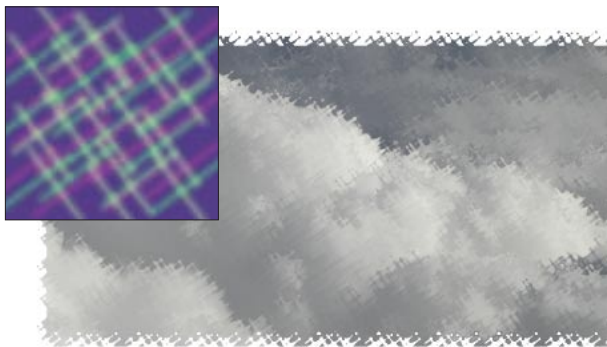
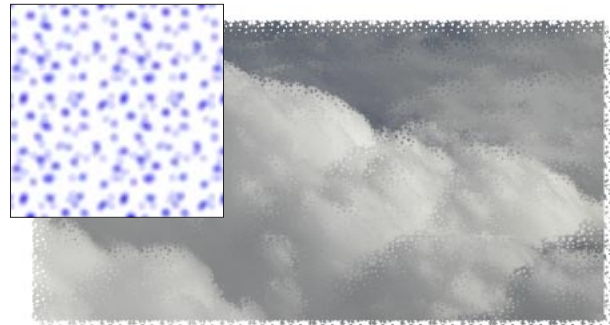
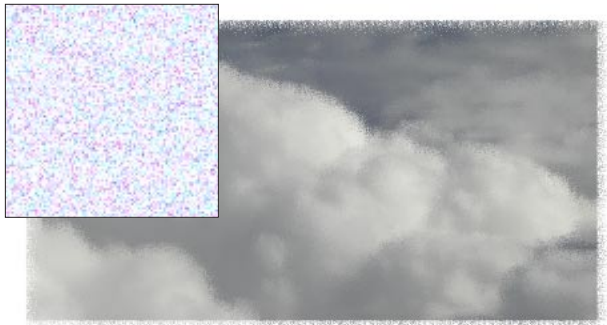
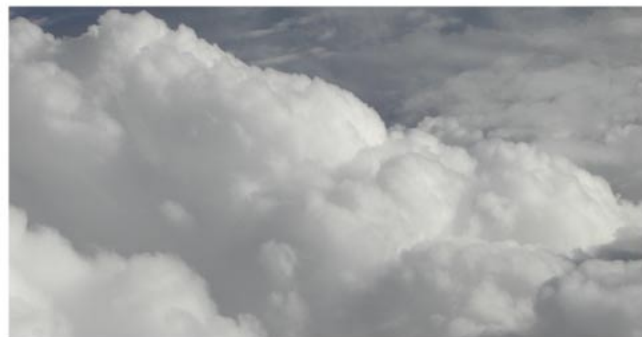


The Red & Green channels of the displacement map

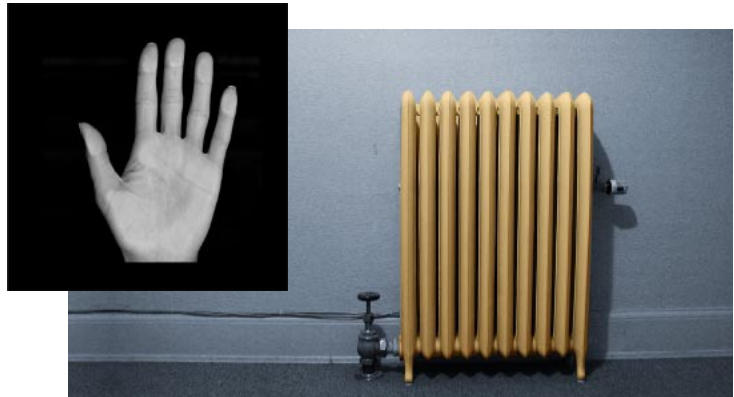


The original image and the resulting displaced image

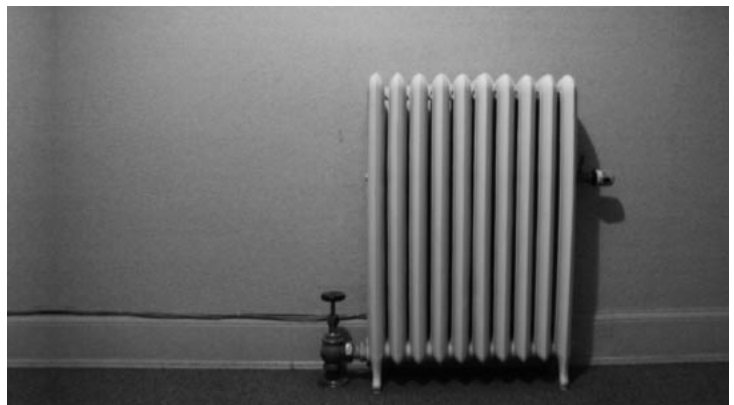
Tiling images. The displacement maps shown thus far have been equal in size to that of the original image. However, many painterly effects can be created by tiling smaller gradient patterns with the Tile option. Here are some examples of displacement maps and the types of distortions that they create when tiled and applied to the cloud image. *Note: the displacement maps will appear smoother if the tiles are seamless.*



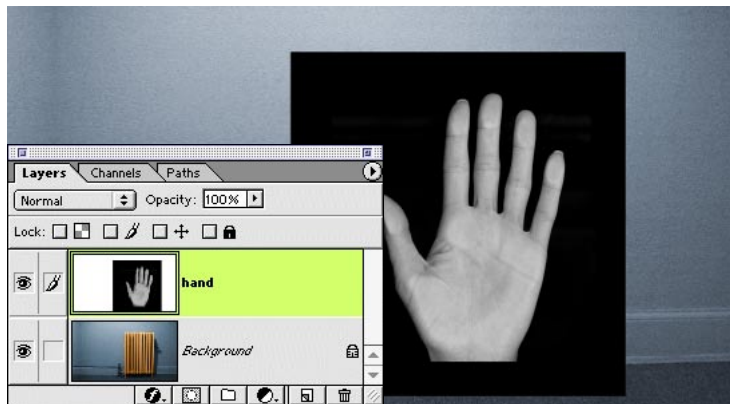
Using other images as maps. When adding images into a scene that weren't there to begin with, it can be difficult to make them appear realistic. Using images as displacement maps can help create this faux reality. In this example, in order to make the hand look as if it is painted on the radiator, a displacement map is needed of the radiator. Create the map by targeting the original image (the radiator) and selecting Image > Duplicate.



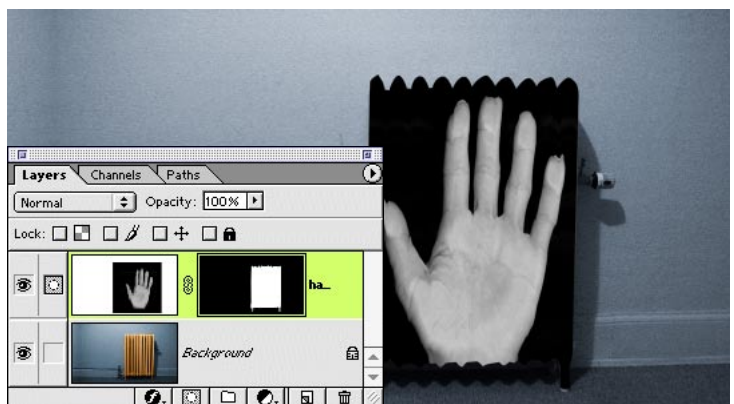
Convert the map to Grayscale (Image > Adjust > Grayscale) and add a slight blur (Filter > Blur > Gaussian Blur). If you don't add the blur, the displacement map tends to be too jagged and, in this case, I want a smooth displacement. Save the file.



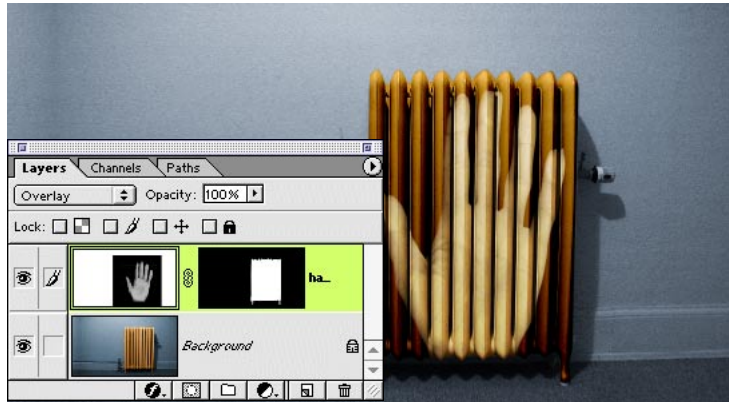
Combine the image that you want to displace (in this example, the hand) by dragging them into the same file and position it over the object that you want to displace it with (in this example, the radiator). Target the layer that you want to displace and select Filter > Displace. Enter the amount of Offset desired - in this case, I only Offset the Vertical dimensions. Click OK and choose the map created above.



The distortion is applied to the image. You might need to hide the image in the areas that you don't want it. In this example, I added a layer mask and painted with black using the paintbrush to hide all of the areas outside of the radiator.



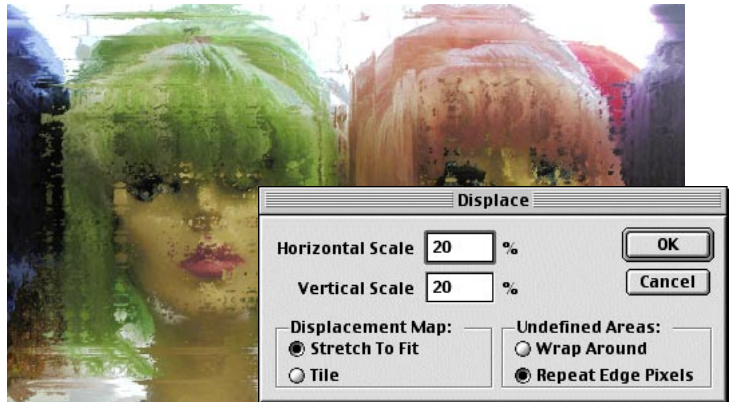
Adjust the Opacity and Blend Mode. In this example, I needed to lower the opacity of the hand image and change the Blend Mode to overlay to create this effect.



Creating a Distressed Look. Displacement maps can also be used to create seemingly random artifacts throughout an image. In this example, I will use the image of the glass to displace the image of the wigs.



Select Filter > Displace and set the necessary Offset. Since these two images are the same size, I'll use the Stretch to Fit and Repeat Edge Pixels options. To make the displacement more dramatic, I left the glass image in RGB kept it sharp. Notice how rough the distortion is and how it leaves a distressed look.



To displace the image in a less rough manner, I blurred the glass image and then using the same settings as above, and displaced it.

