

Power Retouche Retouching Suite

Lens Corrector: Camera lens distortion correction - a Photoshop plugin

Now you can correct camera lens distortions (like pincushion, panorama and barreling) inside Photoshop or other photo software. This easy to use and highly flexible camera lens correction tool handles both symmetric and irregular distortions. It is the quickest and easiest tool for panorama distortions, if not the only.



■ Power Retouche Photoshop plug-ins are also for Paint Shop Pro, Corel Draw, Illustrator, Fireworks and other graphic software or photo software for photo editing, retouching and restoration (Mac & Win) see [list](#)

Reviews
[Mac Design Magazine, July 2004.](#)
"Easier to use and more responsive to tiny adjustments than the controls of LensDoc... The Lens Corrector plugin provided much greater control." - Jim Patterson.
[See the full review here](#)

Lens Corrector plugin - Tutorial

Benefits of the plugin

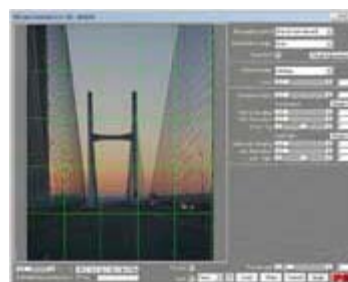
- Correct lens distortions like barreling and pincushion from...
- Wide-angle lenses
- Tele-lenses
- Panorama lenses

The lens distortion correction plugin works with these image modes...
8 & 16 bit / channel RGB, grayscale, Duotone, CMYK, Multichannel, Lab

lens distortion correction controls
This is the Lens Corrector plug-ins control panel (Windows). Click to enlarge. The controlpanel and preview area can be changed by dragging the sides.

The filter has three major sets of controls:

1. Symmetric - for symmetric barreling and pincushion distortions.
2. Arbitrary - for irregular distortions or cropped photos with symmetric distortions.
3. Panorama - a tool for panorama photos.



Example - Panorama distortion, the most difficult of all distortions



The lens distortion correction plugin is the easiest and most versatile tool for panorama, barreling and pincushion distortion correction.



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The Excellence of Power Retouche

Example -
Compared to
other lens
correction
tools

We corrected the image to the right with our lens corrector and a lens corrector derived from a common algorithm - in this case Poul Bourke's.

(Bourke's is public domain and its effect is identical to the lens corrections obtained with other tools. Bourke's is used by the faculty of astronomy at Swinburne University <http://astronomy.swin.edu.au/~pbourke>).

We corrected both images until the curved line in the ceiling was straightened out. - Actually the line in the Bourke's example is still undercorrected (the line still curves a bit)



Original photo



Power Retouche

Notice the picture's corners are right



Other (Bourke)

Notice the exploded corners when center is correct

Notice several advantages in the Power Retouche Lens Corrector...

1. The overall impression is more natural.
2. The edges and corners are natural, in the other they become over compensated and exploded.
3. More of the original image is preserved.
4. The correction is uniform: if its correct in the centre, its correct at the edges.

Distortion type control group

Distortion
type

You can choose between three correction modes: Symmetric, arbitrary and panorama. They will change the correction controls to various suitable sliders.



Curve

The slider "Curve" adjusts the curvature of the distortion. It does not refer to wide-angle lenses. Special lenses have different curvatures. Narrow (value 0) is normal and suits most cases..



Narrow curve



Wide curve

Symmetric
Barreling &
Pincushion



Symmetric pincushion



Symmetric barreling



Arbitrary distortion

Arbitrary
distortion

Arbitrary distortion results from cropping. This is the only case where you can have pincushion on one side and barreling on the other.

Panorama

Panorama is a special kind of distortion where only the horizontal lines become barreled while vertical lines remain straight. In addition panorama photos have a special kind of "perspective" distortion that needs special treatment.

Correction control groups

Factor All of the methods will have the Factor slider in common. This slider simply multiplies the effect with a certain factor. Hence you can do quite dramatic corrections.

Symmetric correction Since this distortion correction is symmetric, you only have one slider to control the amount of correction. Since symmetric distortion can not have both barreling and pincushion, the same slider controls both. To the left it removes barreling, to the right, pincushion.

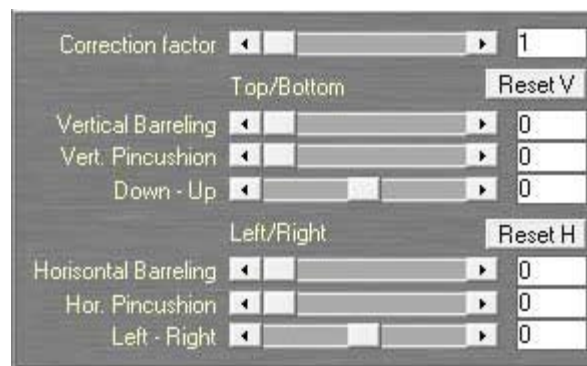


Example of symmetric barreling correction A few years ago we visited the old moor stronghold in Malaga. We had to use a wide-angle lens to capture the columns and hoped the barreling would not be too severe. It was!

This is the photo that made us realize the need for a good lens distortion correction tool. So we wrote it. Notice that not only are the columns straight, but the perspective in the floor is also correct. You can see it on the black footpanel in the bottom left side. Also notice how the line in the upper right corner is straight in the corrected version.



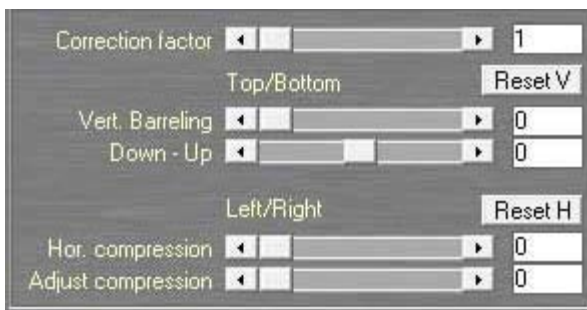
Arbitrary correction The arbitrary correction group is divided into two groups: vertical and horizontal corrections. In addition you can shift the center of either correction. For example, if you have cropped a symmetrically distorted image along the middle horizontal axis and have kept the upper part, you will have a situation where the bottom line has no distortion and the top a lot. In such a case you will want to move the Down - Up slider all the way down.



Panorama correction In panoramas the only curve distortion is the horizontal barreling.

In addition you have a logarithmic "perspective" distortion of equally spaced objects - like pillars in an arcade, for example (see example below).

Horizontal squeeze preserves the verticals straight while compressing the image horizontally to correct for the "perspective" distortion.



Adjust squeeze changes the horizontal "perspective" squeeze-algorithm to compensate for the "perspective" distortion. Use it to get equally sized objects even - like the distance between the pillars in the example below.

The Resampling Method control-group

Resampling method Resampling means how you put the images pixels together again after you have moved them around. The plugin offers three different methods of handling such difficult spots. They are Normal, Sharp and Crisp. Normal is slightly faster than the others. Crisp is the sharpest, but might enhance some noise.



Interpolation weight Interpolation weight options are only available when Zoom to Fit is on. You can choose between Auto, Median and Mean. Auto simply selects between the two others for you. Mean is the common method, however Power Retouche developed a different method based on median which produces superior results in most cases.

Zoom to fit Zoom to fit produces the most dramatic differences in resampling.

OFF will tell the filter to crop the image along the outermost corners or edges of the image. The plugin will fill out the empty space outside the photo with white.

ON will tell the plugin to crop the photo along the innermost edges or corners.

Be aware that the plugin uses two different sets of transformation algorithms for these two operations. It is not a matter of simply doing the same transformation and then either zooming in or out. This means you will get slightly different results with the two methods. The different results generated by "zooming" or "not zooming" will become more and more pronounced as the Factor control (in the Correction control group) rises. At factor one, the two produce virtually the same.

Example of panorama correction

Example of panorama distortion correction The photographer needed a photo of this building, but in order to get the proper distance, the two trees came in between.

So he had to use a panorama lens in order to get the trees out of the picture and capture the entire building.

But the panorama photo is of no use because of the distortions.

He then sent us an email and asked if we could change our lens correction tool (v. 2 did not have panorama) to include panorama distortions also. This we did and released v. 3.

Here's the above panorama photo after a single pass through our tool for panorama distortion correction.

Notice how the columns on the right side have become equidistant as they should be - thanks to the special horizontal squeeze adjustment options.



Preview grid

Preview grid To facilitate setting the sliders, the preview can draw a grid of horizontal and vertical lines over the photo (it will not appear on the output, so no need to turn it off). You can change between red and green lines by changing between odd (red) and even (green) numbers.

Photo credits Interior photo by courtesy of John D. Garis.