



Carol Freeman

Nikon F5, Fujia Provia

*f* stop: *f*5.6

exposure: 1/60





Okay, did you catch that reference to the band The Fixx in the title? You did? Great. That means that you're at least in your mid-thirties to early forties. (I myself am only in my mid- to early twenties, but I listen to oldies

# The Big Fixx

## digital camera image problems

stations just to keep in touch with baby boomers and other people who at one time or another tried to break-dance.) Well, the Fixx had a big hit in the early '80s (around the time I was born) called "One Thing Leads to Another," and that's a totally appropriate title for this chapter because one thing (using a digital camera) leads to another (having to deal with things like digital noise, color aliasing, and other nasties that pop up when you've finally kicked the film habit and gone totally digital). Admittedly, some of the problems we bring upon ourselves (like leaving the lens cap on; or forgetting to bring our camera to the shoot, where the shoot is, who hired us, or what day it is; or we immersed our flash into a tub of Jell-O®, you know—the standard stuff). And other things are problems caused by the hardware itself (the slave won't fire when it's submerged in Jell-O®, you got some Camembert on the lens, etc.). Whatever the problem, and regardless of whose fault it is, problems are going to happen, and you're going to need to fix them in Photoshop. Some of the fixes are easy, like running the "Remove Camembert" filter, and then changing the Blend Mode to Fromage. Others will have you jumping through some major Photoshop hoops, but fear not, the problems you'll most likely run into are all covered here in a step-by-step format that will have you wiping cold congealed water off your flash unit faster than you can say, "How can Scott possibly be in his mid-twenties?"



## Compensating for “Too Much Flash”

Don't ya hate it when you open a photo and realize that either (a) the flash fired when it shouldn't have; (b) you were too close to the subject to use the flash and they're totally “blown out”; or (c) you're simply not qualified to use a flash at all, and your flash unit should be forcibly taken from you, even if that means ripping it from the camera body? Here's a quick fix to get your photo back from the “flash graveyard” while keeping your reputation, and camera parts, intact.

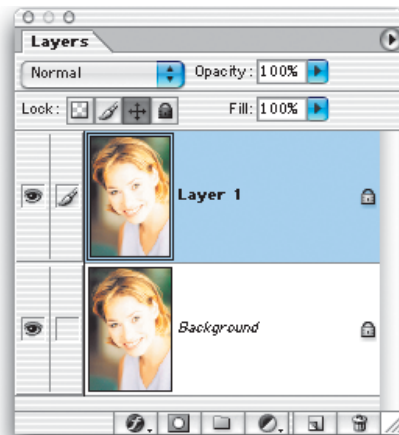
### Step One:

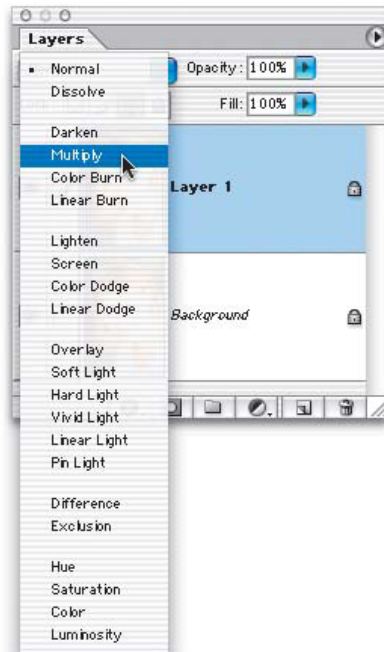
Open the photo that is suffering from “flashaphobia.” In the example shown here, the flash, mounted on the camera body, washed out the entire subject.



### Step Two:

Make a copy of the photo by pressing Command-J (PC: Control-J). This will create a layer titled “Layer 1.”



**Step Three:**

Next, change the Blend Mode of Layer 1 from Normal to Multiply from the pop-up menu at the top of the Layers palette. This Blend Mode has a “multiplier” effect, and brings back a lot of the original detail the flash “blew out.”

**Step Four:**

If the photo still looks washed out, you may need to make a duplicate of Layer 1. Just press Command-J (PC: Control-J), and this layer will be duplicated; this duplicate will already be in Multiply mode. Incidentally, because of the immutable laws of life, chances are that creating one layer with its Blend Mode set to Multiply won’t be enough, but adding another layer (in Multiply mode) will be “too much.” If that’s the case, just go to the Layers palette and lower the Opacity setting of the top layer to 50% or less—this way, you can “dial in” just the right amount, and get the amount of flash looking right.



## Dealing with Digital Noise

If you shoot in low-light situations, you're bound to encounter digital noise. Is there anything worse than these large red, green, and blue dots that appear all over your photo? Okay, besides that "crazy music" those teenagers play, like Limp Bizkit or...well...Limp Bizkit, is there anything worse? This digital noise (often called "Blue channel noise," "high ISO noise," "color aliasing," or just "those annoying red, green, and blue dots") can be reduced. Here's how:

### Step One:

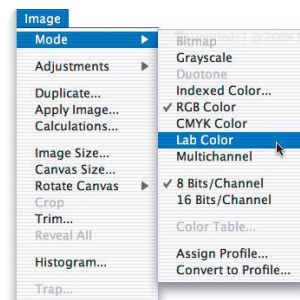
Open a photo that contains visible digital noise (in this case, it's a shot taken in low light, and those "red, green, and blue" dots appear throughout the photo).

### Step Two:

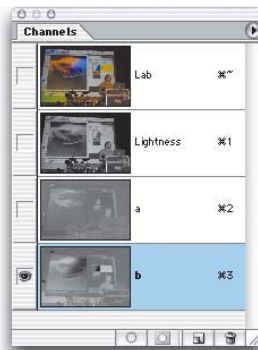
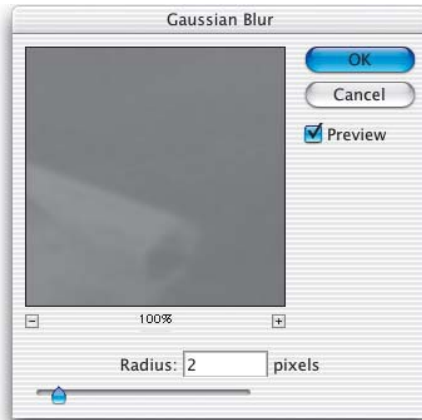
Go under the Image menu, under Mode, and choose Lab Color. Switching to Lab Color is a non-destructive mode change, and won't damage your RGB photo in any way—you can switch back and forth between RGB and Lab Color any time. You won't see any visible difference in your image onscreen, but if you look up in the title bar for your document, you'll see "Lab" in parentheses, to let you know you're in Lab Color mode.

### Step Three:

When you're in RGB mode, your image is made up of three channels: a Red, a Green, and a Blue channel. When these three are combined, they create a full-color photo. When you convert to Lab Color, Photoshop composes your photo differently—although it looks the same, it's now made up of a Lightness channel (the luminosity of the photo, where the detail is held) and two color channels, named "a" and "b." Go to the Channels palette and you'll see these channels. Click on the "a" channel (as shown).







#### Step Four:

Now that you're affecting only the "a" channel (which consists of color data), go under the Filter menu, under Blur, and choose Gaussian Blur. When the Gaussian Blur dialog appears (shown at left), increase the Radius (amount of blur) until you see the dots pretty much disappear, and then click OK. In this case, I increased the Radius to 2 pixels.

#### Step Five:

Now, in the Channels palette, click on the "b" channel (as shown at left). Press Command-F (PC: Control-F) to apply the Gaussian Blur filter to this "b" channel with the exact same setting we used on the "a" channel. Because you're using the re-apply shortcut, you won't see the Gaussian Blur dialog box—it will just automatically apply the filter for you.

#### Step Six:

Go back under the Image menu, under Mode, and choose RGB to return to RGB mode. You'll notice that the spots are much less pronounced because they no longer appear in red, green, and blue. You blurred the color channels, and by doing so, you eliminated those colors that are distracting to the eye. The effect appears much more muted, and in some cases (depending on the photo) will nearly disappear.

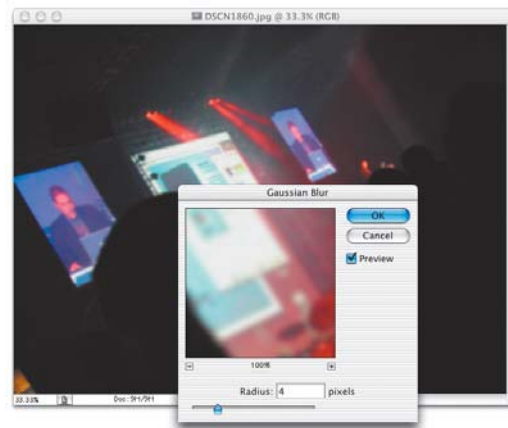


## Removing Color Aliasing

Here's another quick trick Jim DiVitale and Kevin Ames use for reducing the color aliasing (digital noise) that often appears in digital photos shot in low-lighting situations.

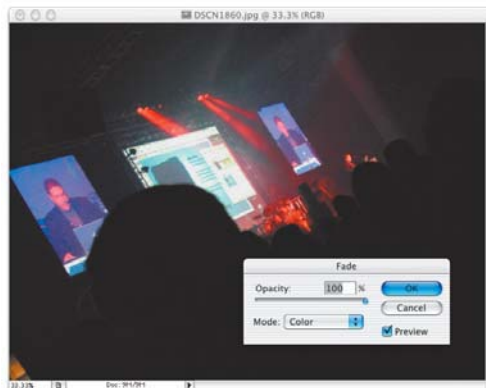
### Step One:

Open the photo that has visible color aliasing. Go under the Filter menu, under Blur, and choose Gaussian Blur. Drag the Radius slider all the way to the left, then start dragging to the right until the color aliasing is blurred enough that you can't see it. Click OK to apply the blur.



### Step Two:

Go under the Edit menu and choose Fade Gaussian Blur. When the Fade dialog appears, change the Fade Mode to Color (as shown) and the color aliasing will disappear. It's quick, it's easy, and it works. It's also an ideal candidate for becoming an action, so you can remove color aliasing with just one click.





There's a natural tendency for some photographers to react to their immediate surroundings, rather than what they see through the lens. For example, if you're shooting an indoor concert, there are often hundreds of lights illuminating the stage. However, some photographers think it's one light short—their flash, because where they're sitting, it's dark. When you look at your photos later, you see that your flash lit everyone in front of you (which wasn't the way it really looked—the crowd is usually in the dark), which ruins an otherwise great shot. Here's a quick fix to make it look as if your flash never fired at all.

## Fixing Photos Where You Wish You Hadn't Used Flash



### Step One:

Open a photo where shooting with the flash has ruined part of the image (like the image shown here taken during a seminar presentation, where the back ten rows are lit by the flash, when they should be dark. Just the stage lit by the stage lighting should appear out of the darkness).



### Step Two:

Press the letter “L” to get the Lasso tool, and draw a loose selection over the area where the flash affected the shot. In the image shown here, the lasso encompasses a number of rows in the back of the theater.

*Continued*

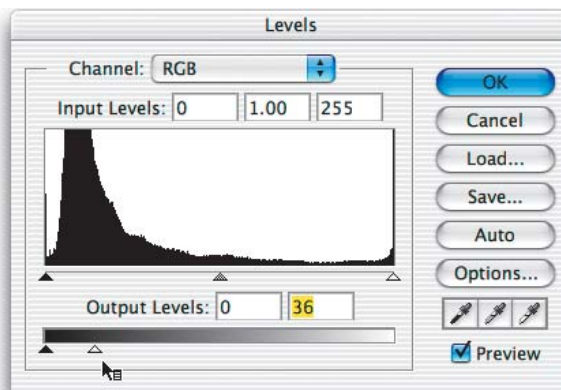
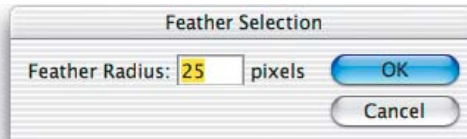


### Step Three:

In the next step, we're going to adjust the tonal range of this selected area, but we don't want that adjustment to appear obvious. We'll need to soften the edges of our selection quite a bit so our adjustment blends in smoothly with the rest of the photo. To do this, go under the Select menu and choose Feather. When the Feather Selection dialog box appears, enter 25 pixels to soften the selection edge. (By the way, 25 pixels is just my guess for how much this particular selection might need. The rule of thumb is the higher the resolution of the image, the more feathering you'll need, so don't be afraid to use more than 25 if your edge is visible when you finish.)

### Step Four:

It will help you make a better adjustment if you hide the selection border (we call it "the marching ants") from view. Note: We don't want to Deselect—we want our selection to remain intact but we don't want to see the annoying border, so press Command-H (PC: Control-H) to hide the selection border. Now, press Command-L (PC: Control-L) to bring up the Levels dialog. At the bottom of the dialog, drag the right Output Levels slider to the left to darken your selected area. Because you've hidden the selection border, it should be very easy to match the surroundings of your photo by just dragging this slider to your left.



**Step Five:**

When the photo looks about right, click OK to apply your Levels adjustment. Then, press Command-H (PC: Control-H) to make your selection visible again (this trips up a lot of people who, since they don't see the selection anymore, forget it's there, and then nothing reacts as it should from that point on).

**Step Six:**

Last, press Command-D (PC: Control-D) to Deselect and view your repaired "flash-free" photo.



## Fixing Underexposed Photos

This is a tonal correction for people who don't like making tonal corrections (over 60 million Americans suffer from the paralyzing fear of MTC [Making Tonal Corrections]). Since this technique requires no knowledge of Levels or Curves, it's very popular, and even though it's incredibly simple to perform, it does a pretty incredible job of fixing underexposed photos.

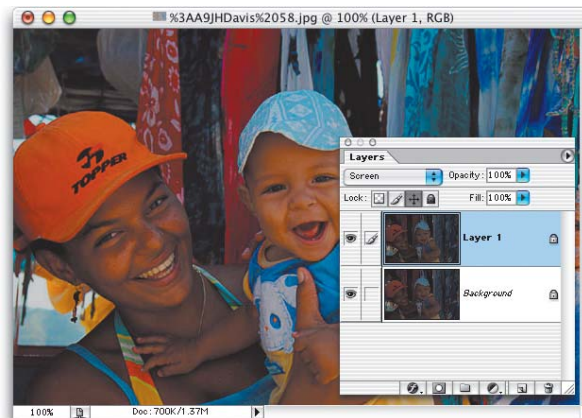
### Step One:

Open an underexposed photo. The photo shown here, shot indoors without a flash, could've used either a fill flash or a better exposure setting.



### Step Two:

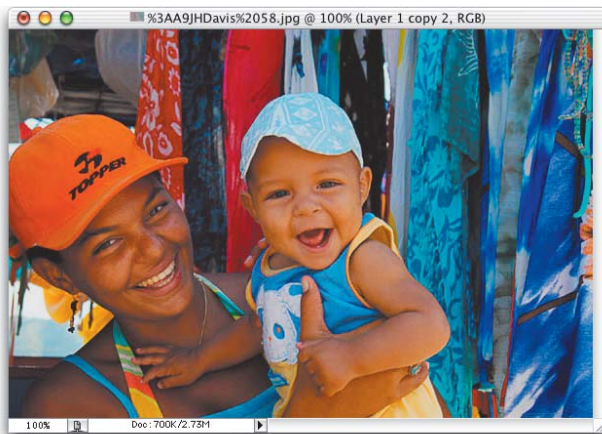
Press Command-J (PC: Control-J) to duplicate your Background layer (this duplicate will be named Layer 1 by default). On this new layer, change the Blend Mode in the Layers palette from Normal to Screen to lighten the entire photo.





**Step Three:**

If the photo still isn't properly exposed, just press Command-J (PC: Control-J) and duplicate this Screen layer until the exposure looks about right (this may take a few layers, but don't be shy about it—keep copying layers until it looks right).

**Step Four:**

There's a good chance that at some point your photo will still look a bit underexposed, so you'll duplicate the layer again, but now it looks overexposed. What you need is "half a layer." Half as much lightening. Here's what to do: Lower the Opacity of your top layer to "dial in" the perfect amount of light, giving you something between the full intensity of the layer (at 100%) and no layer at all (at 0%). For half the intensity, try 50% (did I really even have to say that last line? Didn't think so). Once the photo looks properly exposed, choose Flatten Image from the Layers palette's pop-down menu.



## When You Forget to Use Fill Flash

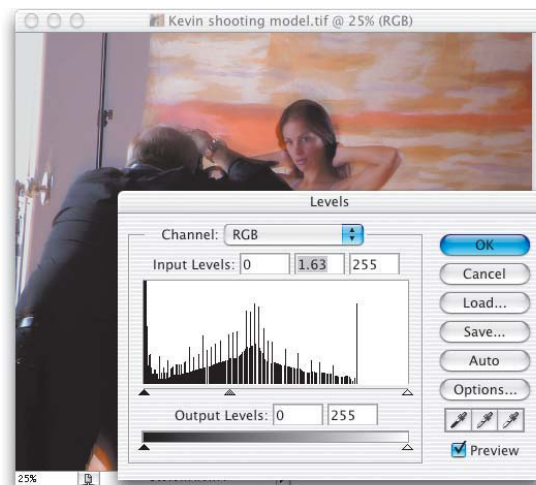
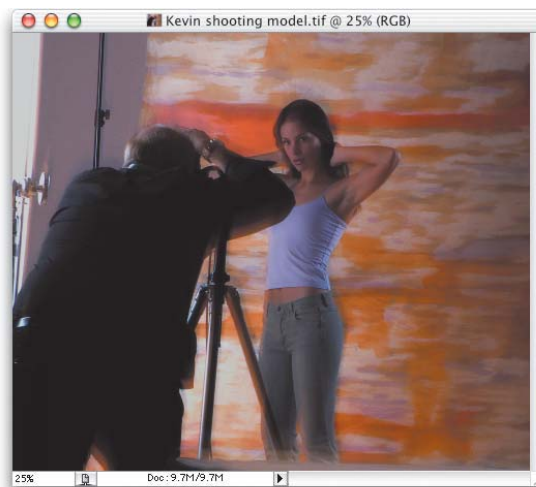
Wouldn't it be great if Photoshop had a "fill flash" brush, so when you forgot to use your fill flash, you could just paint it in? Well, although it's not technically called the fill flash brush, you can create your own brush and get the same effect. Here's how:

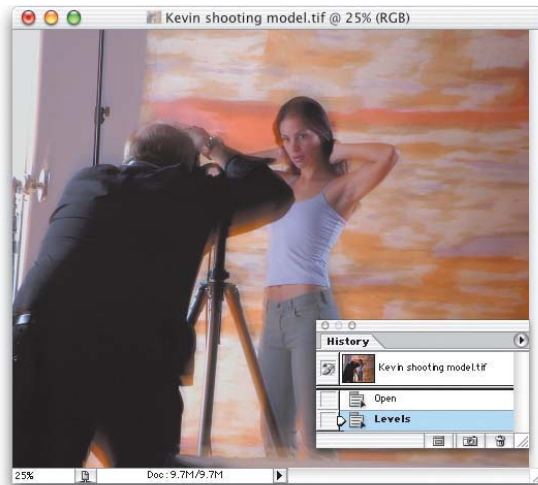
### Step One:

Open a photo where the subject or focus of the image appears in shadows. Go under the Image menu, under Adjustments, and choose Levels.

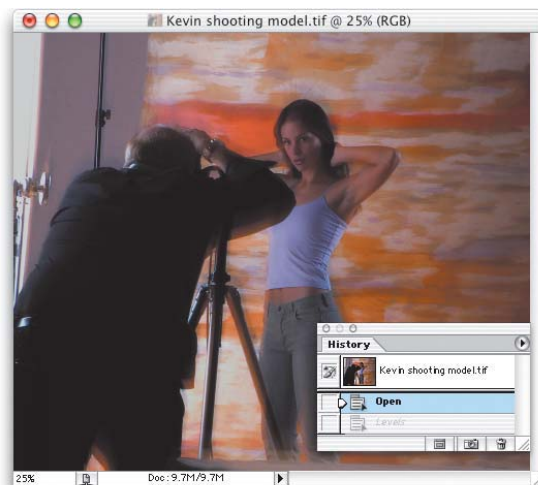
### Step Two:

Drag the middle Input Levels slider (the gray one) to the left until your subject looks properly exposed. (Note: Don't worry about how the background looks—it will probably become completely "blown out," but you'll fix that later; for now, just focus on making your subject look right.) If the midtone slider doesn't bring out the subject enough, you may have to increase the highlights as well, so drag the far-right Input Levels slider to the left to increase the highlights. When your subject looks properly exposed, click OK.



**Step Three:**

Go under the Window menu and choose History to bring up the History palette. This palette keeps a running “history” of the last 20 adjustments you’ve made to your photo. In this instance, there should be only two entries (called “History States”). Open should be the first State, followed by Levels, showing that you opened the photo and then made a Levels adjustment.

**Step Four:**

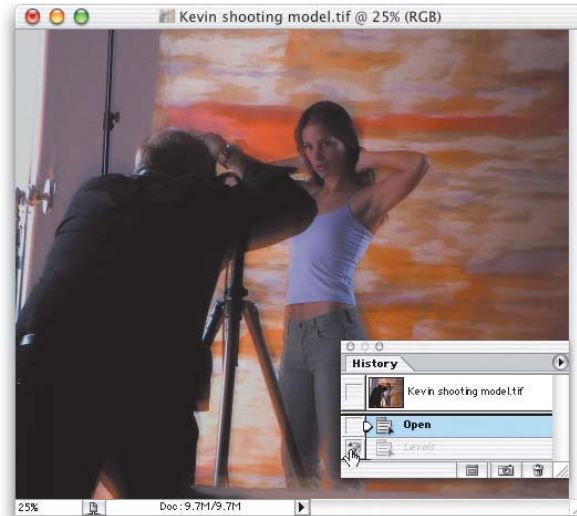
In the History palette, click on the State named “Open.” This will return your photo to how it looked when you originally opened the image (in other words, it will look the way it did before you adjusted the Levels).

*Continued*



**Step Five:**

In the History palette, click in the first column next to the grayed-out State named “Levels.” An icon that looks like Photoshop’s History Brush will appear in the column, showing that you’re going to be painting from what your image looked like after you used Levels.

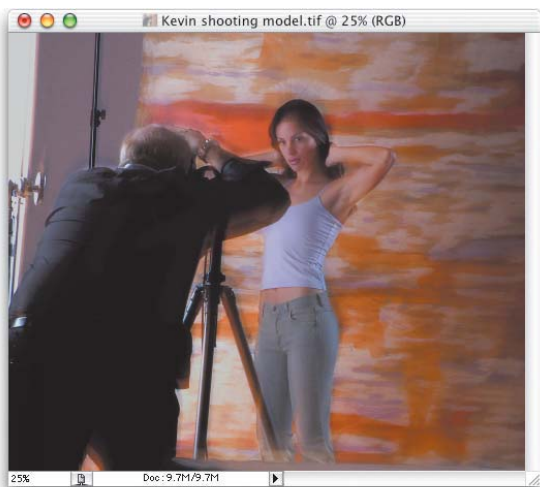
**Step Six:**

Choose the History Brush tool from the Toolbox (as shown at right), and choose a soft-edged brush from the Brush Picker in the Options Bar.



**Step Seven:**

Begin painting with the History Brush over your subject, avoiding the background area entirely. (Here, I'm painting over the left side of the subject's face.) As you paint, you'll notice that you're actually painting in the lightened version of the subject you adjusted earlier with Levels.

**Step Eight:**

Continue painting with the History Brush until your subject looks as if you used a fill flash. When you're painting, if it appears too intense, just lower the Opacity of the History Brush up in the Options Bar. That way, when you paint, the effect will appear less intense. You can see the final repair here at left, with the background unchanged, but the subject in shadows is "brought out."



## Instant Red Eye Removal

When I see a digital camera with the flash mounted directly above the lens, I think, “Hey, there’s an automated red-eye machine.” If you’re a pro, you probably don’t have to deal with this as much, because your flash probably isn’t mounted directly above your lens—you’re using bounce flash, holding the flash separately, you’ve got studio lights, or one of a dozen other techniques. But even when the pros pick up a “point-and-shoot,” red eye can find them. Here’s the quick “I-just-want-it-gone” technique for getting rid of red eye fast.

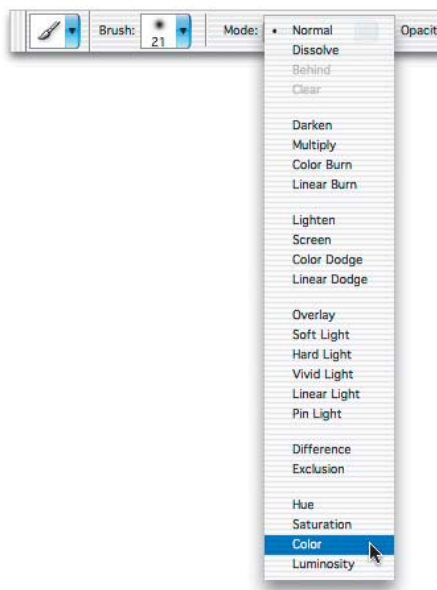
### Step One:

Open a photo where the subject has red eye. Zoom in on the eyes by dragging a rectangle around them with the Zoom tool (the Magnifying Glass tool).

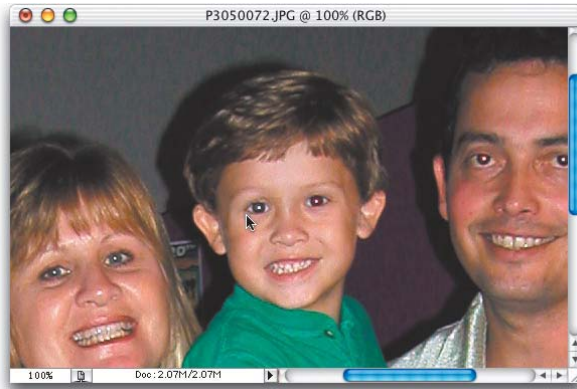


### Step Two:

Switch to the Brush tool, and choose a soft-edged brush that’s nearly the same size as the part of the eye you want to correct. Press the letter “d” to set your Foreground color to black. Then, in the Options Bar, change the Blend Mode of the Brush tool from Normal to Color, as shown at right.





**Step Three:**

Use the Brush tool and paint directly over the red eye (you can even dab if you'd like). As you paint, the red disappears because with the Brush tool's Blend Mode set to Color, it desaturates (removing the color from) anywhere you paint.

**Step Four:**

Paint over all the other eyes in the photo, and you're done—and best of all, the entire process takes just seconds.



## Removing Red Eye and Recoloring the Eye

This technique is a little more complicated (not hard; it just has a few more steps), but the result is more professional because you're not just going to remove the red eye (like in the previous "instant red-eye removal" trick) and replace it with the more pleasing "gray eye." Instead, we're going to restore the eye to its original color.

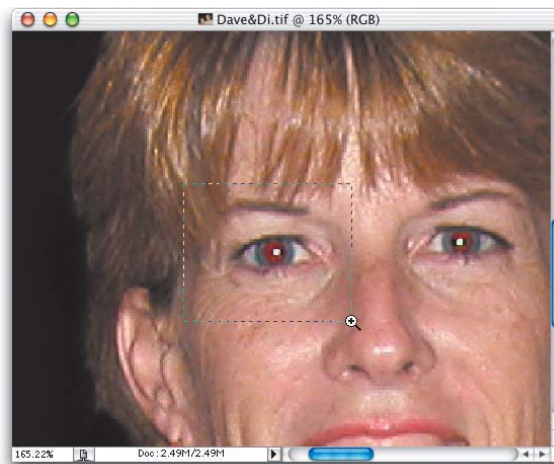
### Step One:

Open a photo where the subject has red eye.



### Step Two:

Zoom in close on one of the eyes using the Zoom tool (the Magnifying Glass tool). Note: You might not want to do this late at night if you're home alone, because seeing a huge scary eye on your screen can really give you the willies.



**Step Three:**

Press the “w” key to switch to the Magic Wand tool, and click within the red area of one of the eyes. One click may select all the red in the eye, but if it doesn’t, hold the Shift key and click the Magic Wand again in an area of red that wasn’t selected (holding the Shift key lets you add to your current selection). If the Magic Wand selects too much, go up to the Options Bar, lower the Threshold number, and try again. After one eye’s red area is selected, scroll over to the other eye, hold the Shift key, and select it the same way so that both red-eye areas are selected.

**Step Four:**

Now, press Shift-Command-U (PC: Shift-Control-U) to desaturate all the color from these selected red areas, leaving the eyes looking pretty gray. It’s better than red, but you might want to touch it up a bit, and make it a bit darker, which we’ll do in the next step.

*Continued*



**Step Five:**

Press the “d” key to set your Foreground color to black. Get the Brush tool and choose a small, soft-edged brush; then, up in the Options Bar, lower the Opacity setting to 20%.

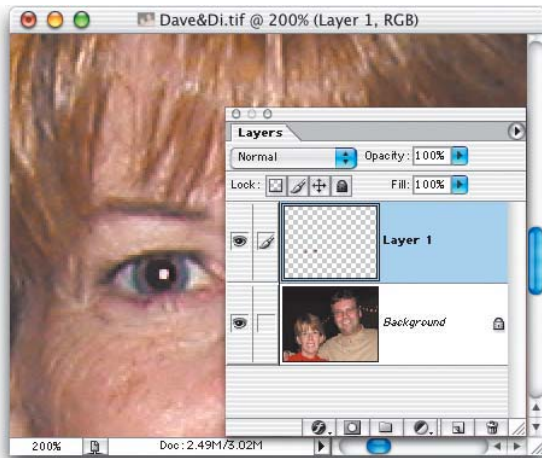
**Step Six:**

Zoom out a bit by pressing Command-– (the minus sign) (PC: Control-–) until you can see both eyes onscreen. Paint just a couple of quick strokes over the selected areas of the eye to darken them, but stop before they turn completely black—you just want a good dark gray. You don’t have to worry about painting into other areas of the eye, because your selection should still be in place while you’re painting.



**Step Seven:**

Once the eyes look dark gray, you can Deselect by pressing Command-D (PC: Control-D). Press the "L" key to switch to the Lasso tool, and draw a loose selection around the entire iris of the left eye (as shown). The keyword here is loose—stay well outside the iris itself, and don't try to make a precise selection. Selecting the eyelids, eyelashes, etc. will not create a problem. Hold the Shift key and select the right eye in the same fashion.

**Step Eight:**

After you have a loose selection around both irises, press Command-J (PC: Control-J) to put a copy of the eyes up on their own layer above the Background, as Layer 1.

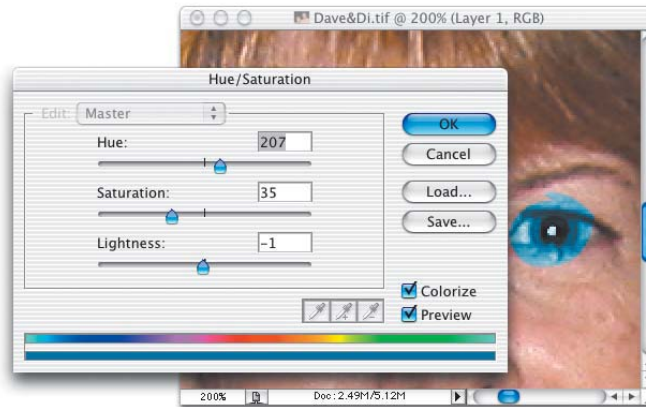
*Continued*

### Step Nine:

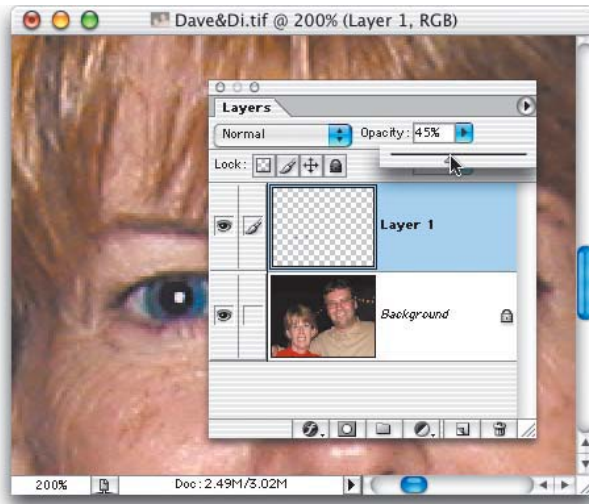
While you're on this "eyes" layer, go under the Image menu, under Adjustments, and choose Hue/Saturation. In the dialog, click on the Colorize checkbox (in the bottom-right corner). Now you can choose the color you'd like for the eye by moving the Hue slider. The area you removed earlier will remain the dark gray color, and only the iris will be affected by your colorization. In this case, we're going to colorize the iris blue. Don't worry about the color being too intense at this point—we can totally control that later—so if you want blue eyes, choose a deep blue and we'll dial in the exact blue later. Click OK to apply the blue to the irises and the area around them as well. (Don't let this freak you out that other areas right around the iris appear blue. We'll fix that in the next step.)

### Step Ten:

Press the "e" key to switch to the Eraser tool, make sure that in the Options Bar the Mode is set to Brush, choose a hard-edged brush, and then erase the extra areas around the iris from your loose selection. This sounds much harder than it is—it's actually very easy—just erase everything but the blue iris. Don't forget to erase over the whites of the person's eyes. Remember, the eyes are on their own layer, so you can't accidentally damage any other parts of the photo.





**Step Eleven:**

If the eye color seems too intense (and chances are, it does), we can lower the intensity in the Layers palette by simply lowering the Opacity slider until the eyes look natural.

**Step Twelve:**

To finish the red-eye correction and recolor, press Command-E (PC: Control-E) to merge the colored eye layer with the Background layer, completing the repair.



## Repairing Keystoning Without the Crop Tool

Keystoning is often found in photos with buildings or tall objects, where the buildings look as if they're falling away from the viewer (giving the impression that the tops of these buildings are narrower than their bases). The Crop tool has a Perspective function that can be used to fix these distortions, but actually I'm going to recommend that you don't use it, because it doesn't offer a preview of any kind—you're just guessing, so use this technique instead.

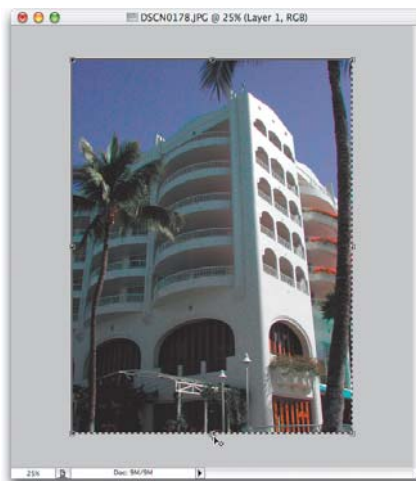
### Step One:

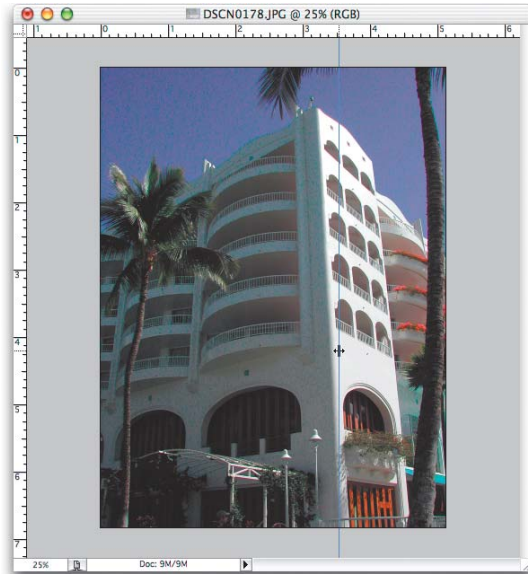
Open an image that has a lens distortion problem (such as the photo shown at right, where the building seems to be leaning away from the viewer).



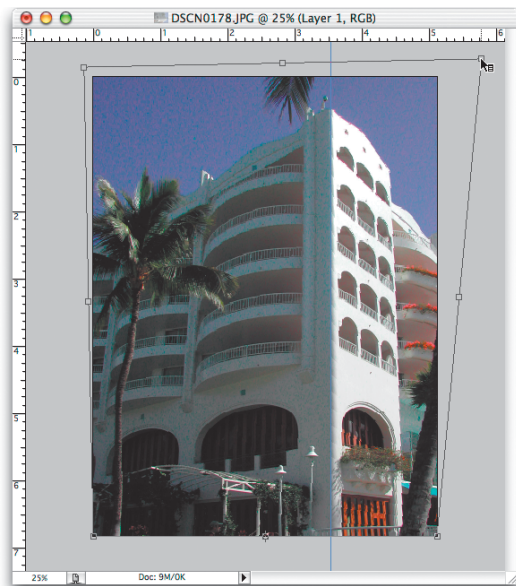
### Step Two:

Grab the bottom-right corner of your image window and drag outward to reveal the gray canvas background. Press Command-A (PC: Control-A) to Select All and then press Command-T (PC: Control-T) to bring up the Free Transform function. Grab the center point of the bounding box and drag it straight downward until it touches the bottom-center Free Transform point (as shown at right at the cursor location near the bottom of the photo).



**Step Three:**

Press Command-R (PC: Control-R) to make Photoshop's rulers visible. Click-and-drag a guide out from the left ruler into your photo (we'll use this straight guide to help us line up our building). In the example shown at left, I placed the guide where I thought the top corner of the building should be aligned.

**Step Four:**

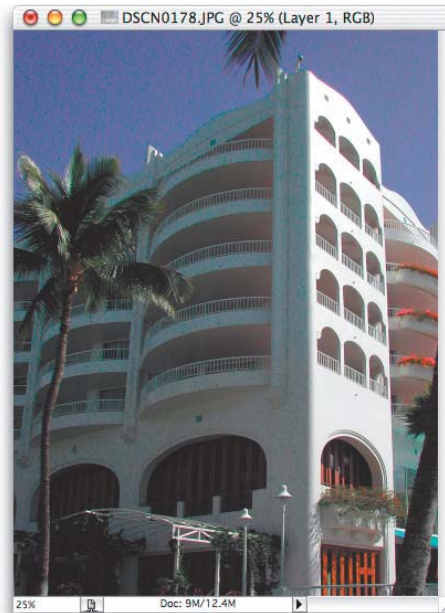
Once your guide is in place, hold the Command key (PC: Control key) and adjust the top left and right corner points of the bounding box until the corner of the building aligns with your guide. Making this correction can sometimes make your building look a bit "smushed" and "squatty" (my official technical terms), so you can release the Command/Control key, grab the top-center point, and drag upward to stretch the photo back out and fix the "squattyness" (again, technically speaking).

*Continued*

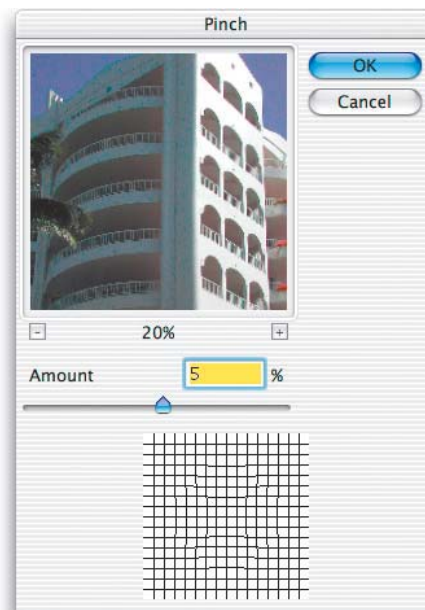


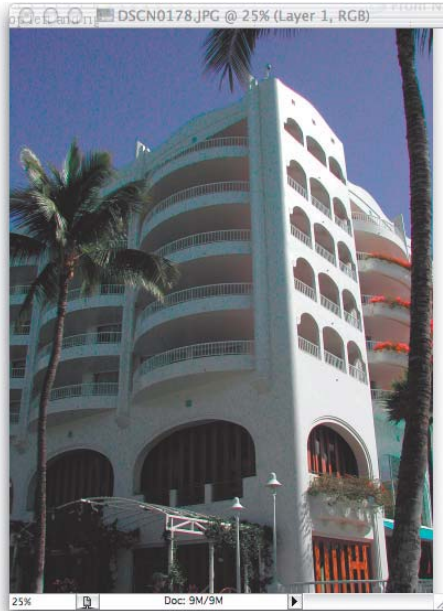
**Step Five:**

When the photo looks right, press Return (PC: Enter) to lock in your transformation. (Note: By repairing this problem with Free Transform, you got to see an onscreen preview of what you were doing, which the Crop tool's Perspective feature doesn't offer.) Now you can drag your guide back to the rulers, and hide the rulers again by pressing Command-R (PC: Control-R). There's still one more thing you'll probably have to do to complete this repair job.

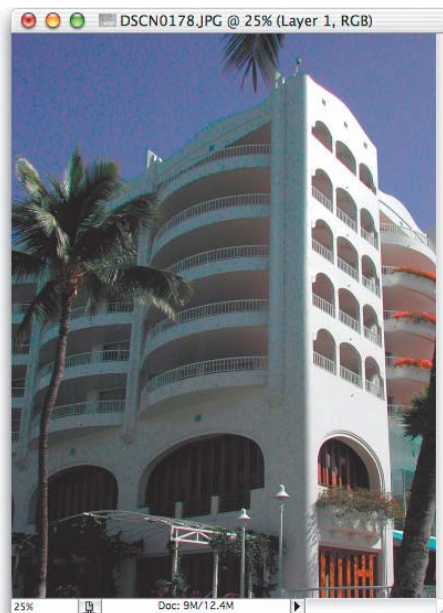
**Step Six:**

If, after making this adjustment, the building looks “round” and “bloat-ed,” you can repair that problem by going under the Filter menu, under Distort, and choosing Pinch. Drag the Amount slider to 0%, and then slowly drag it to the right (increasing the amount of Pinch), while looking at the preview in the filter dialog, until you see the roundness and bloating go away. (In the example shown here, I used 5% for my Amount setting.)





*In the original photo, the building appears to be "falling away."*



*The same photo after repairing the distortion and bloating.*

**Step Seven:**

When it looks right, click OK to complete your keystoneing repair. A before and after are shown here.

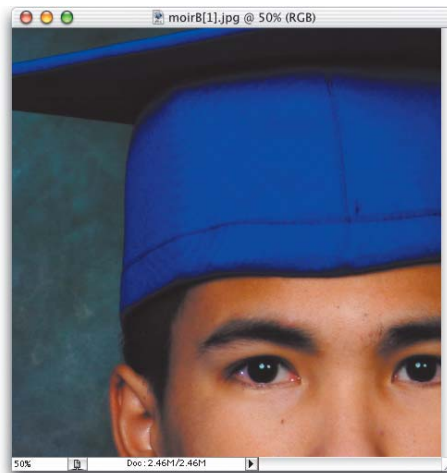


## Removing Moiré Patterns from Coats, Shirts, Etc.

There are certain fabrics or garments, usually hideously ugly ones (kidding), that create a visible pattern when photographed with a digital camera. Perhaps the most common of these patterns, called moiré pattern, is one that shows up in garments and appears as a rainbow of colors. It's very hard to repair—that is, unless you know this great trick. (Thanks to David Cuerdon who showed it to me.)

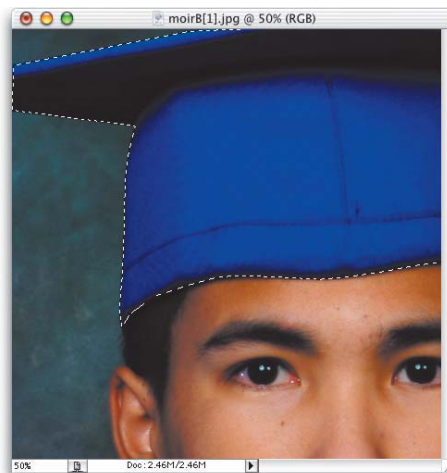
### Step One:

Open a photo with a visible moiré pattern (like the one shown here).

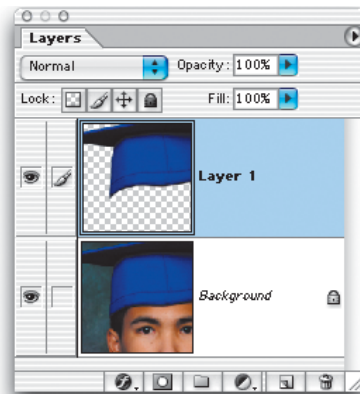
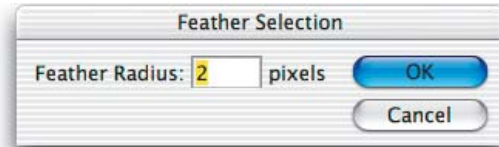


### Step Two:

Press the letter “L” to switch to the Lasso tool, and draw a selection around the areas of the image that have a visible moiré pattern (as shown at right).





**Step Three:**

To hide our “tracks” a bit, we’ll soften the edges of our selection. This will help the correction we’re about to apply blend in better with the rest of the image. Go under the Select menu and choose Feather. When the Feather Selection dialog appears, enter 1 or 2 pixels and click OK to soften the edge of your selection.

**Step Four:**

Press Command-J (PC: Control-J) to copy the selected area onto its own layer above the Background layer.

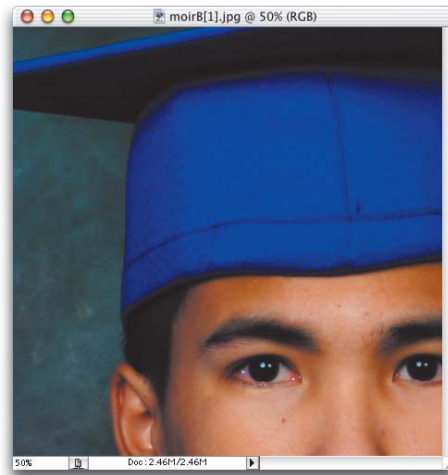
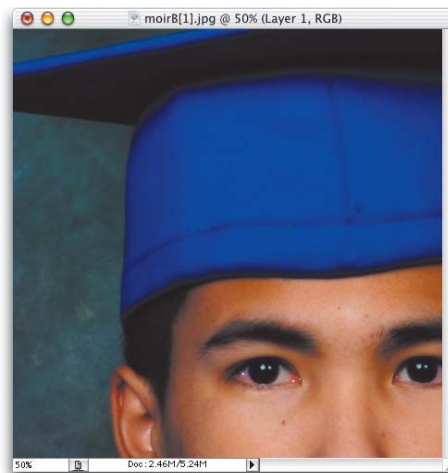
**Step Five:**

Go under the Filter menu, under Blur, and choose Gaussian Blur. When the Gaussian Blur dialog appears, drag the Radius slider all the way to the left and then slowly drag it to the right until you see the moiré pattern disappear (you’re basically “blurring” it away). Click OK. The photo will still look pretty bad because there’s one more step we have to perform before it all comes together.

*Continued*

**Step Six:**

Go to the Layers palette and change the Blend Mode of this layer from Normal to Color. When you do this, the moiré pattern will be hidden by the blur and the object will look normal again, yet you didn't destroy any of its detail. How cool is that?

*Before**After*

