



Inside this Edition

Announcements & Events - p. 2

President's Corner - p. 3

Photo Opportunities in the Bay Area - p. 4

Post-processing Images for Sharpness (Part 2) - p. 5-19

June PI Competition Results - p. 20-35

N4C information - p. 36-38

"Out of the mountain of
despair, a stone of hope."

Martin Luther King, Jr.

Parade

Announcements & Events

Correction!

Apologies to John Templeton who won Best in Competition for his intermediate level nature projected image 'A new leader of the Tundra Wolf Pack', which was incorrectly labeled with Udo Klein's name.
Congratulations, John!

Bay Area Photo Scene

Check out Bay Area PhotoScene for a searchable listing of San Francisco Bay Area exhibitions, talks, artist receptions, and workshops for people interested in photography.

[Bay Area PhotoScene](#)

SF Bay Photo Walks

This is a group for anyone interested in exploring and photographing the SF Bay Area. Beginners and all skill levels are welcome. You can bring your iPhone or digital camera. This group was started to help people meet other photography enthusiasts in a supportive environment.

<https://www.meetup.com/SF-Bay-Photo-Walks/>

ANNOUNCEMENTS!

Want to let other photography enthusiasts know about upcoming events, exhibits, workshops?

Send your info to vjs.1194@gmail.com and I will announce it in the the next Foto FanFare!



Presidents Corner...

by Doug Stinson

Here we are halfway through the year. When I accepted the position of President of N4C, I never expected to have to deal with the impact of a pandemic! It has been a learning experience as we have converted all our competitions and educational programs to some sort of video conferencing. There are upsides and downsides of this, but some clubs have learned there are people attending by Zoom who haven't attended in person. Clubs are starting to explore the idea of having "hybrid" meetings – in-person and via video

simultaneously – once restrictions are lifted. There has also been an increase in the number of competitions where the judge has reviewed the images on-line prior to the meeting night. I believe that has resulted in an increase in the quality of the critiques. I won't go so far as to say this is a "silver lining", but it does show that adversity stimulates creativity.

Perhaps our next challenge is figuring out how to have print competitions again. Could we have a judge and one or two others, wearing appropriate PPE, in a room judging the prints while everyone else participates remotely? (Who would have thought we would all know what PPE stands for?)

Meanwhile, the N4C Board has been spending a lot of time revising the Interclub Competition rules and procedures. Another thing I didn't think I would be dealing with this year! Particularly since we are not making any substantive changes! So, you may ask, "Why?" Well, what we discovered is that there are an inordinately large number of things we do that people believe are in rules, but actually aren't. They are done because "that's what we've always done". There are two problems with this. First, not everyone has the same memory of "what we've always done" and this causes inconsistencies and controversies. Second, none of us will be here forever and we have an obligation to pass on our understand to those who follow us.

I cannot take credit for these improvements. People who are new to the Board are the best at pointing out what is missing and what is inconsistent. Also, a lot of this work was initiated by our previous president, Stephen Hinchey, who lead us through a rewrite of the Bylaws and the development of job descriptions for all of the N4C Board positions. These are available at n4c.photoclubservices.com. All of this will make the life of future volunteers much easier.

Finally, I want to congratulate the people who have completed the training on how to assess a portfolio: Marina Grabovskaya, Gary Oehrle, Stephen Busch, Jeff Dunn, Jane Postiglione and Greg Edwards. Their commitment is what will make the new Portfolio Competition a success! Thank you!



Photo Opportunities in the Bay Area!

As we continue to shelter-in-place, here are some online exhibits, interviews, talks and presentations that you may find inspiring!

Don't forget about the regional parks for taking photos while enjoying the outdoors!

Creativity in the Time of Covid 19
online exhibit [https://
artphotocabrillo.com/](https://artphotocabrillo.com/)

RBG Stories - online exhibit. [http://
renabranstengallery.com/](http://renabranstengallery.com/)

Sheltering Arms - online exhibit [http://
hainesgallery.com/](http://hainesgallery.com/)

Online exhibit: Alternative Voices -
1980's Punk SF: Photos by Jeanne
Hansen (Thru July 7) [http://https://
sfpl.org](http://https://sfpl.org)

SF bay area photographers
showcase weather related photos.
<https://www.escaype.com/home>
Click on Galleries

Online exhibit: The Delta by Ed Drew
(thru July 7). [http://
www.photoalliance.org/](http://www.photoalliance.org/)

Online Class - McNair Evans Workshop -
Design Basics: The Problem with
Photography is all that Detail (July 16,
3-5pm - to register: [https://
photography.org/event/online-workshop-
mcnair-evans-design-basics/](https://photography.org/event/online-workshop-mcnair-evans-design-basics/)

Online artist talk by Binh Danh - Self
Landing: Daguerreotypes on the Western
Landscape (July 6, 1-2pm) [http://
photography.org/](http://photography.org/)

San Francisco Exposed Online
Photography Exhibit
[http://freephotocourse.com/san-francisco-
exposed-photo-exhibit-gallery-05.html](http://freephotocourse.com/san-francisco-exposed-photo-exhibit-gallery-05.html)

M-Mag interviews Linda Connor plus view
her exhibit <http://hainesgallery.com/>

San Francisco Exposed Online
Photography Exhibit
[http://freephotocourse.com/san-francisco-
exposed-photo-exhibit-gallery-05.html](http://freephotocourse.com/san-francisco-exposed-photo-exhibit-gallery-05.html)

Post-Processing Images for Sharpness

Part 2

By Douglas G. Stinson

In Part 1 of this article I defined three types of post-process sharpening: *input* or *pre-sharpening*, *output sharpening* and *creative sharpening*. Input sharpening algorithms are used to minimize the effect of one or more imperfections in the input to your workflow, for example, lens aberrations, lens resolution, diffraction, sensor resolution, anti-aliasing filter and poor focus. They may also correct camera shake. Part 1 dealt exclusively with input sharpening. Input sharpening is one of the very first steps in one's workflow, generally preceded only by noise reduction. In this Part 2, I will discuss creative sharpening which, by contrast, is generally the *last* step in the workflow.

What is Creative Sharpening?

Since we have already rendered the images “sharp” during input sharpening, what, exactly, are we doing with creative sharpening?

Take a look at figure 1. Which set of rectangles are sharper? The ones on the right (a) or the ones on the left (b)?

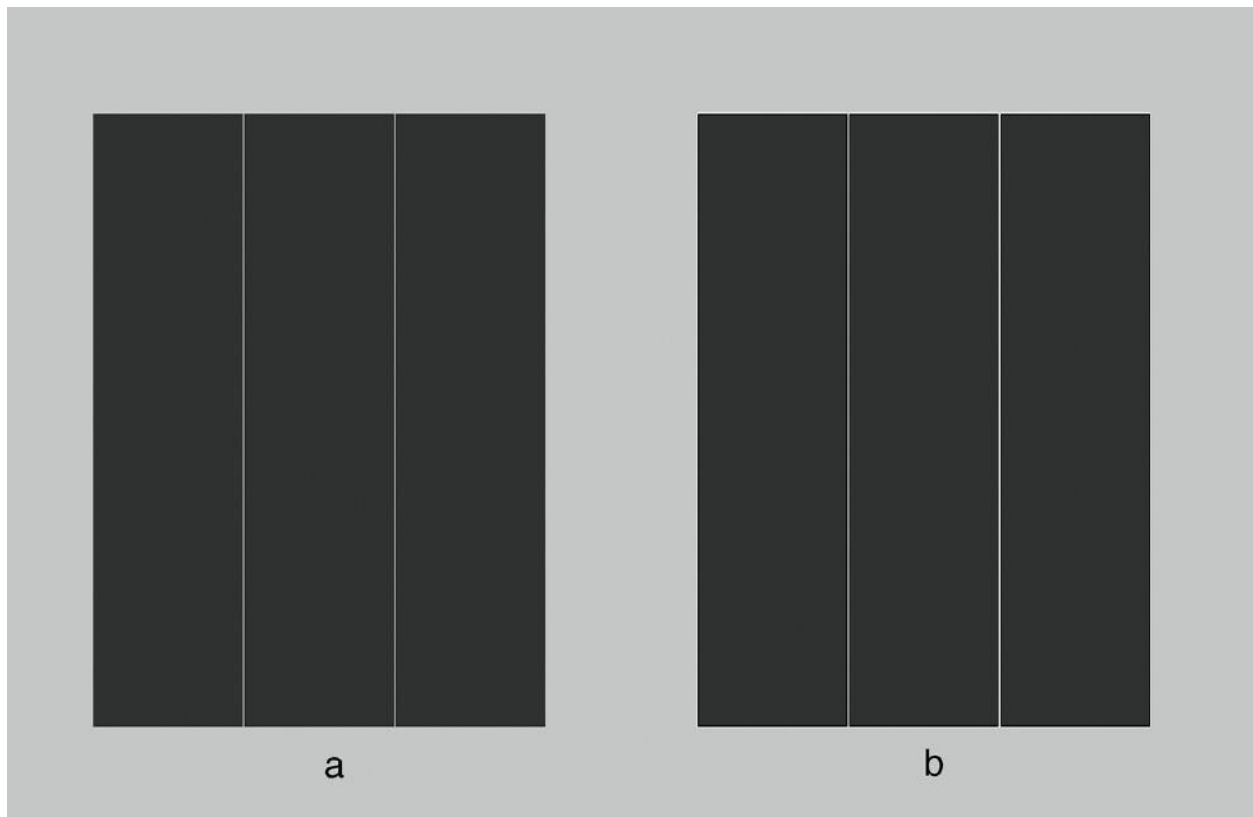


Figure 1. Two sets of three dark grey (L=20) rectangles on a light grey (L=80) background. Which is sharper, set (a) or set (b)?

Now look at figure 2 where I zoom into the corners of each set of rectangles until we can see the individual pixels. When you looked at figure 1, you probably thought the rectangles on the right (b) were sharper. But as we can see in figure 2, the dark pixels of the left rectangles fall right on the pixel boundaries. There are no “slightly lighter” dark pixels at the boundary – the left rectangles are *perfectly* sharp!

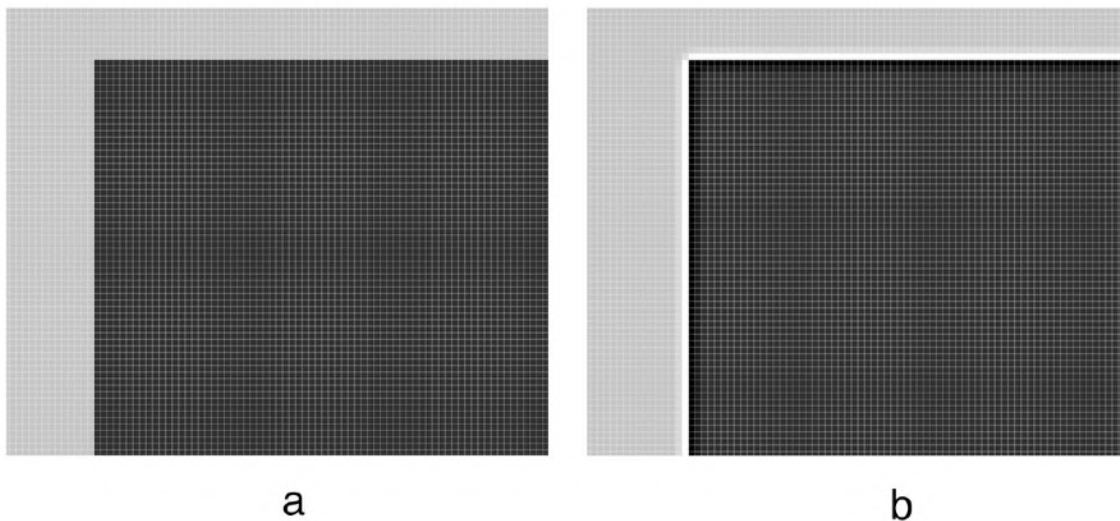


Figure 2. The upper left corners of rectangles (a) and (b) zoomed in until individual pixels are visible. Rectangles (a) are perfectly sharp. Rectangles (b) have lighter bands just outside and darker bands inside the nominal boundary. Even though they are less sharp than rectangles (a) they have greater acutance.

As you can see from figure 2, the pixels just outside the boundary of the right-hand (b) rectangles are lighter than the background, while the pixels just inside the boundary have been made darker than the rest of the pixels of the rectangles. This exaggerated edge contrast is perceived by our eye/brain image processing system as increased sharpness. This perceived sharpness is called *acutance*. When performing creative sharpening we actually increase acutance, not sharpness.

You may notice that even in the unsharpened image your eye detects a slight light band outside the edge of the rectangles and a dark band inside. That is because Mother Nature discovered how to increase acutance and built the process into the image-processing neurons directly behind your retina! The bipolar cells behind the photoreceptors activate the nerves directly behind the photoreceptors, but inhibit the nerves on either side, as shown in figure 3. You can simulate this in Photoshop. Create a dark gray square on a light gray background. Then go to *Filter>Other>Custom*. Enter the matrix shown in figure 4 and click OK. Photoshop will scan this matrix over the image. The pixel under the center of the matrix will

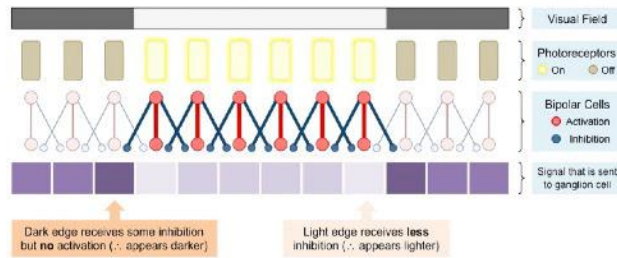


Figure 3. Schematic diagram of a cross section of the human retina observing a light patch on a dark background. The photoreceptors (Rods) exposed to the light area activate the Bipolar Cells behind them. The activated bipolar cells activate the nerves behind them but inhibit the cells on either side. This gives the patch higher acutance. It is also the mechanism behind several optical illusions. Source: <https://ib.bioninja.com.au/options/option-a-neurobiology-and/a3-perception-of-stimuli/edge-enhancement.html>

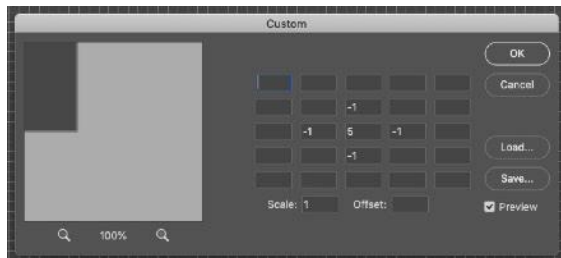


Figure 4. A Photoshop custom filter designed to simulate the function of the bipolar cells in the eye. The “5” corresponds to direct simulation of the nerve (or pixel, in this case) behind the cell while “-1” corresponds to inhibition of the adjacent nerves (pixels).

receive the value of 5 times the original value minus the value of the pixel above, below, to the right and to the left of the target pixel. The matrix simulates the function of the bipolar neurons. The value of “5” is “direct stimulation” and the “-1” is the “inhibition”. In fact, this custom filter is an acceptable sharpening tool. You can experiment with this and other matrixes on your images to see if you like their effect.

Creative sharpening is used to give the image the “look” you desire, for example, to emphasize certain features such as eyes or hair. There is no such thing “optimal” creative sharpening. Like the rest of your creative photographic process, creative sharpening is about producing an image that communicates your vision to the viewer. Is your vision best expressed by a soft image or a rugged image? Every image presents a unique starting point, so different amounts and types of creative sharpening will be required, even if you have the same end goal.

There are many tools to increase acutance which I will describe later. Next I will cover things that are common to all methods.

Viewing your Images When Applying Creative Sharpening

When viewing the effect of input sharpening on an image one should view the image at 100% magnification. This is also true for creative sharpening. However, in creative sharpening, the amount of sharpening needed to achieve the desired effect will depend on the size at which the image is displayed and the anticipated viewing

conditions. Therefore, in addition, one should check the appearance of the image at the size at which it will be presented to the audience. For prints, this means being able to display images on your screen at the same size they will print. I will describe how to do this in Photoshop; other editing programs may have similar functions.

In order for your editing program to display your image at the correct size, it must know your screen's resolution. The first step in determining screen resolution is to measure the width of the display area of your screen using a ruler or tape measure. For example, my Apple Cinema measures 20.5 inches across. Next you need to know how many pixels are in each row of your screen. You can find this in the specifications for your display or from the display control of the operating system. On a Mac go to *System Preferences* and then *Display*. On a PC click on the gear icon, then *PC and Devices*, then *Display*. My display has 1920 pixels across. The resolution is therefore $1920/20.5 = 94$ pixels per inch (ppi), approximately.

Now find your “Units & Rulers” section. Depending on your version and whether you're on a PC or Mac it will either be under *Photoshop – Preferences* or *Edit – Preferences*. See figure 5. Look for the box labeled “Screen Resolution” and enter the ppi you calculated. Back to looking at an image, click *View>Print Size*. Right click

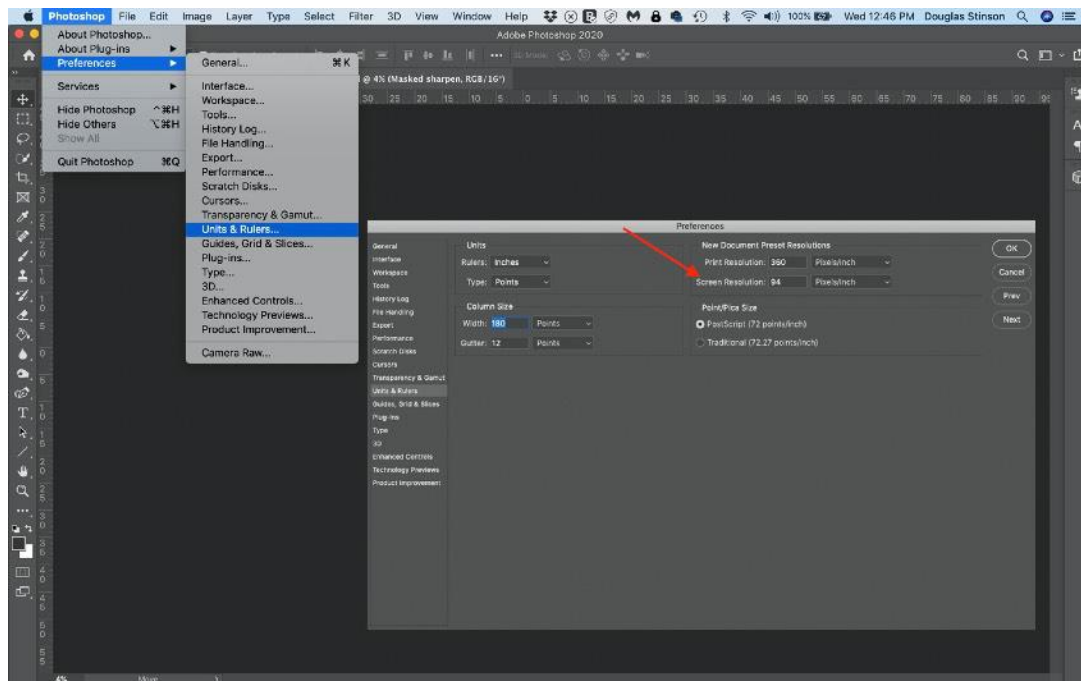


Figure 5. Screen shot showing how to calibrate the physical dimensions of your screen in Photoshop. Setting the proper screen resolution in pixels per inch (ppi) for your display will cause the *View>Print Size* command to display your images at their actual physical printed size. This will allow you to “soft proof” the effect of sharpening.

Photoshop's displayed ruler and select "inches". Check the results by using a ruler to verify that an inch on the displayed ruler is actually one inch long, as shown in figure 6.



Figure 6. After clicking *View>Print Size*, hold a ruler to the screen to verify that the resolution has been set properly. One inch on Photoshop's ruler should correspond to one inch on the physical ruler.

From now on, you can view your image at the size it will print by clicking *View* and then *Print Size*.

Creative Sharpening Workflow

Regardless of the sharpening method you use, generally the workflow goes as follows

1. Save your image at its native size, including all edits
2. Resize your image to the final print or display size
3. Flatten the image (but see comments below)
4. Zoom image to 100%
5. Perform any sharpening
6. Roam around the image looking for the effect in several critical regions of the image. Check for distracting halos around edges. If you see them you may want to apply "asymmetric sharpening", described in the next section. Check to make sure sharpening has not introduced blocking of shadow details or blown-out highlights.
7. Check appearance using *View>Print Size*. Make sure you have achieved the effect you want. Generally, the image should look "natural", not "crinkly" – an effect of over sharpening.
8. If the results are not to your liking, *Edit>Undo* and re-sharpen
9. If you need to convert from a 16 bit to an 8 bit image, do it now. (Do *not* do it prior to sharpening, as rounding errors appear as noise and will be enhanced.)

10. If desired, save your image under a different name. This step is optional if you are going to immediately print the image, but required if you are going to use the resized image for soft display, e.g. on the web or social media.

Why Flatten your image?

If your image has many layers, flattening the image before sharpening ensures that you will sharpen the whole image and not just the portion on the layer that happens to be selected. In my workflow, if I want to make any changes to an image, I work from the unsharpened version saved in Step 1. This is because I will likely want to apply different sharpening anyway. Although Creative Sharpening is a destructive process, since it is the last step in my workflow, if I don't like the result in the print, I can simply use the *Undo* command.

If you want to save and be able to reedit a sharpened image you should make a copy first (and perhaps turn it into a smart layer). This can be accomplished by selecting all the layers and then while holding down the shift+option+command keys on the Mac (Shift+Alt+Ctrl on Windows) press the "E" key. This will create a flattened copy layer at the top of the layer stack. Apply sharpening to that layer.

You may want to apply different amounts of sharpening to different portions of the image. In this case make as many copies of the flattened image (or flattened copy layer) as you need, one for each area to be sharpened. Add a mask to each layer and use it to select which portion you want to sharpen. Then apply the different sharpening to the appropriate layer.

What's All This About 72 ppi?

You may have seen statements such as "images for soft display should have a resolution of 72 ppi." As we saw in the section where I explained how to calibrate the screen to make the *View>Print Size* function work properly, these statements are nonsensical. Different displays have different physical widths and different pixel counts leading to a wide range of ppi. There are no screens in use today that have a resolution of 72 ppi. Pixels per inch only matters for hardcopy, it is meaningless for soft display where only the number of pixels matter.

The statement may have its origin in the original Macintosh computer which had a resolution of 72 ppi. Is this a coincidence? Probably not. In traditional printing, the smallest unit of measure is the *point* and there are 72.27 points per inch. Postscript rounded this to 72 points per inch. Steve Jobs was obsessed with quality typography and may have adopted the standard for purely emotional reasons, or because he thought it would make it easier to scale text from the screen to a printer. The original Apple Imagewriter has a resolution of exactly twice that of the Macintosh screen which would make it easy to achieve "What You See Is What You Get". No other manufacture adopted a 72 ppi standard and Apple abandoned it long ago.

Halos and Asymmetric Sharpening

Halos are thin, bright lines outlining objects in your photographs. They are usually most noticeable where, for example, distant mountains meet the sky or tree branches are silhouetted against the sky. Halos are only a problem when the eye is distracted by them, in which case you will want to minimize them.

These halos can have several causes. One is chromatic aberration – but you fixed that during input sharpening, right? Or it could be light scattering off “fuzz” – like grass on top of a ridge. In which case it may be the whole point of your image and you want to keep it. See figure 7 for an example. As seen when I explained acutance, creative sharpening adds these halos on purpose to exaggerate edge contrast; perhaps you have applied too much sharpening and you need to dial it back.



Figure 7. Grass on ridgelines of Mission Peak scatters the light from the rising sun.

But sometimes you can't get the sharpening effect you desire without creating unwanted halos in some parts of your image. In which case, you can try *asymmetric sharpening*, a technique described by Dr. Greg Duncan in the August 2017 issue of the PSA Journal. As we saw above, acutance is created by a lighter band outside boundary and a darker band inside. In asymmetric sharpening we put these bands on separate layers and then apply a mask to the layer with the light band to eliminate the halo where it is not wanted. Here are the steps:

1. Duplicate the layer of the image to be sharpened, call it layer 2
2. Sharpen layer 2 as desired, ignoring halos
3. Duplicate layer 2, call it layer 3.
4. Set blend mode of layer 2 to “darken” and the blend mode of layer 3 to “lighten”
5. Layer 3 controls the light halo, layer 2 controls the dark halo
6. Add a mask to layer 3 and paint with black any area of the mask where you want to eliminate the light halo

The masked area should blend smoothly into the unmasked area so the brush should be soft and about twice the diameter of the halo. Precision is not required. Figure 8 compares a straight application of the one sharpening technique, the unsharp mask, to the that same technique with asymmetric sharpening. The sharpening has been exaggerated to show the effect. Also shown is the Layers panel after asymmetric sharpening. This technique can be used with any sharpening method, not just unsharp mask.



Figure 8. Comparison of an image with “straight” sharpening on the left to that same image using asymmetric sharpening in the middle. Both images were sharpened using the same settings. The images were purposely over-sharpened to make the effect clearly visible. An expanded version of the area around the top of the mountain is shown in the insets. The layers panel after asymmetric sharpening has been applied is shown in the right-most pane. Note that the blending mode of the top layer is set to “lighten” and a mask applied. There are options to improve the image further. If you think the dark band along the mountain ridge is too prominent, add a mask to the layer 2 and paint with a black brush set to low opacity. Repeatedly paint over the same area until you achieve the result you want.

Methods for Creative Sharpening

Photoshop CC offers six options under *Filter>Sharpen*: *Shake Reduction*, *Sharpen*, *Sharpen Edges*, *Sharpen More*, *Smart Sharpen* and *Unsharp Mask*. Unless you have a phobia about using sliders, there is no reason to use *Sharpen*, *Sharpen Edges* or *Sharpen More*. I will not cover *Shake Reduction* in this article.

The Unsharp Mask

At first glance this is a strange name for a sharpening method. The technique was developed long before Photoshop – in 1930’s Germany. In its digital incarnation, it remains the workhorse today. As originally developed, it works like this:

1. Place a fresh glass photographic plate against the exposed and developed plate you want to sharpen, emulsion sides facing out.

2. Expose the second plate through the first and develop. The second plate will be a negative of the first, but because the two emulsions are not in intimate contact, the image will be a blurred. This plate is the “unsharp mask” (hence the name for the method).
3. Bring the two plates together and align the images.
4. Print through both plates on to high contrast paper.

A simulation of this is shown in figure 9.

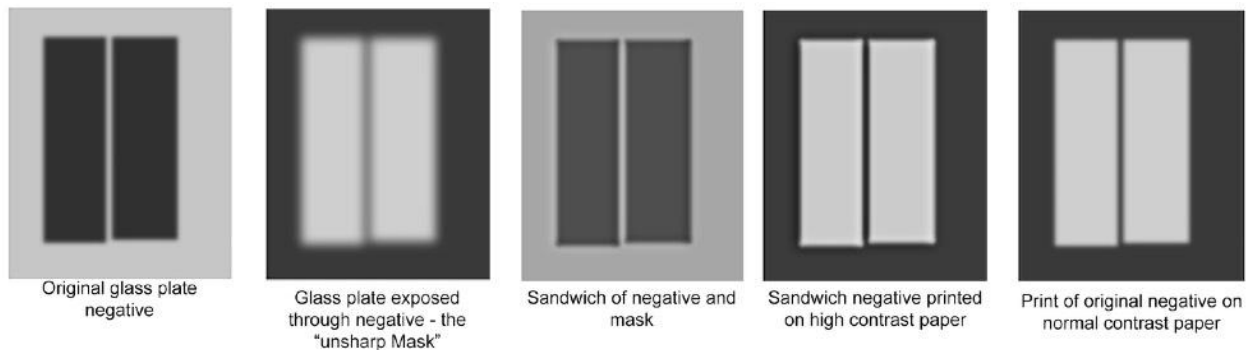


Figure 9. Simulation of the original “unsharp mask” sharpening method developed for glass plate negatives. Note that sandwiching the mask with the original negative and aligning the images creates dark and light bands at the edges, increasing acutance.

Today, of course, we do this in software. In Lightroom, the *Details* tab of the Develop Module performs Unsharp Mask sharpening. I discussed this in detail in the ACR section of Part 1. In Photoshop the unsharp mask is accessed from *filter>sharpen>unsharp mask*. As described in the section on acutance, Unsharp Mask will create dark and light bands at edges. There are three controls, *Amount*, *Radius* and *Threshold*. The proper values for these settings will be different for each image and can only be determined by looking at the image while adjusting the sliders. Increasing *Amount* makes the dark bands darker and the light bands lighter, increasing apparent contrast, and therefore, acutance. A value of 100% is a good starting value for *Amount*, work up and down from there.

Radius determines the width of the dark and light bands. In addition to the properties of the image, the best value of *Radius* also depends on the size at which the final image will be displayed and how it will be viewed. Large prints are usually viewed at a greater distance than small prints, so to achieve the same visual effect, a larger radius can be used. However, some aficionados (for example, judges) like to put a nose print on your image, so you may not want to go overboard with a very large radius. I find I usually settle on 0.8 pixels for images intended for soft display and 1.1 pixels for images intended for prints between 8x10 and 11x14 inches. But this is mostly a matter of personal style. Values up to 4 pixels are recommended by some.

Threshold defines how much change in luminosity must exist before sharpening is applied. There are two reasons for adjusting the *Threshold* value. A variation in luminosity is what defines “image”; you don’t want the software to think this variation is an edge which needs to be enhanced. Variation in luminosity can be caused by noise. Usually, enhancing noise is the last thing you want. Fortunately, the variation in luminosity from noise is often small compared to the change in luminosity across an edge, so you can prevent noise from being enhanced by increasing the threshold. I start with a value of 3 and work from there. By the way, if you happened to convert from 16 to 8 bit before sharpening, you can mitigate the effect by increasing the *Threshold*.

Smart Sharpen

Photoshop’s *Smart Sharpen* is a big step in sophistication over Unsharp Mask. It includes several additional controls. First of all, you get to choose between three different algorithms from the *Remove* drop-down menu. The first, *Gaussian Blur*, causes Smart Sharpen to use the same algorithm as Unsharp Mask. This is probably not the best choice, unless you have a problem with the next choice, *Lens Blur*. *Lens Blur* detects the edges and detail in an image and provides finer sharpening of detail and reduced sharpening halos. *Lens Blur* will be your go-to setting when using Smart Sharpen. If you know your image has a problem with motion blur, you can experiment with the *Motion Blur* setting. I will not cover *Motion Blur* in this article.

The *Amount* and *Radius* sliders work in an identical manner as those sliders in Unsharp Mask. However, because of the additional sophistication of the Lens Blur algorithm, you can generally get away with higher values of *Amount*. Start at 200% and work up and down from there. You may want to start with the *Reduce Noise* slider at zero. If the sharpening process starts to introduce noise, you can increase the value of the *Reduce Noise* slider. But be careful, too high a value will eliminate valuable detail from your image. The default value of 10% is usually fine.

Sometimes you cannot get the amount of sharpening you want without over sharpening in either the shadow areas or the highlight areas (or both). In shadow areas this can appear as increased noise or blocking of shadow detail. Sharpening can cause some highlights to be “blown out” resulting in loss of detail. These can be fixed by clicking the “>” symbol next to *Shadows/Highlights* to reveal additional controls. These allow you to reduce the amount of sharpening that occurs in either the shadow or highlight areas by increasing *Fade Amount*. Try increasing *Fade Amount* to see if you can bring back details. If not, leave it at 0. *Tonal Width* controls the range of luminosities brighter than the darkest that are considered “shadow” (or luminosities darker than the brightest that are considered “highlights”). The default value of 50% usually works well. *Radius* controls the size of the area around each pixel that is used to determine whether a pixel is in the shadows or highlights. The default value of 1 pixel will probably be too small. Experiment with values in the range of 10 – 20.

High Pass Filtering

In my opinion, this technique and those following are for addressing special problems, for example, when you want to apply more sharpening than the previous methods allow without causing problems. Or perhaps you just like doing things yourself rather than using “black box” algorithms. However, for many people “high pass filtering” is their favorite method of creative sharpening. So, you may want to try it.

Fundamentally, *High Pass Filtering* will create a new image layer with luminosity at each pixel proportional to the change in luminosity at the corresponding pixel of the original image. Edges and texture have rapid change in luminosity, so these areas will show up as bright or dark areas (depending on if luminosity is increasing or decreasing) in the filtered image. The rest of the filtered image will be neutral gray. The filtered layer is blended with the original image to enhance edges.

Here are the steps:

1. Duplicate the layer you wish to sharpen
2. In Photoshop, with the duplicate layer selected, click *Filter>Other>High Pass*.
3. Select radius between 2 and 10. This will determine the width of the light and dark bands in a similar manner as the Radius slider in other methods and click OK. (I used 5 on the example image.) The result is shown in figure 10.
4. Change blending mode of the filtered image to “Overlay”
5. For additional control, add a Levels adjustment layer directly above the filtered layer clicking the “Use Previous Layer to Create Clipping Mask” box. (If you forget to click the box, you can click *Layer>Create Clipping Mask*.) Experiment with moving the black and white triangles under the histogram symmetrically toward the center, keeping the

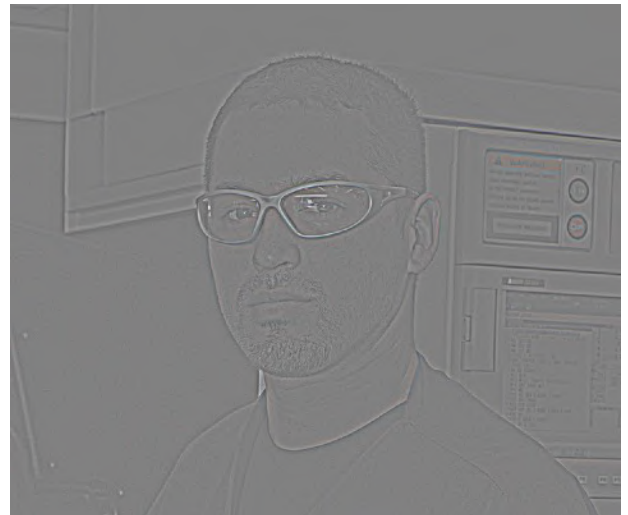


Figure 10. Original image (which is shown on the left in figure 14) after High Pass Filtering. Areas with little change in luminance become mid-gray. Areas of rapid change in luminance become light or dark depending on whether luminance is increasing or decreasing.

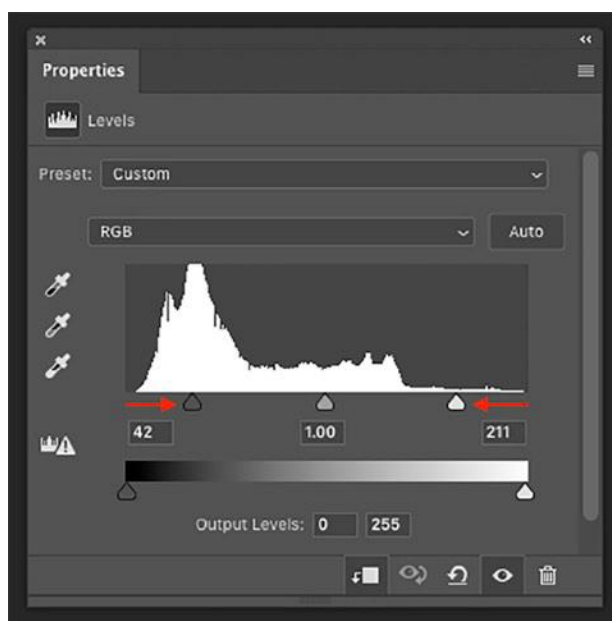


Figure 11. The Levels Adjustment Layer panel showing the adjustments made to the black and white levels to increase the contrast of the high pass filtered layer resulting in increased acutance.

mid-range triangle centered. This is similar to the Amount slider in other methods. See, for example, figure 11.

After performing these steps, the Layers panel should look similar to figure 12. The result High Pass filtering of an image is shown in figure 13. As the sharpening is controlled by the new, filtered, layer, one nice feature of this method is it is nondestructive; no changes are made to the original image. You can experiment with different blend modes, particularly Soft Light, Hard Light, Vivid Light, Linear Light, and Pin Light. You can use the Layer Opacity setting to reduce the effect a bit, if you decide the sharpening is a bit too strong.

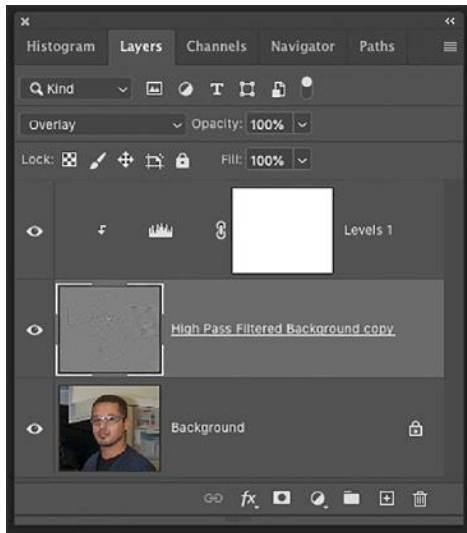
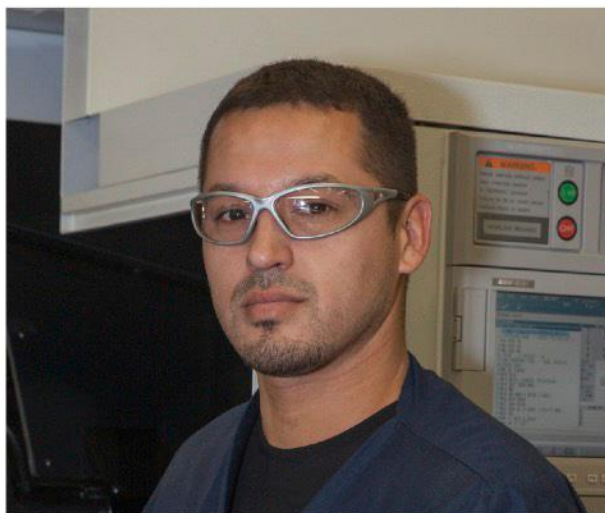


Figure 12. The Layers panel after High Pass Filtering

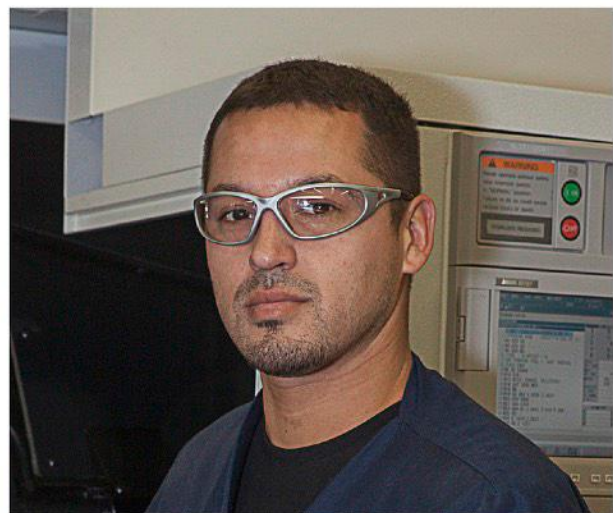
Edge Only Sharpening

This method creates a mask that will restrict to the edges in your image whatever sharpening method you choose to apply:

1. Duplicate the layer to be sharpened
2. Go to the Channels Panel and select the Green Channel (The green layer will generally have the least noise.)
3. Right click on the green channel and select Duplicate Channel
4. Click *Filter>stylize>find edges*
5. Then click *Image>Adjustments>Invert* The click Set the blur radius to between 1.5 – 6 px. Make the blur radius about the same as the *radius* setting of the sharpening method you intend to use.
6. Use *Image>Adjustments>Curves* to increase the contrast
7. This is the starting point for the mask. Use any tools to edit the image. You want areas to be sharpened to be white. Black areas will not be sharpened. Most of your editing will consist of using a brush to paint areas black that you don't want sharpened. Figure 14 shows an example.



a



b

Figure 13. Comparison of the original image (a) to the image after high pass filtering (b)

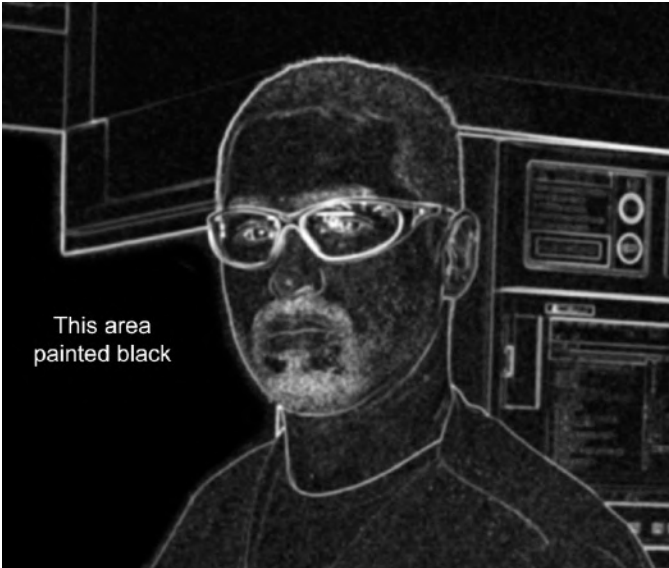


Figure 14. The mask created for Edge Only Sharpening. Black was painted into a large area on the left which was dark in the original image. This will prevent the noise in the shadow area from being amplified by sharpening

8. On the duplicate green channel, Command Click on the Mac, Control Click on Windows to create a selection.
9. Go back to Layers Panel, and with the layer to be sharpened selected, click the “Add Layer Mask” icon at the bottom of the panel.
10. Apply lots of sharpening. Go crazy.
11. The Layers pane after this process should look similar to figure 15. A comparison of an image sharpened with and without the edge mask is shown in figure 16.

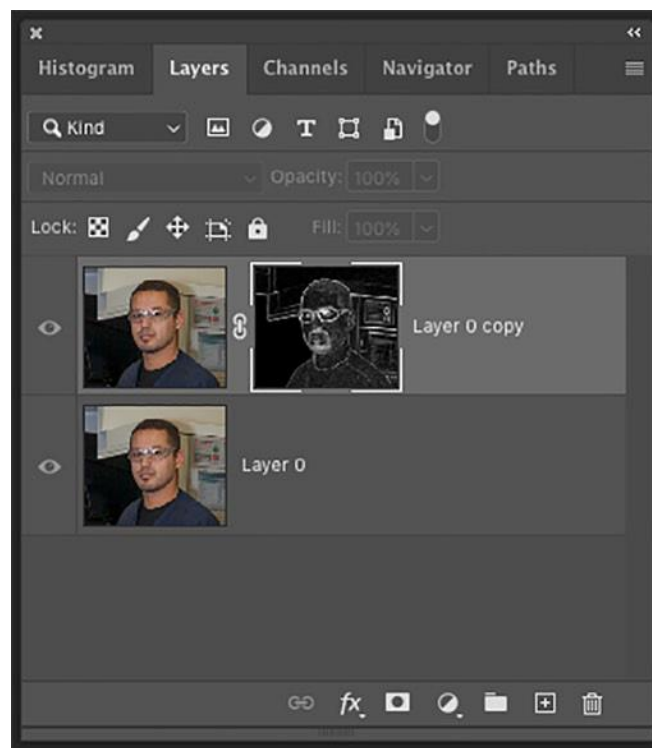


Figure 15. Layer Panel after Edge Only Sharpening



Figure 16. Both images were sharpened with Unsharp Mask with Amount set to 500%, Radius to 3 pixels and Threshold to 3. The left image has no mask while the right image has the edges-only mask. The insets show a magnified view of the shadow area, showing the amount of noise. By using a mask constraining the sharpening to the edges, a much greater degree of sharpening can be applied without causing artifacts in the image.

Sharpen Everything but the Edges to Eliminate Halos

This process will bring out texture in an image without creating halos at edges. Use the exact same procedure as Edge Only Sharpening but skip step 5 – don't invert the mask. In step 8, this time you will mostly paint with white to indicate areas where you want texture increased. An

example mask is shown in figure 17 and a comparison of the sharpened image with and without the mask is shown in figure 18.



Figure 17. Mask created to exclude sharpening of the major edges. The insides of the leaves and the bulk of Half Dome were painted white to allow sharpening to enhance texture in these areas. Other adjustment, such as *Image>Adjustments>Curves* can be used to modify the mask.

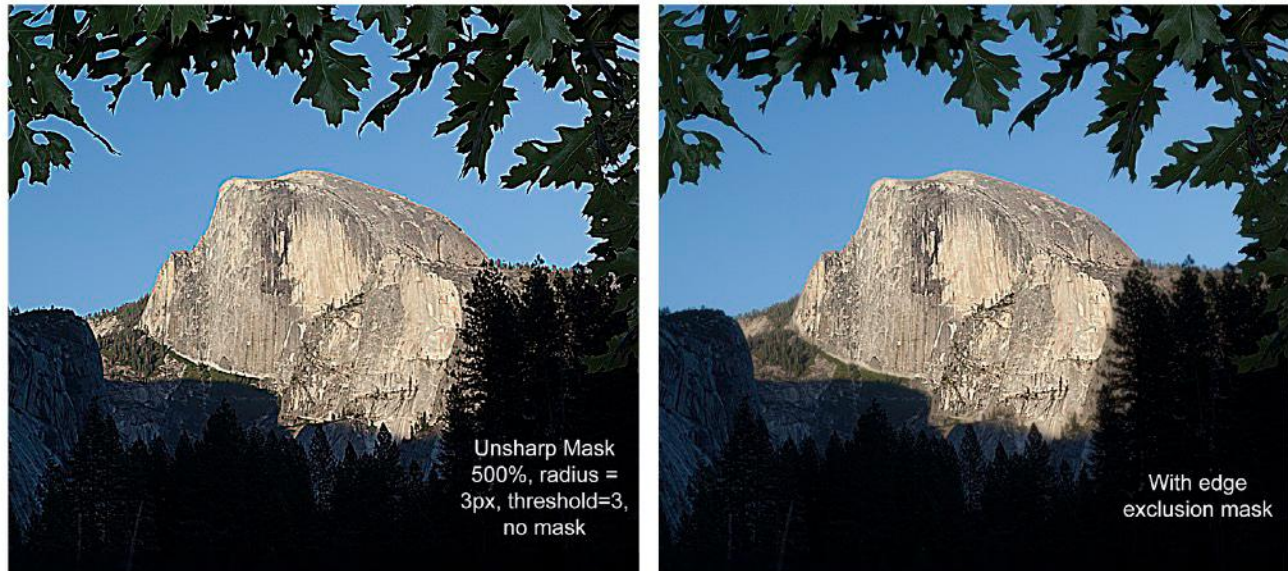


Figure 18. In order to create an almost cartoon-like representation of the leaves, Unsharp Mask with Amount set to 500% was applied. However, this created horrible halos as seen in the image on the left. Rather than use asymmetric sharpening and try to paint over the complicated halo pattern, *Filter>Stylize>Find Edges* can create a mask automatically. The result is shown in the image on the right.

The Takeaway

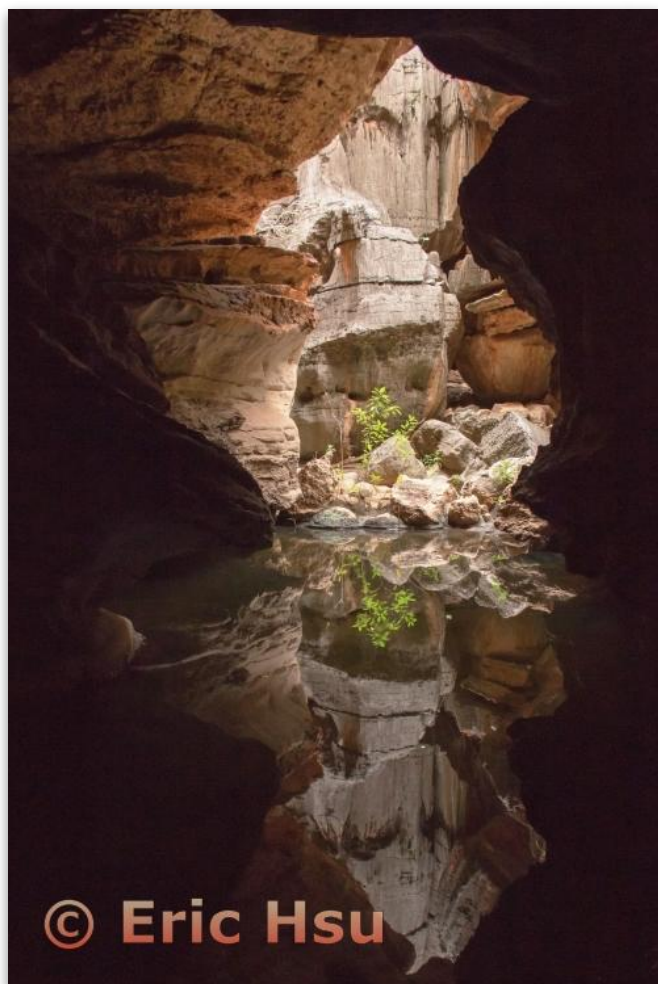
- The method and amount of sharpening is determined by the effect you want to create. There is no “right” amount. Different images will require different amounts and type of sharpening.
- In most situations, Photoshop’s Smart Sharpen will allow you to create the effect you desire.
- Watch out for bright halos. If they distract from your image, use Asymmetric Sharpening to eliminate them from problem areas.
- You can use multiple layers and masks to control how sharpening is applied to different parts of your image
- If you use a program such as Topaz Sharpen AI, check the image at the size it will be displayed to see if Creative Sharpening is required.

June Competition Results

Pictorial - Projected Images (Judge - John Goyer)

Basic Level (29 entries)

Award	Title	Member	Club
1	Mimbi Caves, Western Australia	Eric Hsu	Alameda
2	A Snowy Egret (<i>Egretta thula</i>) at Aquatic Park Berkeley appears elegant and territorial	Ralph Freeman	Berkeley
3	Bad Hair Day	Andy Jan	Berkeley
4	Solitary, Sossusvlei Namibia	Pat Carlson	Santa Rosa
5	If You're Going to San Francisco, Be Sure to Wear Some Flowers in Your Hair	Ronnie Rosenbach	Santa Rosa
HM	Full moon rising over Klamath Falls National Wildlife Refuge.	Michael Carpenter	Peninsula
HM	Maine Sunset	Marcy Zimmerman	Diablo Valley
HM	Sunset at Bosque del Apache	Beth Schriock	Marin



Pictorial Projected - 1st - Basic

**Mimbi Caves, Western Australia
Eric Hsu
Alameda Photographic Society**

Pictorial Projected (cont'd)

Intermediate Level (32 entries)			
Award	Title	Member	Club
1	Enlightenment	Gary Oehrle	Livermore
2	Damp winter clouds scattering a reddish glow over Paris, France	Larry McCloskey	Marin
3	Mirror, mirror	Kathy McMullen	Millbrae
4	Turning the Herd	David Fry	Alameda
5	Peeking in at Amber on Mount Diablo	Larry Taggesell	Alameda
HM	Black Dragon Pool, Lijiang, Yunnan, China	Luke Lang	Santa Clara
HM	Hunting the Laguna De Santa Rosa	Steve Gibbs	Santa Rosa
HM	Tidal Waves	Lynda Stuber	Santa Rosa



Pictorial Projected - 1st - Intermediate

**Enlightenment
Gary Oehrle, Fellow
Livermore Valley Camera Club**

Pictorial Projected (cont'd)

Advanced Level (39 entries)

Award	Title	Member	Club
1	The Calm After the Storm	Herbert Gaidus	Santa Rosa
2	Under Pressure 2020	Eric Cox	Rossmoor
3	Motors to Match My Mountains	Paul King	Berkeley
4	Stepping stone to tranquility	Bill Lapworth	Peninsula
5	Sheltering In Place	Irene Jones	Livermore
HM	A Fox	John Klingel	Marin
HM	Fishing Town of Veranzza, Italy	Barry Zupan	Livermore
HM	Just Hangin' Out	Jennifer O'Donnell	Peninsula



Pictorial Projected - 1st - Advanced

**The Calm After the Storm
Herbert Gaidus
Santa Rosa Photographic Society**

Pictorial Projected (cont'd)

Masters Level (35 entries)			
Award	Title	Member	Club
1B	Power Provokes	Nancy Goodenough	Santa Rosa
2	Beach Fun at Sunset	Louis Cheng	Alameda
3	Stands Alone	Phyllis Plotkin	Berkeley
4	I dropped my what!	Tony Reynes	Santa Rosa
5	The Big Splash	Pat Prettie	Contra Costa
HM	A Regal and Magnificent Beast	Irene Bergamini	Diablo Valley
HM	FERAL MUSTANGS IN NORTHWEST NEVADA	Jack Zins	Rossmoor
HM	sunset at Diamond Beach, Iceland	Sree Alavattam	Peninsula

Best in Competition Pictorial Projected

Pictorial Projected - 1st - Masters

**Power Provokes
Nancy Goodenough
Santa Rosa Photographic Society**



© **Nancy
Goodenough**

Monochrome - Projected (Judge - John Goyer)

Basic Level (32 entries)

Award	Title	Member	Club
1	Vietnam Woman with Cart	Diane Kay	Marin
2	Reflection	Pat Carlson	Santa Rosa
3	Young bobcat climbs to a higher vantage point	Sue Griffin	Livermore
4	Anemones	Ronnie Rosenbach	Santa Rosa
5	Where's Scarlet	Richard Haile	Contra Costa
HM	A place to gaze and wonder	Bruce Lescher	Livermore
HM	Aleksa Slusarchi at "The Egg" Mount Diablo	Larry Taggesell	Alameda
HM	Sandstone carved by the Colorado River	Luke Lang	Santa Clara



Monochrome Projected - 1st - Basic

**Vietnam Woman with Cart
Diane Kay
Marin Photo Club**

Monochrome - Projected (Cont'd)

Intermediate Level (33 entries)

Award	Title	Member	Club
1B	sun beams behind Kirkjufell mountain in Iceland	Sree Alavattam	Peninsula
2	How open is Russia? (St. Basil's Cathedral in Red Square was seized from the Church & is a State museum.)	Jennifer Isaac	Marin
3	Young school boys in Tanzania	Richard Finn	Livermore
4	Mayan Pride	Lynda Stuber	Santa Rosa
5	I'll leave the light on for you.	Debbie Bergvall	Contra Costa
HM	Tail Rising	Susan Andrews	Contra Costa
HM	Welcome to Safeway	Eddy Lehrer	Alameda
HM	Zabriski Pt. Death Valley National Park	Guy Miller	Santa Rosa

Best in Competition - Monochrome Projected



Monochrome Projected - 1st - Intermediate

**sun beams behind Kirkjufell mountain in Iceland
Sree Alavattam
Peninsula Camera Club**

Monochrome - Projected (Cont'd)

Advanced Level (39 entries)			
Award	Title	Member	Club
1	Morning coffee	Michael Funk	Santa Rosa
2	Buyers Inspect fresh off the boat frozen tuna carcasses at the Tskuki Fish Market, Tokyo, Japan	Paul Kessinger	Fremont
3	A Tigers Roar	Cindy Micheli	Livermore
4	Antelope Canyon, Arizona - Triptych	Chris Cassell	Light & Shadow
5	Hiking through shadow and light	Eric Cox	Rossmoor
HM	Ethereal Beauty	Cathy Seleska	Diablo Valley
HM	Pathfinder	Ouliana Panova	Santa Clara
HM	Tunnel in the California Sky	Udo Klein	Contra Costa



**Monochrome Projected - 1st -
Advanced**

**Morning Coffee
Michael Funk
Santa Rosa Photographic Society**

© **Michael Funk**

Monochrome - Projected (Cont'd)

Masters Level (35 entries)

Award	Title	Member	Club
1	Wente Vineyards. Marina Ave Livermore CA	Barry Zupan	Livermore
2	Serrated Leaves	Eric Brown	Berkeley
3	A tree's homage to the Milky Way	Irene Bergamini	Diablo Valley
4	Ely Cathedral, Nave	Peter Nicholls	Villages
5	A Fleet's Blessing	Irene Bergamini	Diablo Valley
HM	Black Sand Dunes at Stokksnes Peninsula	Louis Cheng	Alameda
HM	Duke	Flo Hendry	Rossmoor
HM	The Lonely Road to Lone Pine Peak	Kevin Westerlund	Marin



Monochrome Projected - 1st - Masters

**Wente Vineyards. Marina Ave Livermore CA
Barry Zupan
Livermore Valley Camera Club**

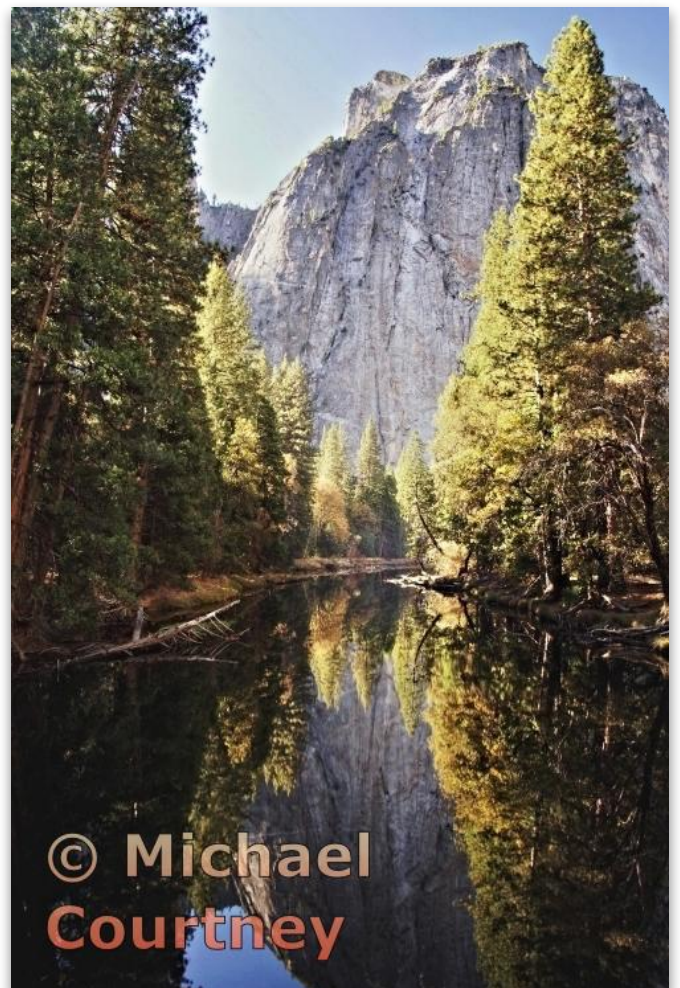
Travel - Projected (Judge - John Goyer)

Basic Level (23 entries)

Award	Title	Member	Club
1	October Morning Cathedral Rocks, Merced River, Yosemite	Michael Courtney	Contra Costa
2	Low Tide Bay of Fundy Oct 7, 2018	Marshall Gross	Marin
3	Torres del Paine	Karl Stinson	Rossmoor
4	Skyline Arch sits high atop the rocks of the Devils Garden at the north end of Arches National Park. Water, ice, extreme temperatures and underground movement are the forces which sculpt the rock.	Lynn Harrison	Marin
5	The Fairmont Chateau Lake Louise is nestled deep within Banff National Park, on Lake Louise, in Canada	Thomas Cipriano	Alameda
HM	The State Capitol Building in Sacramento California	Marvin Siegel	Marin
HM	The statue of Nuno Álvares Pereira at Batalha Monastery, a Gothic monastery and one of the most impressive religious buildings in Portugal	Debasish Raha	Millbrae
HM	Visitors walking the 2 km path atop the walls of Dubrovnik see ruins from the war of independence (1991-92) on one side, and the crystal waters of the Adriatic on the other.	Marcy Zimmerman	Diablo Valley

Travel Projected - 1st - Basic

**October Morning Cathedral Rocks, Merced River,
Yosemite
Michael Courtney
Contra Costa Camera Club**



Travel - Projected (Cont'd)

Intermediate Level (23 entries)

Award	Title	Member	Club
1	Pudong, the financial center of China in Shanghai, looks spectacular at night from across the Huangpu River	Udo Klein	Contra Costa
2	Dining on the Edge, at the Cliff House Restaurant in San Francisco, CA	Allen Nordgren	Rossmoor
3	Azure Magnificence. Crater Lake's intense blue is due to it's clarity and great depth. It's the deepest lake in the US and 9th deepest in the World.	Lynda Stuber	Santa Rosa
4	Badwater Basin is an endorheic basin in Death Valley National Park, and is the lowest point in North America at 282 feet below sea level.	Sherri Oster	Santa Rosa
5	Workers refurbish sewing machines in Bharatpur India	Sharon Thorp	Santa Clara
HM	Following Vincent Van Gogh's Footsteps in Arles, France	Alycia Sanchez	Contra Costa
HM	Garlic Vendor Packages Purchase For The Waiting Buyer, Goubert Market, Puducherry, India	Tim Cuneo	Santa Clara
HM	Myanmar woman with thanaka paste on her face crosses Taungthaman Lake at U Bein bridge, the oldest teakwood bridge in the world. Lake & bridge are very important to locals for transit & tourist \$\$\$.	Jennifer Isaac	Marin



Travel Projected - 1st - Intermediate

Pudong, the financial center of China in Shanghai, looks spectacular at night from across the Huangpu River

Udo Klein

Contra Costa Camera Club

Travel - Projected (Cont'd)

Advanced Level (29 entries)

Award	Title	Member	Club
1	Varrena Italy	Tracy Lussier	Contra Costa
2	The archer watches his second arrow approach the small target, a row of leather cylinders barely visible at a distance of 75 meters. Naadam competition, Gobi Desert, Mongolia.	Bill Stacy	Santa Rosa
3	The colorful, sculptured Painted Hills of John Day Fossil Beds National Monument in Oregon were formed over 35 million years ago by ash layers deposited by ancient volcanic eruptions.	Herbert Gaidus	Santa Rosa
4	This Bratislava, Slovenia memorial commemorates the synagogue that was demolished by the Soviets in 1669. The caged stones are all that remain .St Martin's Cathedral can be seen in the background.	Barry Zupan	Livermore
5	Crowds of Tourist Visit Asakusa Temple, Tokyo	Paul Kessinger	Fremont
HM	Camels wait for tourists at the Petra Treasury in Jordan	Rajeev Shankar	Fremont
HM	Geese at Mono Lake Tufa	Aaron Chen	Santa Clara
HM	Old Havana Rooftop #1	Rain Bengis	Rossmoor



Travel Projected - 1st - Advanced

**Varrena Italy
Tracy Lussier
Contra Costa Camera Club**

Travel - Projected (Cont'd)

Masters Level (22 entries)			
Award	Title	Member	Club
1B	Dev Diwali is a festival celebrated in November every year, in the sacred city of Varanasi, India. More than 5 million devotees come together to light a million clay lamps or diyas in the evening.	Rajani Ramanathan	Livermore
2	Madrid.; Jaume Pensa's "Julia", represents "tenderness and silence". The 12 m.white sculpture is promoting art in public places.	Mara Phraner	Alameda
3	In a small villages in remote rural Kenya, most Samburu women still dress in a traditional manner. Their style of earrings, beadwork and clothing mark them as married women.	Tamara Krautkramer	Santa Rosa
4	Bullock Cart was a Common Mode of Transportation in Myanmar in Ancient Times. It is Still Used in Some Rural Villages for Various Transportations, Such as Agriculture and Ceremonial Occasions	Susan Stanger	Livermore
5	Rice Terraces in Yunnan China	San Yuan	Contra Costa
HM	Hindus Bath in the Sacred Ganges River, Varanasi, India	Jane Postiglione	Contra Costa
HM	Merida, the capital of the Mexican state of Yucatán, is rich with plazas & parks.	Ed Mestre	Livermore
HM	Sunset, Sheikh Zayed Grand Mosque, Abu Dhabi, UAE. The mosque, finished in 2007, is one of the world's largest and most expensive (\$500 million to build). The courtyard alone holds 40,000 faithful.	Dorothy Weaver	Marin

Best in Competition - Travel Projected



Travel Projected - 1st Masters

Dev Diwali is a festival celebrated in November every year, in the sacred city of Varanasi, India. More than 5 million devotees come together to light a million clay lamps or diyas in the evening.

**Rajani Ramanathan
Livermore Valley Camera Club**

Journalism - Projected (Judge - John Goyer)

Basic Level (17 entries)

Award	Title	Member	Club
1	[Seq] Sweden Stockholm Demonstration for Climate Action 9 27 2019	Renate Johnson	Livermore
2	War kills more than just people - Before the Spanish Civil War turned it to war manufacture, Hispano-Suiza made highly celebrated luxury automobiles - 1935 K6 Cabriolet Marks The End Of An Era	Richard Haile	Contra Costa
3	Great Grandma offers birthday wishes to two of the kids from her assisted living facility in Mt. View.	Bob Rosenberg	Santa Clara
4	[Seq] West Coast Diesel Annual Tractor Pull	Joel David Brown	Santa Rosa
5	Heritage of an early twentieth century Southern China village (located at Xinhui province); still viable with about 300 residents in 2019	Maria Ley	Contra Costa
HM	Spices are on display at a grocery store in Merzouga, Morocco	Debasish Raha	Millbrae



Journalism Projected - 1st Basic

Sweden Stockholm Demonstration for Climate Action 9 27 2019

Renate Johnson

Livermore Valley Camera Club



Journalism - Projected (cont'd)

Intermediate Level (22 entries)

Award	Title	Member	Club
1	[Seq] Doggie Trashion Fashion	Craig Scheiner	Santa Rosa
2	[Seq] Polar Bear	Gary Oehrle	Livermore
3	Minesweeping~Thousands of landmines remain in Port Stanley since the 1982 Falklands War. Beaches are swept daily by Zimbabwean experts to prevent deadly accidents, with completion expected in 2021.	Zina Mirsky	Rossmoor
4	All Girl Marching Bagpipe Band Performs At The Rongoli Competition January 19, 2020, Puducherry, India	Tim Cuneo	Santa Clara
5	Almo, Idaho (pop. 153) boasts the best cinnabuns in the state, handmade by Susan Durfee, proprietess of the Tracy General Store there.	Jeff Dunn	Alameda
HM	A short distance from beautiful Antelope Canyon, coal-burning Navaho Power Plant poisons the air for 100 miles	Eric Gold	Santa Clara
HM	Black Vultures on the carcass of a White Tailed Deer road side kill in Percy Warner Park, Nashville Tennessee.	Paul Pokrywka	Millbrae
HM	[Seq] Street Painting	Ellen Storz	Santa Rosa



Journalism Projected - 1st Intermediate

Doggie Trashion Fashion
Craig Scheiner
Santa Rosa Photographic Society



Journalism - Projected (cont'd)

Advanced Level (28 entries)			
Award	Title	Member	Club
1	[Seq] Bee swarm	Bill Stacy	Santa Rosa
2	[Seq] Tulips	Eddy Lehrer	Alameda
3	Pleasanton's Lou Cobb expresses his displeasure at having to shelter in place during the Covid-19 pandemic. April 10, 2020.	Bill Stekelberg	Livermore
4	May 7th, 2020 nearly fifty days of sheltering in place, this man drives almost every day to lake Merritt to turn up his music and dance by himself on the top of his Jeep.	David Fry	Alameda
5	[Seq] Covid 19 Concert	Mark Brueckman	Alameda
HM	A Photographer Approaching The Iceberg For Better Photographic Opportunities, Eastern Greenland.	Lucy Kiang	Livermore
HM	Protesters in the wake of the February 14 shooting at a Florida high school that left 17 people dead. March For Our Lives Walnut Creek Ca 2018	Sharon Anderson	Contra Costa
HM	The Raging Grannies Admonish Facebook to "Clean Up Your Act" over its Role in Promoting Spread of Political Disinformation - Protest at Facebook HQ, Menlo Park, 1/9/2020	Chris Cassell	Light & Shadow



Journalism Projected - 1st Advanced

Bee Swarm
Bill Stacy
Santa Rosa Photographic Society

Journalism - Projected (cont'd)

Masters Level (22 entries)			
Award	Title	Member	Club
1B	[Seq] Nomads of India	Rajani Ramanathan	Livermore
2	[Seq] Travel during the time of the virus	Steve Disenhof	Marin
3	Mexican Matador Maneuvers Bull at the Portuguese Bloodless Bull Fights, Guistine, Ca April 2008	Jane Postiglione	Contra Costa
4	Window washers in Sydney, Australia must rappel from the new building's roof to reach the window's of the integrated old building below	Mike Hancock	Marin
5	Women of all ages protest against discrimination and injustice at the Women's March, Oakland, January 18, 2020	Eric Ahrendt	Contra Costa
HM	Boots are an alternative to nail-on horseshoes. They allow the hoof to wear more naturally, but they must be put on for each ride.	John Liebenberg	Livermore
HM	MX racing opens after two months shelter in place in Brentwood.	Steve Goodall	Rossmoor
HM	Ofreidy Gomez of the Kansas City Royals tries to steal second base in a game vs the San Francisco Giants. Shortstop Brandon Crawford tries to beat him to it.	Euclides Viegas	Diablo Valley

Best in Competition - Journalism Projected



**Journalism Projected
- 1st Masters**

**Nomads of India
Rajani Ramanathan
Livermore Valley
Camera Club**



Northern California Council of Camera Clubs



N4C

<http://www.n4c.org>

<http://n4c.photoclubservices.com>

PSA

<http://www.psa-photo.org>

Yerba Buena Chapter of PSA

http://www.psa-yerbabuenachapter.org/Home_Page.html

N4C Camera Clubs		
AL	Alameda Photographic Society	https://alameda.photoclubservices.com/default.aspx
BK	Berkeley Camera Club	http://www.berkeleycameraclub.org/
CC	Contra Costa Camera Club	http://contracostacameraclub.org
CT	Chinatown Photographic Society	http://chinatownphoto.org/wordpress/en/
DV	Diablo Valley Camera Club	https://diablovalley.photoclubservices.com
FR	Fremont Photographic Society	http://fremont.photoclubservices.com/
LS	Light & Shadow Camera Club	http://light-and-shadow.org/
LV	Livermore Valley Camera Club	http://livermorevalleycameraclub.com
MR	Marin Photography Club	http://www.marinphotoclub.com/
ML	Millbrae Camera Club	http://www.millbraecameraclub.org/
PE	Peninsula Camera Club	http://www.peninsulacameraclub.com/
PH	Photochrome Camera Club of San Francisco	http://photochrome.org/photochrome_club
RO	Rossmoor Photography Club	http://rossmoorcameraclub.photoclubservices.com/
SC	Santa Clara Camera Club	http://www.sccc-photo.org
SR	Santa Rosa Photographic Society	http://www.santarosaphotographicsociety.org/
VC	Villages Camera Club	https://villages.photoclubservices.com

N4C Officers & Committee Chairs

President	Doug Stinson	Fremont	douglas-stinson@comcast.net
Vice President	Stephen Busch	Contra Costa	22fretz@gmail.com
Treasurer	Jon d'Alessio	Marin	dalessiojon@comcast.net
Secretary	Mark Brueckman	Alameda Photographic Society	markbrueckman@gmail.com
PI Chair	Gene Albright	Berkeley	genea.genea@sbcglobal.net
Print Chair	Joan Field	Contra Costa	joan421@comcast.net
Judges Chair	Joe Hearst	Livermore	joe@jhearst.com
PSA Representative	Joe Hearst	Livermore	joe@jhearst.com
Special Programs Chair	Joan Field	Contra Costa	joan421@comcast.net
Foto FanFare Editor	Vicki Stephens	Livermore	vjs.1194@gmail.com
Webmaster	Stephen Hinchey	Alameda	shinchey@barbary.com

N4C Mission Statement



To promote a spirit of voluntary cooperation among the camera clubs of Northern California. To sustain and increase an interest in the science and art of photography among photographers of said area. To promote social and educational programs for the benefit of member clubs. To create and maintain a representative body which will serve the best interests of all member clubs and groups and attempt to provide workable solutions to their individual and collective problems. To provide services and facilities for the use and benefit of the member clubs.

N4C Calendar

Board Meetings

July at 7:30pm (Zoom Mtg.)

August 10 at 7:30pm (Zoom Mtg.)

Competition Judging Schedule

On/around the 3rd Saturday of each month

PI judging location - contact Gene Albright (genea.genea@sbcglobal.net)

Print judging location - contact Joan Field (joan421@comcast.net)

N4C Inter-club Competition

2020 Competition Year

Month	Club	Print	Print	Print	Print	PI	PI	PI	PI
Jan	Millbrae	P	M	N	C	P	N	C	
Feb	Contra Costa	P	M	T	J	P	T	J	M
Mar	Livermore Valley	P	M	S	J	P	N	C	
Apr	Diablo Valley	P	M	N	C	P	T	J	M
May	Fremont	P	M	T	J	P	N	C	J
Jun	Millbrae	P	M	N	C	P	T	J	M
Jul	Santa Clara	P	M	T	J	P	N	C	M
Aug	Rossmoor	P	M	S	T	P	T	J	M
Sep	Marin	P	M	N	C	P	N	C	T
Oct	Light & Shadow	P	M	T	J	P	T	J	M
Nov	Peninsula	P	M	N	C	P	N	C	M

- Monochrome Projected competitions will be held every month while we hold Zoom meetings.

P = Pictorial

M = Monochrome

N = Nature

T = Travel

C = Creative

J = Journalism

S = Sequence

Go to n4c.org/competitions for more information regarding N4C interclub competitions.

* No competitions scheduled in December.