Luminosity Masking and Exposure Blending

Earlier this year I started to investigate whether Luminosity Masking would provide a better alternative to HDR software when merging differently exposed photographs. For those reading this presentation write up in the future, I know you will be smiling as you won't need to use any of these techniques. You will have cameras which hardly weigh anything and have such high dynamic ranges that the darkest shadows through to the brightest lights can be captured in one exposure.

However for us poor sods trying to take beautiful photographs in 2017 we have to work with cameras which don't even have the dynamic range of the film cameras used in the last century. Fortunately we do have some very good image editing software which allows us to take more than one exposure so that we can collect data for the shadow and the highlight areas and then combine that data to produce the images we aspire to.

Faced with scenes which have a luminosity range greater than our cameras can handle (even the very best available such as the Nikon 850 only have a dynamic range of less than 12 stops see - http://www.photonstophotos.net/Charts/PDR.htm) we have the following options:

1/. We can go back to the film camera era solution and use filters and for many this remains their chosen method. Indeed a whole industry exists to provide expensive coloured glass, resin and plastic for photographers to stick on the ends of their lenses. Whilst filter technology is undoubtedly a feasible method, it does have limitations as the demarcation lines of many scenes are often irregular. Trees for example are best not photographed or mountains with odd slopes. Some of the best photographers I know have paid up to £150 for a single filter.

2/. HDR software is also an established way of dealing with the problem and again there is an industry providing some very good software which will take different exposures and merge them into one enhanced dynamic range image. Photomatrix, Nik and Adobe all have software solutions. One of the best solutions was 32 bit HDR Pro in photoshop, but this is no longer working following the latest software "Upgrades" - not one of Adobe's most popular decisions.

3/. Manual merging of the different exposures has always been an option and with enough time it is possible for this to be a good solution.

4/. Luminosity Masking for blending different exposures is an alternative to the above solutions and in many respects is becoming the preferred choice for a number of reasons:

a/. It is far more flexible than using physical filters.
b/. Far cleaner than using HDR software creating less mush and almost none of the dreaded HDR halos
 c/. It offers considerable artistic licence to the user to create their own image.

Luminosity Masks

Luminosity masks are not Black Magic, they are simply a set of masks which allow for the selection of various areas of and image according to how dark or light they are. They don't need to be purchased - in fact making them yourself isn't a difficult task. However making them is time consuming and you might want to make yourself an action to do the repetitive work. As a simple alternative you are welcome to use the attached SSDG Luminosity Action.

If you want to make your own luminosity mask here is a method statement:

Making your own Luminosity Masks

Open an image into photoshop and then open the Channels palette where you'll see the RGB, Red, Blue and Green channels. Click the RGB channel and then with control (ctr) held down, left click which will bring up marching ants around the brightest areas. Now click the mask button at the bottom of the section (little rectangle with a round dot). This will produce an Alpha 1 channel which is your first luminosity mask. This mask can be further refined by pressing shift, ctr and alt + left click. Click the mask button and Alpha 2 mask will be produced. Continue this process until you have produced Alpha 1 through to Alpha 6. These are called the Bright Masks and can be labelled Bright 1 to Bright 6 by double clicking the name.

Next we need to produce the Dark Luminosity Masks. Click the RGB channel and select all by pressing ctr + A. Next hold down ctr and left click on the RGB channel which will bring up the marching ants around the bright parts of the image. We don't want the bright parts so select the inverse (top menu - Select>inverse) and then click the mask button at the bottom of the panel to make Alpha 7 which is the first of the Darks masks. The Dark masks are refined in the same way that the Brights masks were - press shift, ctr, alt and left click Alpha 7 followed by the mask button which will create alpha 8. Repeat this process until you reach Alpha 12 and then rename Alpha 7 to Alpha 12 as Darks 1 to 6.

As a further refinement it is a good idea to make some mid tone masks these are made by subtracting the Brights and the Darks from the RGB channel. Start by selecting the RGB channel and then select all by pressing ctr + A. Then ctr alt + left click on Brights 1 followed by ctr alt + left click on Darks 1 followed by clicking the mask button at the bottom which will give you Alpha 13 which is the first of your midtone luminosity masks. Repeat this by clicking on RGB followed by select all (ctr + A) then ctr alt + left click on Brights 2 and Darks 2 followed by clicking the mask button (at the bottom) to give you Alpha 14. Continue this process until you reach Alpha 18. You can now rename 13 to 18 as Mids 1 to 6.

If you have managed this you have now created your 18 standard luminosity masks and you will be able to see why setting up an action to make them for you is such a good idea,

Loading the SSDG Luminosity Action.

To load the luminosity action simply open your image into photoshop then click on the top menu Windows>Actions which will bring a drop down menu showing the actions already loaded. Top right of this drop down section is a button which looks like a stack of papers - click that and you'll see an option to Load Actions. Click and go and find where you have saved the action attached to these notes. Select and click load. Now whenever you want the luminosity masks you simply have to run the action. Windows>Actions select action and press the run button at the bottom of the dropdown.

Using Luminosity Masks

The mask can be used to select any part of an image based on brightness. If you want to select the very brightest parts of an image you might use Bright 6 as a mask. To use the mask go to the channel section and left click while holding down the ctr key this will select the mask - return to the layers section and hit ctr J which will give you a layer with just the brightest parts of he image. An adjustment layer can be clipped to this giving you the option to adjust just the brightest parts. Because you have 18 different masks you have quite a choice over which parts of the image you want to select. Don't forget that you can further modify these masks yourself by painting over then with a white or black brush of varying opacity. You can also try different blending modes for your brush (difference blending mode) accentuate the dark or the light areas. However if you do get your head around mask brushes with different blending modes - make some notes and come and give us a talk!

Exposure Blending

We now come to the part where all of the technical blurb starts to have some serious uses - how to use luminosity masks to blend different exposures to give a high dynamic range image.

Method

Open your differently exposed images (typically -2ev 0ev and +2ev) into photoshop. If you have them in raw do just a quick lens correction and a pre-sharpen in Adobe Camera Raw before opening into PS.

Once they are open in PS - select the mid exposure and run the luminosity action - Windows>Action> select SSPS luminosity action and press run. Next copy the lightest exposure onto the that image and finally the darkest image over. The easiest way is to select the image you want to copy press ctr A to select all of it, ctr C to copy it - then select the image you want to add it to and press ctr V to paste it. Do this for the lightest exposure and then have the darkest exposure on top. You will now have all three images stacked on top of each other.

Now you need to consider which parts of the light and darker images you would like to add to the base image. Switch off the dark image (click on the eye). Now switch the light layer on and off and look at which parts enhance your base layer - you now need to choose a luminosity mask which most closely selects the parts you want to add. Go to the channel section and try Darks 3 to start with by pressing ctr + left click to select the mask. Return to the layers and select your light layer. By clicking on the mask button at the bottom the mask will be applied to that layer. Have a look to see if that is what you wanted or choose another mask.

Once you are happy that you have added the parts of the lighter exposure move on to consider which parts of the darker exposure are required - this time use on of the Bright luminosity masks. Go to channels try Brights 3. Ctr left click to select the mast before returning to the layer section. Select the dark exposure and click the mask button which will apply the mask. Remember you can modify these masks with a black or a white brush to fine tune what is shown.

At this point you will probably be looking at a bit of a mess, but be assured this is quite normal. Once you have applied the best masks and ended up with an image where all parts are reasonably exposed you need to start processing it to pull out the image you are looking for.

One method of processing this image is to select all three layers and turn them into a smart object by right click > convert to smart object.

Once you have the smart object use a Camera Raw filter to adjust the image and then take it from there with you usual image processing.

This is a powerful technique which does require practise to start getting good results.

Good Hunting

Alec

Attachments:
SSDG Luminosity action (Zipped).
Image1
Image2
Image3