**Photoshop Focus Stacking**

Some situations in photography require that your entire subject be sharp even when you are very close.

This can be difficult to achieve in-camera because if you’re shooting up-close, you can’t always get a lot of your subject in focus.

Stopping down to a smaller aperture (higher F-stop number) will not necessarily help you get a sharper image.

Enter Photoshop and focus stacking.

Focus stacking is a post-production technique of blending several images with different focus points to create one image that is sharp and in focus throughout the entire subject.

It’s the ultimate way to get the sharpest images for close up photography.

**Why you can’t get razor sharp photos**

Your aperture, focal length and the distance from your subject all impact the sharpness of your image.

Shooting at a higher F-stop number like f/22 won’t help you get sharper images in close up photography because of lens diffraction.

Lens diffraction in a phenomenon of optical physics that occurs in the lens and camera sensor.

When you shoot at f/2.8 or f/4, a lot of light hits your camera sensor directly. At apertures like f/16, the light hits the subject less precisely and causes a loss of sharpness.

It doesn’t matter how good your lens is – your images will be less sharp at apertures of f/16 and higher due to this law of physics.

The more you stop down, the finer details will blur out further.

Lens diffraction tends to be worse in zoom lenses than prime lenses because zooms have several moving parts.

**The depth-of-field problem**

The closer you are to your subject the shallower the depth-of-field.

If you’re shooting small objects like jewellery, or objects that need to fill the frame, you’re usually so close that its entire depth cannot be in focus.

Using a macro lens like a 100mm or 110mm will also give you a shallow depth-of-field.

This is great if you’re doing food photography and want that blurred out background that is sought after in that genre, but for other types of still life, it creates a problem.

**Shooting for focus stacking**

In order to focus stack in Photoshop, you need to shoot in a certain way with certain tools.

First of all, you need a sturdy tripod because your subject must be in exactly the same position from shot to shot in order to be successfully blended later in Photoshop.

If you accidentally bump your tripod, you’ll need to start all over again.

A shutter release is recommended to activate the shutter. Pressing the shutter by hand will introduce a small vibration that can introduce camera shake into the image and cause them to be misaligned in Photoshop.

That being said, Photoshop does a good job with aligning layers that are slightly off.

To shoot for focus stacking, start off by composing your shots and determining your exposure. Ideally you should use manual mode so that your exposure is the same from shot to shot.

* Generally use f5.6 or f8. F11 at a push.
* Choose a point on your subject to focus on and take a shot.
* Focus on a different point on your subject without moving the camera or adjusting any setting
* Choose the next point and take another exposure and so on.
* 3 images will sometimes be enough to cover each area of depth-of-field (e.g. landscapes) but it will vary by image and 8-15 images is not uncommon. The smaller the subject and the closer you are, the more images needed.

**Focus stacking in Photoshop**

To blend the images together in Photoshop, start off by exporting the files into a folder or onto your desktop where you can easily find them. Note jpg or PSD images are easier and faster to handle. RAW files can be stacked but take time and a lot of processing power.

1. Open Photoshop.
2. Go to File and choose Scripts.
3. Select Load Files into Stack.
4. Click Browse and select all the images from where you saved them initially.
5. Check the Box for Attempt to Automatically Align Source Images.
6. Click OK. Each of the images will open as a new layer in Photoshop.
7. Hold down Shift and click on the top layer in the Layers panel to highlight all the layers.
8. Under Edit, select Auto Blend-Layers.
9. Check the box for Stack Images and also for Seamless Tones and Colours. DO NOT check ‘Content Aware.’ (NB Different articles say DO or DO NOT check Content Aware Fill. Try this out for yourself) Click OK.
10. Save the final image.

If you have uploaded a lot of images, flatten the final image by selecting Layer -> Flatten Image -> Save.

**Conclusion**

Focus stacking is necessary for product photography but also very useful for other types of photography such as food photography, insects, close up flowers, still life. If you’re fairly new to Photoshop, don’t be intimidated.

Focus stacking is a lot easier than you might think and you will undoubtedly be pleased with your results. (?!) Not my words. I prefer Focus Stacking takes practise but is worth the effort!