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What is Focus Stacking and when, where and why might you use it?

Fundamentally, focus stacking is the process of extending the range of sharpness (focus) within a photographed scene or subject (like a flower, landscape or an insect)

Probably the most common method of extending the range of focus within a scene or subject is to stop the lens down and use a smaller aperture (lens opening).

Doing this will increase the depth of field and bring more into focus as you get closer to and farther from the lens.

There is a tradeoff however as you stop the lens way down. Due to the laws of physics and optics diffraction will creep in and degrade the image overall.

A generally accepted fact is that most lenses perform best when they are set two stops smaller than their maximum (largest opening) aperture.

So, if there was a way (there is) that you could extend the range of focus/sharpness and maximize the optical performance of your lens(es), then you could achieve superior focus/sharpness over an extended range throughout your subject/scene.

That is exactly what focus stacking allows you to accomplish. It is possible to create extreme depth of field images at large apertures.

There are a variety of methods, techniques and software solutions that make focus stacking possible and even some of the newer cameras can be configured to automatically create the focus "slices" that can later be assembled in software.

Many of those who have heard of focus stacking think it is used primarily for close-up, extreme close-up and macro photography. This is not true.

Focus stacking, while it can very elegantly create stunning images of close-up and/or macro subjects (like flowers and insects), can also be used in landscape and foreground/background compositions.

One consideration that should be factored into creating focus stacked images is that the subject/scene should be static.

Focus stacking software has a very difficult time aligning focused slices where the subject/scene has moved during the slicing process.

Therefore, if you wish to focus stack moving subjects you must somehow immobilize them for the duration of the focus stacking shooting period.

Insects are sometimes frozen or subjected to carbon dioxide gas-which can temporarily suspend animation. Wind blockers, alligator clips, clothes pins, A-clamps and other restraining devices can be helpful with other types of subjects like flowers.

The camera should be on a sturdy tripod and anything you can do to minimize vibration should be done (like locking the mirror up and/or using a cable release)

Stacked images can be processed in/through LightRoom, PhotoShop, Zerene Stacker and Helicon Focus/Remote. There may be other software solutions for this but, at this time, I'm not aware of them.

There are plenty of online training programs on how to use the software mentioned above to create focus stacked images. Some software does a better job than others but that can vary depending on a variety of factors. A certain amount of experimentation and exploration of different processing options would be a good idea.

I've included some examples of focus stacking that I've created that, perhaps, will inspire you to give this technique a try.

■ *Chris Moore*