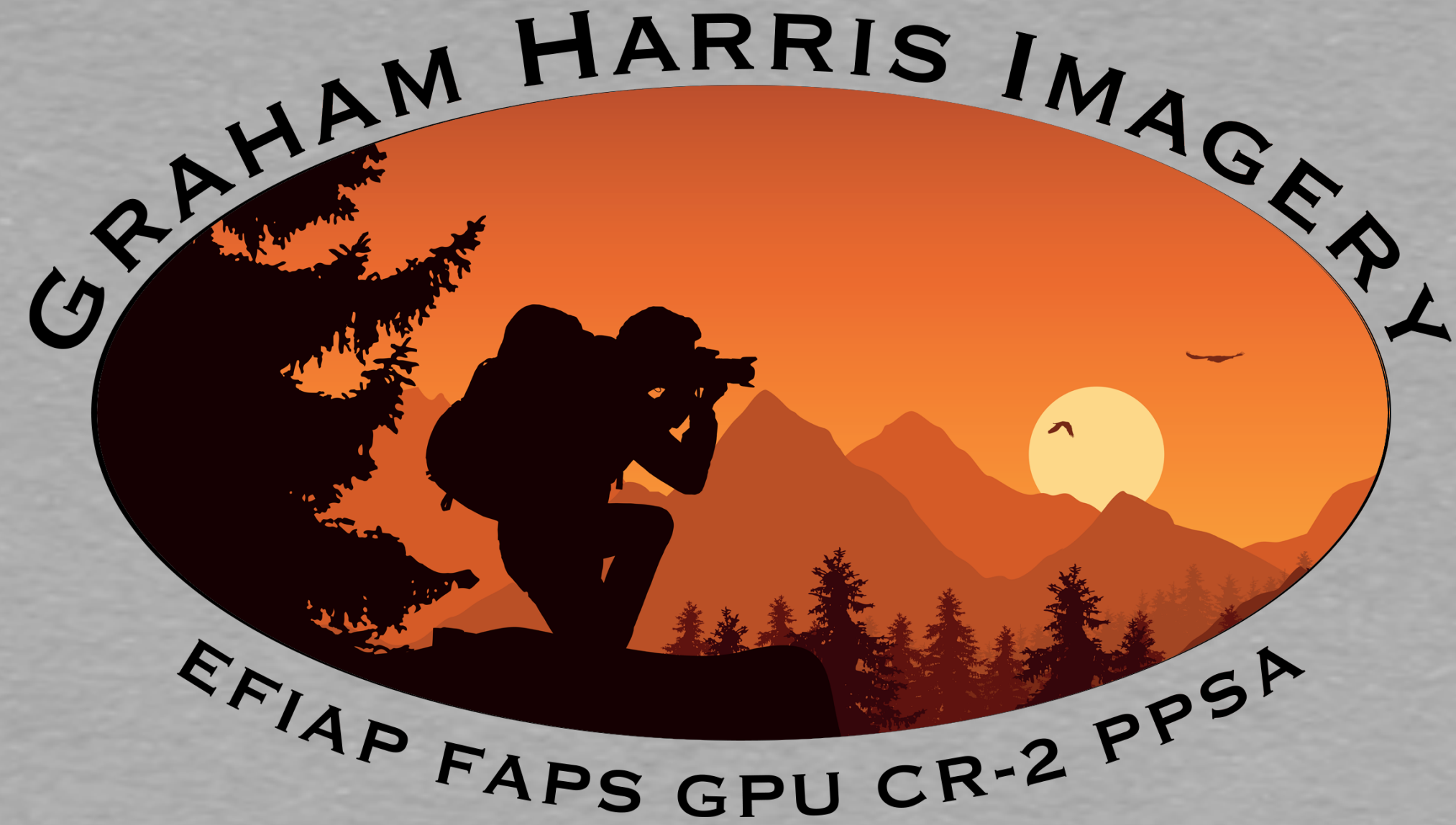


Focus Stacking



The Focus Problem

- Sometimes a photograph benefits from having only the subject in focus against a blurred background, and sometimes the impact is better if everything is sharp - for example in landscape photographs
- But it can be difficult to get everything in focus
- If your foreground is very close to you and the background is far away, this is technically impossible unless you're using tilt-shift lenses.
- The same goes for macro and close-up photography.
- The solution to this is **focus stacking**

Focus Stacking - what is it?

- A focus stack is a combination of images shot at varying focal points that you blend in software.
- It can be used for macro and product images to control which elements are in focus
- It can also be used for landscape scenes where elements close to the camera need to be in sharp focus

Focus stacking - how to do it?

- Shoot with a **tripod** - all your images are going to overlap and blend so framing needs to be exactly the same for each image
- Use **live view** so you can zoom in and focus
- Set the ISO, shutter speed and aperture in **manual mode** so the exposure is kept constant throughout the shoot

- Use **aperture priority** mode - we are trying to get as great a depth of focus as possible for each image
- A larger aperture means a shallower depth of field (a smaller F stop)
- A small aperture means a deeper depth of field (a bigger F stop)
- Lenses do have a sweet spot - generally between F8 and F11 produces the sharpest image (test this for your lens)



Tamron 90mm Macro @ F2.8



Tamron 90mm Macro @ F5.6



Tamron 90mm Macro @ F8



Tamron 90mm Macro @ F11



Tamron 90mm Macro @ F22



Tamron 90mm Macro @ F32



Focus Stacking Demonstration

(6 image stack)

1. Take multiple images adjusting focus from front to back of subject - use a remote shutter release
2. Select the images to be used for the stack in Lightroom
3. Select photo >Edit in >Open a Layers in Photoshop
4. Select all layers (click on top layer - hold down shift and click on bottom layer)
5. Select Edit > Auto-align layers. Leave in Auto mode and then click OK (this corrects any image misalignment)

6. Select all layers and group together (Layer > Group Layers)
7. Make copy of this group (use Ctrl/Cmd+J) - this provides a backup if focus stack doesn't produce the result you want
8. Open the original group and select all layers, then go to Edit > Auto-Blend Layers (make sure the Stack Images button is selected, the Seamless Tones and Colours box is ticked and the Content Aware Fill Transparent Areas not ticked) then click OK.

9. Photoshop will blend the layers using masking to select the sharpest parts of each image and blending them together to produce a photo-stacked image. You can check the masking on each layer by selecting it and using the backslash key ‘\’ key to turn the visibility of the mask on and off.
10. Save back to Lightroom as a focus stacked image - use File > Save As (I choose a TIFF file and save the layers - this makes for a large file size).
11. Make any necessary adjustments in Lightroom to finalise the image.



Second Demo

Using Sigma 18-300mm @ F32



Third Demo

Using Tamron 90mm @ F8, Helicon Focus and Topaz Photo AI

Focus Stacking - is it needed?

- Well that depends!
- For landscape images
 - it is natural for some fall-off in focus with distance
 - with wide-angle lenses this is not usually an issue.
 - completely sharp images from throughout distance could look strange
 - **BUT** if you have a foreground subject that is out of focus then focus stacking may be the solution

- For macro/close-up images:
 - The smaller the subject the shallower the depth of field
 - Focus stacking helps with very small subjects (insect eyes for example)
 - **BUT** with tools like Topaz Photo AI the loss in sharpness with higher F-stops (due to diffraction) is maybe less of an issue - this is lens quality dependent

Give Focus Stacking a Go

- It is an easy technique for stationary subjects
- If you already have access to Photoshop it is easy to process
- The only downside is the time to capture and process these sorts of images

Questions?