

FOCUS STACKING

The definition from Wikipedia reads as follows:

Focus stacking (also known as focal plane merging and z-stacking or focus blending) is a digital image processing technique which combines multiple images taken at different focus distances to give a resulting image with a greater depth of field (DOF) than any of the individual source images.

FOCUS STACKING is accomplished in two steps:

1. First, capture the images. Taking of multiple images can be accomplished manually or by the use of hardware/software to control the camera.

A. Manually, by turning the focus ring of the lens.

B. Manually, by using a focus rail and manually advancing the focus of the camera through the different focal planes.

C. Automatically, using *CamRanger* (<http://camranger.com/>) hardware and software, Helicon Remote, Nikon Wireless Mobile Utility, Nikon Camera Control Pro. I don't know what software is available for the other brands of cameras.

For this program I will be using two automated methods of capturing images.

Things to remember when using the automated systems:

- a. Start with fresh batteries, live view uses a lot of battery power.
- b. Both camera and subject **MUST** be stationary.
- c. Take plenty of pictures, you can always delete the unneeded ones.

The CamRanger system. Focus starts at the nearest point of focus of the subject.

Helicon Remote Software. You need to set the nearest and farthest points of focus.

2. Stack the images.

For this I use *Zerene Stacker*. Images can be stacked in Photoshop or other software, but the Zerene software is much quicker and easier, with added benefits of multiple outputs and live editing.

CombineZP is a free stacking program, for Windows only. It produces output images in JPG, TIF, BMP32bpp, BMP24bpp, GIF, and PNG formats and also produces movies using the captured images.

Focus Projects Professional is a product from a German company. It has several unique features and a trial version is available.

Helicon Focus is another software product for stacking images. I have not tried it.

YOUTUBE is a great source of information on CamRanger, Helicon Remote and FOCUS STACKING software use.

Tools and Prices

Image Capturing:

CamRanger: (<http://camranger.com/>) Hardware is \$300, software for Windows, Mac, iOS and Android is free.

Helicon Remote: (<http://www.heliconsoft.com/heliconsoft-products/helicon-remote/>)

Tethered shooting for Windows, Mac, Android versions (4.0.3+) and iOS. Free download with 30-day trial. \$48 to purchase for Android and iOS. Windows, Mac, iOS and Android version, \$75. The license allows to use the program up to 4 computers + up to 2 Android/iOS devices at the same moment. This is advertised as being able to connect by Wi-Fi to cameras with Wii or an adapter, but my experience with it are not good and it is not “user friendly”, although this may be peculiar to my camera model. Your experience may differ.

Image Processing:

Zerene Stacker: (<http://zerenesystems.com/cms/stacker>), available for Windows, Mac and Linux.

Free trial. Professional Edition, \$289 USD Prosumer Edition, \$189 USD

Personal Edition, \$89 USD Student Edition, \$39 USD

1. Open files: File>Add Files
2. Align and Stack: Align and Stack (both)
3. Save Output Images: File>Save Output Images

CombineZP: (<http://software.informer.com/search/CombineZP>)

1. Add Images: New>Select Images. After files have been added,
2. Perform the stacking: Macro>Do Stack. File may be cropped if desired using Rectangle command.
3. Save finished Image: File>Save Frame/Picture As or Save Rectangle As

Focus Projects Professional: (<https://www.projects-software.com/focus>)

This is a German company and customer support is not very good. Emails from them were in German. Version 2 of the software is currently available for \$69, regular price \$129.

Version 3 is available for \$129. Trial version is free and places an imprint on the image.

1. Add images: File>Add Image Sequence
2. Select Parameters from Menu and hit arrow to continue
3. Save Final Image: File>Save Final Image

Photoshop CS3 and above:

1. Import images as layers: File>Scripts>Load Files Into Stacks
2. Select all layers
3. Auto-align and Auto-merge the images in Edit function.

Helicon Focus: (<http://www.heliconsoft.com/heliconsoft-products/helicon-focus/>), available for Windows and Mac.

Lite version 1 year-\$30 Unlimited \$115 Pro Package 1 year \$55 Unlimited \$200
Premium Package Unlimited \$240