

From Many to One

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A presentation made at PSRI
January 15, 2008

Early Bird Special: Impressionistic effects

- Generally speaking, we do not want movement in still photography, movement of the following is considered a bad omen:
 - Camera
 - Subject
- Any time there is movement, multiple images are recorded, creating “unwanted” artifacts like ghost images, blur, fuzzy images
- For creative purposes we may consider abandoning either or both
- Show examples of movement generated images
 - Train to Washington, moving train, moving camera on purpose
 - G7-Motion, moving camera, slow shutter to record motion
 - Sunflower, wind blown flower, second curtain flash, slow sync
 - This set of techniques produce images with streaks, not a bad result
 - Another type of multiple image photography involves recording multiple images on one frame if the camera allows, or capturing multiple images then combining them to create the finished result
 - Exposing all on a single frame has advantages and disadvantages, once it is done, it is finished. This is both good and bad
- Technique of multiple image recording
 - Set the camera to underexpose each frame
 - Underexposure depends on how many frames will be combined
 - Expose 3-stops under for 8-9 image combinations
 - Hand-hold the camera and shoot 8-10 frames
 - Copy the images to a directory
 - Using Image Stacker from www.tawbaware.com combine them into a single image
 - If you use Photoshop for this purpose, open all the images and Shift-drag each onto one document and change the layer blending mode to lighten or screen

Demo

Cone flower CRW_6087-3-CRW_6095-3

Cone flower CRW_6114-CRW_6121

From Many to One: Panoramic Image Stitching

Panoramic images have great impact partly because they present what the eye normally cannot see at once in a single image that can be viewed in its entirety. Stitching is done for various purposes

- Virtual Reality, immersive 360 degree experience
- Record a wide field normally not recordable without distortion
- Increase the angle of view in macro photography
- Increase the pixel dimension of the captured images so that they can be printed larger

They all involve similar preparation and after capture processing

Setting up for single-row panoramic photography

- Although it can be done using a hand-held camera, a tripod is almost a must
- Level the rotating plane, leveling base
- Mount the camera in portrait orientation
- Level the camera left-right, front-back, shoe mount bubble level
- Position the camera so that the nodal point is on top of the pivot point
- Nodal point and finding it, empirical. Use the finger and rotating the head example
- Set the camera for manual exposure and manual focus
- Carefully consider the exposure, avoid polarizing filters if they produce significant differences across the horizontal coverage
- Starting from the left, expose the first frame
- Carefully pan the camera so that about 20% of the next frame overlaps with the first one
- Repeat for the desired coverage

After capture work

- Make sure that all the frames receive the same processing parameters so that the exposure, contrast, and color will match
- If shooting raw, extract the largest size image
- Organize the output in a dedicated directory for easy management

Software selection

- Although manual stitching is possible it is far too time consuming and the results are not as smooth
- Pick one or a few software and use them for what they do best
- Photoshop, good but not as flexible. If you get good results stick with it
- Panorama Tools, excellent results, multi row possible, free but very abstruse, difficult to use
- PT Assembler, a front end to Panorama Tools, brings ease of use, reasonably priced, still tedious. Excellent results can be obtained.
- PT GUI, front end to Panorama Tools, brings ease of use and GUI alignment, more expensive than PT Assembler, but does more

- Panorama Factory, primarily a single-row panorama software. Although the latest version claims to do multi row panoramas the process is cumbersome. Excellent single row panorama results. My favorite tool and one I will use today
- RealViz, excellent but very pricey software, educational price was \$299, thank you, no!
- Panorama Maker, inexpensive, but somewhat limited software.

I am sure there are others out there that you may know and may be using with good results. If you are happy, that's the software you use.

Using the software stitch the images. There may be a need to correct rotation, uphill or downhill stitches if the rotation was not perfectly horizontal. Do the final cropping, perspective, and rotational corrections in Photoshop. It offers more options.

Demo

- Rockport, tripod mounted DSLR
- Zorn, a two-image stitch, handheld digital camera, Canon G7, bring in two sets of two
- Yeditepe, three-image stitch, handheld Canon SD400
- Ismene, a macro stitch to have macro quality and wider angle

From Many to One: High Dynamic Range Imaging

The difference between the brightest and the darkest part of a scene is the dynamic range. Some refer to it as contrast but since it has other connotations, I prefer the dynamic range in this context.

Our eyes have interesting qualities. They are imperfect in some ways, that allow us for example to watch movies. They cannot focus at the same time to near and far objects (our cameras can which is one of the fundamental characteristics of photography). They can accommodate a great range in lighting and still see the highlights and the shadow detail.

A good slide film will capture 5-6 (1:64 DR) f-stop range, a good negative film, 6-8 (1:256 DR) f-stop range, some good DSLRs may do slightly better, but that's it! On a sunny day outdoors, the lighting DR can easily reach 1:30,000, far beyond any recording medium we have today. High Dynamic Range Imaging (HDR) offers us a tool with which we can capture more than 6-8 f-stop range. Of course, capturing this is one thing and displaying or reproducing it is another. There are no reasonably priced monitors that will display HDR images today. One that is offered carries a price tag in tens of thousands of dollars. So a process that produces HDR images is a two step process. First, combine images exposed at different settings to generate the HDR information, and the second stage is to map this huge range of tones to a range that we can display on a print.

Before there was HDR, there was a Photoshop technique for restoring highlight detail. Let me talk a little about that as it is a simple process that anyone can use.

Highlight Recovery

- Expose two images, once to retain the highlight detail (light) and once to retain shadow detail (dark) using a tripod
- Alternately, if you shoot RAW, develop two images from the RAW file, one that retains the highlight detail (light) and one that retains good mid-tones and shadows (dark), a tripod may or may not be necessary
- Open these two images in Photoshop
- Drag the “dark” image (Ctrl-Shift-Drag) on to the “light” image. They should be aligned
- Turn off the visibility of the “dark” layer by clicking on the “eye” icon
- Target the “light” layer
- Press Shift-Ctrl-Alt-~ (tilde) to select the luminosity of this layer
- Turn on the visibility of the dark layer
- Target the dark layer
- Click on the “Layer Mask” icon at the bottom of the layers palette, it is the white disk
- Presto! You have the highlights from the dark image on top of the light image which shows good mid tones and shadows.

Demo: Recovery, last rays of sun

HDR Photography

HDR photography requires that we photograph the scene multiple times, each time changing the shutter speed to under and over expose the frames from -2 to +2 or even -3 to +3. Since these images will be superimposed and information will be extracted from the combination, perfect registration is a must. Moving objects, windy landscapes pose challenges to HDR at this point in time. But, with careful planning and good use of the available tools some of these may be overcome.

Process

- Tripod mount the camera
- Evaluate the exposure carefully after composing the frame
- Varying the shutter speed (changing the f-stop will change DOF), shoot 5 frames, -2, -1, 0, +1, +2 EV compensation
 - Although you can use one RAW image and extract -2 to +2 exposed images, actually shooting 5 separate frames with different exposures will carry much more information and will yield better results
- If shooting RAW, extract the images without any exposure adjustments and 16-bit TIF or PSD depending on the software is preferred. Photoshop CS3 can actually use the RAW files.
- Bring these 5 images to the HDR software of choice
- Generate the HDR image
- Tone map the HDR to visible range on the monitor
- Save as a 16-bit image
- Do regular Photoshop editing

Demo

Utah, show the frames

- Photomatix is what I use, it also works as a plugin to Photoshop for tone mapping. Photoshop process is difficult to visualize for me.
- Bring the images in
- Generate HDR
- Tone map
- Save image
- Work in Photoshop as needed

Similar result can be had by Highlight Recovery but the result is better with HDR.