

HDR and Photo-Stitching



What is HDR?

High Dynamic Range (HDR) is a method of photography involving the combination of multiple negatives (images) to create a final product which shows the entire lighting spectrum from total bright to total dark.

It's been around since the mid-19th Century, but is gaining popularity recently thanks to easy access to software and digital equipment.

When should you use it? When you see a scene where there are very light and very dark subjects in the same image. Sunsets and sunrises are a common example.

HDR – Why or Why Not?

HDR is one of the most hotly contested techniques in the digital age

Those in favor:

- Tone mapping has been done since photography started
- Technology has always improved photography (color vs b+w)
- HDR is just a technique, you still need to be a good photographer
- It's cool, man!

Those against:

- HDR is often over-used (abused)
- HDR does not represent the scene as it really was
- HDR encourages short-cuts in other aspects of photography
- HDR is not a “single image” and therefore not “real” photography

Bottom line:

- 1) *Know the contest rules if you are entering an HDR image*
- 2) *Don't replace HDR techniques for good basics of photography*

HDR vs Standard Photo



Non-HDR (Matrix Meter)



HDR (Three images stacked)

The above examples show when HDR can really benefit the photographer.

HDR – “Natural vs Cartoonish”

HDR can be used to create very natural scenes or garish “cartoon-like” images. Neither is necessarily “wrong” when used in the right context.



“Natural”
Good tone-mapping



“Un-Natural”
Notice halo around subject

HDR – “When?”

Use HDR when one of the following is true:

- Wide range of lighting (light to dark)
- Extremely “colorful” or “saturated” scene
- When you want to be creative
- You don’t have flash & there are dark shadows
- *Generally*, HDR does not look good on skin tones / people.

HDR “How To”

What do you need?

- 1) Digital Camera
- 2) Shoot with RAW Files (JPEG will work, but not nearly as well)
- 3) Some type of RAW File editor
 - a. Photoshop
 - b. Adobe’s Lightroom - \$149 or \$79 for student / teacher
 - c. Apple’s Aperture - \$119.99
- 4) HDR Software
 - a. Photoshop (CS4+) - Costs vary based on upgrade or “new”
 - b. Nik HDR Efx Pro - Full Nik collection from Google = \$149
 - c. Photomatix - \$119.99 online

Optional (but helpful)

- 1) Tripod
- 2) Remote shutter release

HDR “How To”

HDR Field-Guide

- 1) Start with the basics of Photography – HDR will not make terrible pictures better.
 - a. Composition
 - b. Technique
 - c. Interest

- 2) A tri-pod and remote shutter will help you “slow down” and think about what you are doing. This really helps, especially in the beginning.

- 3) HDR software requires a minimum of 3 source images to “stack”. Five is better.
 - a. Shoot your images 1-stop apart using your shutter speed (not aperture)
 - b. You can do this by “clicking” your shutter speed three clicks up or down (each click is 1/3 of a stop). Use Tv (Shutter Priority, or better yet Manual mode)
 - c. The more source images you make, the tighter your grouping should be (example: 5 images +2, +1, 0, -1, -2 will look nicer than +2, 0, -2)

HDR How To

Final Tips:

- 1) Night HDR is the most difficult – Don't overexpose your images
- 2) Humans are difficult subjects for HDR. They move and their skin is a challenge
- 3) HDR is not a license to shoot directly into the sun
- 4) A tripod will improve your results by 200% (okay, 500%)
- 5) Practice makes perfect, but reading blogs helps a lot too

Suggested Reading:

- 1) **Elia Locardi - Blame the Monkey** (www.blamethemonkey.com)
- 2) Trey Radcliff (www.stuckincustoms.com)
- 3) Digital Photography School – '10 Steps of Every HDR Photographer
(<http://digital-photography-school.com/10-steps-every-hdr-photographer-goes-through>)
- 4) Raymond Larose (<http://www.flickr.com/people/lenscrack/>)
- 5) Jimmy McIntyre (www.hdrone.com) – **HDR One Magazine**

Night HDRs Require Careful Planning

- Don't over saturate more than one or two colors
- Don't over expose lights (especially man-made ones)

Canon 7d
60mm @ f14
ISO 200
Long Exp = 10 sec
5-Shot HDR



Single Image HDR Often Looks Best w. Bald Skies

- Tone Mapping can create banding and halos
- Use one source image with Multiple Layers in CS4 or CS5

Canon 7d
60mm @ f16
1/2 second exp
ISO 200



When “Cartoonish” is Cool

- Sometimes, It’s okay to “over do it”
- Take photos that you like (not what you think others may like)



Canon 7d
35mm @ f14
15 second exp
ISO 200

Questions?

Panoramas & Photo-stitching

How are they made?

- Shooting “panos” requires software to blend multiple images together into one final product.
- “Software” now includes cell-phones. iPhone and Samsung Galaxy are great
- There is actually a “recipe” to follow for best results
- Your computer may hate you before the image is completed

Terms

“Panorama” – A photograph with a width (L - R) is 2x or more longer than its height.

“Vertirama” – A photograph with a height (T – B) is 2x or more taller than its width.

“Photostitching” – combining any number of images together to make one image.

Panoramas & Photostitching

What do you need?

- 1) Digital Camera or a cell phone
- 2) Shoot with RAW Files (JPEG will work, too)
- 3) Some type of RAW File editor
 - a. Photoshop
 - b. Adobe's Lightroom - \$149 or \$79 for student / teacher
 - c. Apple's Aperture - \$119.99
- 4) Stitching Software
 - a. Photoshop (CS4+) - Costs vary based on upgrade or "new"
 - b. Picasa - Free (open source)
 - c. Cell phone software - Free (or small fee on Google Play / iTunes)

Optional (but helpful)

- 1) Tripod
- 2) Remote shutter release

Pano How To

Field-Guide

- 1) Start with the basics of Photography – each source image must have the following:
 - a. Be in focus (soft focus in source images = softer final image)
 - b. Be properly white balanced, exposed correctly, etc
 - c. Do NOT change your depth of field (aperture) during the shoot
 - d. NEVER use a flash or light modifier

- 2) A tri-pod and remote shutter will help you “slow down” and think about what you are doing. This really helps, especially in the beginning.

- 3) ***Panoramas*** are shot with successive (adjacent) images in “portrait”.
Vertiramas are shot with successive (adjacent) images in “landscape”.
 - a. **Overlap images by 1/3 on all sides when photo-stitching**
 - b. Take small “bites” – don’t use a wide-angle lens unless absolutely necessary

- 4) Work from left to right or bottom to top, but always be consistent.
 - a. This will save you time when editing your photos

- 5) Edit all of your source photos in RAW first, then export them as JPGs to one folder. Do your final stitching in JPEG, not RAW – it will save you time and computer headaches.

Assembling Your Panorama

Step 1



Notice the overlap & Portrait Style Images

Edges need trimming & distortion fix

Step 2

Final Image

Step 3



Canon 7d
60mm @ f16
ISO 400
3-Shot HDR
7 columns
1 rows

Other Thoughts

Final Tips:

- 1) If you are shooting an “HDR” Panorama, you will want to wait to merge all of the final HDR images until the end.
- 2) Merging final images into panorama can be done in JPG or RAW – use JPG
- 3) Keep all of your source images until you are 100% happy with the final result
- 4) Get familiar with other PS tools like “straighten”, “warp”, etc.
- 5) Work on any distortion after you are done merging all of your images.
- 6) Don’t take more than 150-170 degrees worth of horizon
- 7) **Don’t use your flash – ever.**
- 8) **Take “small” bites with a longer lens – especially indoors or with intersecting lines**

Suggested Reading:

- 1) PanoGuide (<http://www.panoguide.com/howto/>)
- 2) Photography Blog
([http://www.photographyblog.com/articles/how to take great panorama photos/](http://www.photographyblog.com/articles/how_to_take_great_panorama_photos/))
- 3) Photographing Panos with iOS 6 - http://howto.cnet.com/8301-11310_39-57514235-285/how-to-take-a-panoramic-photo-with-ios-6/

Putting it All Together

If you are doing HDR and Panoramas, follow this work-flow:

- 1) Edit all of our HDR images first
- 2) Export each HDR image in TIFF or JPG format to a folder on your desktop
- 3) Create the pano using the exported (finished) HDR files on your desktop
- 4) Fix distortion / white balance / add borders last

Remember:

** Save your “Draft” panorama prior to trimming borders / fixing distortions **

Putting it All Together



Photo of TV @ 1/200th and f4*

Four separate HDR series
3 shot sequence
+1, 0, -1 Exposure
Use a Tripod (no flash)

Canon 7d
35mm @ f14
7, 15 and 30 second exp
ISO 200

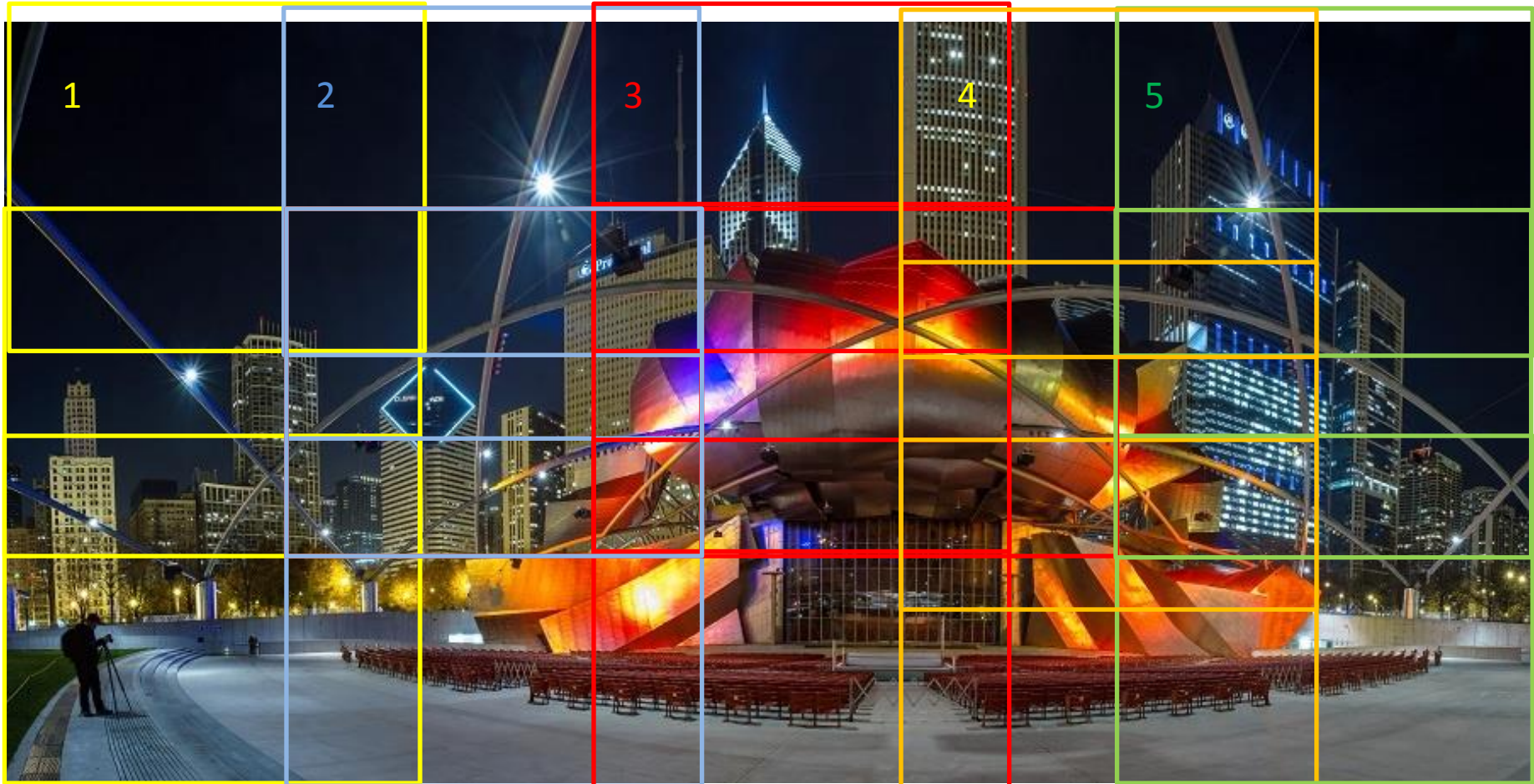
* You may have to use brush tool to “layer” people from master image into final edit.

Going “Big”

For extra-large images, divide your image into “sections” first.

Below image was created from 75 images

(5 “portrait” images wide x 3 tall with each created from 5-stop HDR source images.)



Great Details With High Resolution



Large panos give the viewer incredible detail.

Below image was made from 30 source images (10 columns x 3 rows) shot at 200mm from about ½ mile away.

This is not HDR.

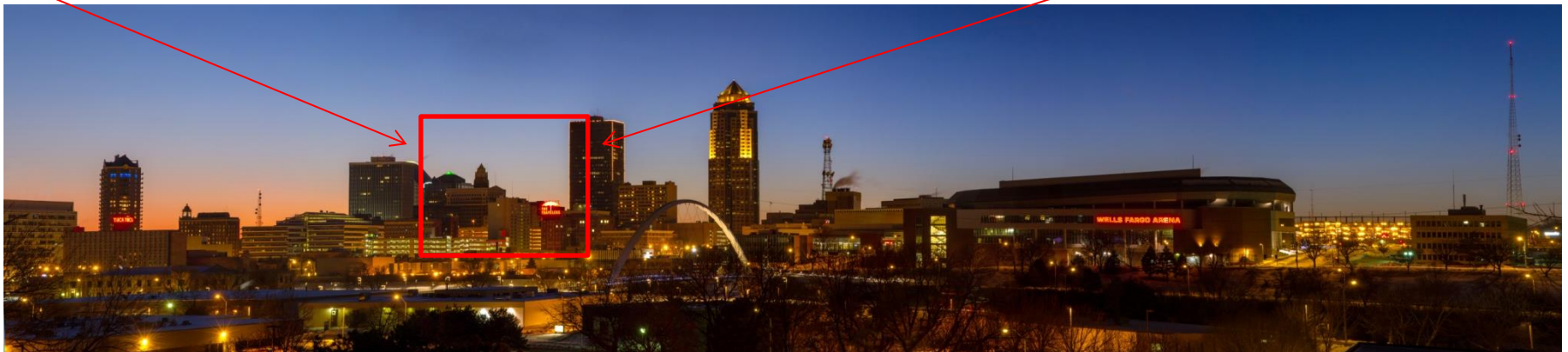


Photo-stitching is a great alternative to expensive lenses

- Fisheye lenses cost \$600+
- Photo-stitching costs nothing but time



Printing Panos

Panoramas make excellent prints.
Unfortunately, you can't just walk into Costco
and get it done.

Check out:

- 1) Perfect Posters -
<http://www.perfectposters.com/> (up to 96")
- 2) White House Custom Color
(<http://www.whcc.com/>)

Upcoming Events

- Iowa State Fair (HDR category)
- Springbrook (N4C Panorama Competition)
- Des Moines Camera Club Members
Jason Mrachina 515.313.7413
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www.flickr.com/w4nd3rl0st

Special Thanks

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