

IAPP

e-MONITOR



STEP BY STEP DIGITAL PANORAMAS - PART II

How to create Panoramas with a digital camera

By Bryan Snow

Last month I discussed a process by which panoramas could be generated digitally by taking several individual images and assembling them into a panoramic image, which would normally be shot with a film-based panoramic camera.

I mentioned that creating a digital panorama involves 4 basic steps: 1) Prepare, 2) Shoot, 3) Stitch, and 4) Process. In that issue I went through the first two steps of Preparing and Shooting and so Part II of this article will examine the remaining steps of 3) Stitching and 4) Processing.

STITCHING

Stitching the individual images together involves specialized software that will take the images you shot and stitch or combine them in such a way that they will form a complete blended image that is the sum of the individual images. There are a number of companies that produce stitching software. Some of

them are free, and some of them can be purchased. I first joined the IAPP for the main purpose of finding out what software was the best for generating digital panoramas. I figured that members of the IAPP would be the experts and I would not have to find the proper software through trial and error. I was told by several members that "Autopano Pro" by KOLOR was what they used and so that's the software I use. Is it the best? To answer that question I would have to try every piece of stitching software available and then make a personal judgement based on all that experience. Since I haven't tried them all I can only say that Autopano Pro works very well for me and has done exactly what I have asked it to do, without failure. And since I prefaced last month's article by saying that I can only tell you what has worked for me I will continue this month with that caveat.

I will also tell you now that, once I find a piece of software that I like, I will not change

or update that software until it can no longer do what I ask it to. KOLOR has out now an updated version of Autopano Pro as well as a more extensive software package called Autopano Giga. Probably after the first of the year I will move to the later but, for now, my old version of Autopano Pro does everything I want a stitching package to do. (<http://www.autopano.net/en/>)

Once you have the individual overlapping images that are to make up your panorama you are ready to let the stitching software do its thing. You can begin by examining the PREFERENCES under the "AutopanoPro" Menu. Here you can make decisions on the software's ability to decide on Detection - How it examines the overlap between images; Optimization - strong algorithms (slow for big panoramas), lens distortion adjustments; Color Correction; File Naming and Quality; and a variety of other choices. You can let the software decide for you or, as you develop experience, you can make these decisions for yourself.

With Autopano Pro I click on "Select Images" and a Finder Menu comes up. I select the folder where my images reside, choose the individual images, and click "Open". The images appear on the screen on the left side of the program and the words "Detection in Progress" appears.

Note: you can drop your entire folder of images from a particular shoot into Autopano Pro and go get a cup of coffee or an alcoholic beverage if you are so inclined and come back later. In a while, Autopano Pro will have taken all the images in your folder and created basic stitched pre-panoramas for you, so you are not limited to inputting only one set of panoramic images at a time.

The software has now given you a preview of what your stitched images will look like once they are processed into a panorama. If you like what you see you must now RENDER the pre-panorama image into the actual blended, corrected pan.

In my early days of stitching panoramas some of the early stitching programs took forever to render a pan. I would set up the im-

ages and tell it to RENDER and go to bed. There were times when it would still be rendering when I got up. Today, Autopano Pro generates the panorama, blends, and color-corrects the final image in seconds or just a few minutes for larger panoramas.

To examine all the features of panoramic stitching software would be more appropriate in a REVIEW article, with will be done in a future issue of the e-Monitor.

PROCESSING

Once the panorama is finished being stitched together it is time to treat it as any other digital image you have shot. I save all my rendered panoramas as TIFFs. In this way I don't have to worry about losing data while saving the file as the processing continues.

From personal preferences I value detail above all else in my panoramas. I would rather shoot three rows of 9 individual images with a 300 mm telephoto than one row of three images with a 100 mm lens. Noise reduction and contrast plays an important role in maximizing detail when I process my large image.

Likewise, my eyes have a color deficiency; what some would call Red/Green Color Blindness. Which means I see color, but not like the majority of people. For me to see a colorful landscape similar to the way everyone else sees it I have to boost the color intensity up higher than normal. That means I have the choice of making my panoramas look rather dull (to me) so that it will look normal to everyone else, or make them over-saturated (to normal people) so they look appropriate to me. I usually end up with an image that is somewhere in-between. I see that as my "style", and if others don't care for it, well, I'll print out a "dull" print for them.

However you process your normal images will be the same way you will process your stitched-together panoramic image. The only difference you will notice will be the panoramic image will be much larger and will take longer for all the processing modifications to take effect. But, in the end, you will have a magnificent panoramic photo that will dominate any wall you hang it on.

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REVIEW: STAR ISLAND AND BEYOND

By David H. Orbock

A few years ago I had attended an outing/workshop on Star Island which is located 7 miles off the coast of New Hampshire. I took bushels of images during the outing and some even turned out pretty good. In fact, I lent 7 framed pans to the Star Island Coop and was pleased to see them all hanging in the main building on the island. I enjoyed my earlier visit so much that I jumped at the chance to revisit the island this past September. The 3 day adventure (from 9 Sept to 12 Sept) was arranged by the New Hampshire Society of Photographic Artists (NHSPA) and specifically by Peter Randall, who is also a long time member of IAPP. While we had advertised this outing in the IAPP Journal and on our web site, myself along with Peter, were the only two takers.

I started out from my home in Baltimore on the afternoon of 7 Sept in my 1989 Camry station wagon, which had not failed me for over 250k miles, with a cooler, extra clothing, tent, sleeping bag and, of course, my photo gear. Other than a stop for gas (I averaged 39.3 mpg on the entire trip), my first stop was the I-84 Diner in New York. Since I take many diner images, I wasn't going to miss this opportunity. In fact, I will usually go out of my way to photograph a diner and will usually end up eating there too, if it's around meal

time. I didn't check in to a motel the first night since I would be driving most of it; I figured the Interstate rest stop would do.

The next morning I stopped in Worcester to photograph Union Station and then headed up I-95 to Portsmouth and Concord. Both cities are very photogenic, although Portsmouth seems to be more vibrant with its many small stores and lots of shoppers or lookers.

After a full day of photographing, I spent my second night at a campground (above) between Concord and Portsmouth. Supper wasn't much but I did have a hot shower and a really good night sleep. Nine September saw me packing up my gear and heading back into Portsmouth for more sightseeing until it was time to board the boat for Star Island. Some time ago I started to photograph various subjects including diners, Ferris wheels, workmen/construction, carousels, barber shops (with me getting a hair cut),



Punch holes here



Portsmouth Workmen

state capitols, and national parks. While walking around Portsmouth I had numerous opportunities to photograph workmen engaged in repairing the town streets. They naturally were curious as to why I was taking their picture and what was that instrument I was using. Instead of explaining the panoramic process, I have found that showing a panoramic image does a better job and that then presenting the image to them quickly makes friends.

The three days on Star with our group of 16 photographers were really enjoyable. Over

ceived a contact pan of their choosing. Of course, no group outing would be complete without taking a panoramic photograph – soooo – after explaining how one gets into a photo multiple times, we started the camera rolling – for all 5 feet of film. It's remarkable how 16 grown children can completely fill the complete roll by constantly running around in circles.

Following our trip back to Portsmouth, I took off for Montreal and a further week of panoramic photography. The night of 12 Sept was spent at the Foothills Family Campground in



Leaving Star Island

the 3 days each photographer presented examples of their present work which included a project in retaking images made in the late 1800s – some with groups of people. One image was made on Star Island and with careful observation the exact spot was located. The shot was then duplicated after positioning the members of our group in between the positions of the people in the historic image. The two images were then merged to create a single photo of the past and present including the long deceased subjects.

In another project the group assembled a darkroom and experimented with pin hole photography using positive printing paper in place of film.

I presented a talk (history and recent developments) on panoramic photography and showed examples of my recent work. To reward the group for their patience, each re-

Tamworth, NH. Setting a tent up at night isn't easy but with a some illumination from the headlights the task was accomplished without too much aggravation.

On 13 Sept I traversed NH on the Kamcamagus Hwy and stopped to photograph the Swift River at the Lower Falls. I also stopped at North Woodstock and bought some maple syrup at Fadden's General Store.

Stopping at Manchester, VT I had lunch at the Red Arrow Diner which, I was told, is the best diner within 100 miles. Setting my camera on the counter allowed me to take numerous pans of the interior even though some of the customers were blurred. The outside images were much easier to record. Walking around town produced pans of workmen and more questions on why the photographs. Additional images were made in Montpelier,



Faddens General store interior

Punch holes here

Wells River, Barre, and Burlington where I found Henry's Diner.

When I entered Canada it was dark, so I stayed at the first motel (Belle River) I came to. The exchange rate used to be favorable; lately, however, it is very close to even. Morning saw me making my way to Montreal which was very much alive with cars, trucks and pedestrians, I proceeded to find a parking place, grab my gear and walk. Toward mid afternoon I left Montreal and continued to Ottawa.

Canada's capital, is a panoramic photographer's dream. With many parks, Parliament Hill and a winding river, one has no trouble finding truly gorgeous scenes. After walking around the parliament complex half a dozen

Wanting to set my tent up in semi daylight, I left the capital and headed for a provincial park. One nice thing about camping after Labor Day is you generally have the camp ground to yourself or with a few other hardy souls.

Over the next few days I visited Hawksbury, Merrickville, Smith Falls, Perth, Madoc, Marmora and a few towns in between. I had breakfast in Marmora (Odd Cup Cafe) and couldn't believe the price of \$4.50 for coffee, ham & eggs (2), toast and lots of home fries. The food was really good too. Since I was the only person there, the waitress and I discussed various topics of mutual interest without disagreement.



Ottawa Ontario

times and stopping frequently to gaze at the surrounding landscape, I made my way back to where I thought I parked my car. After a few miscues and even more inquiries, I found Old Reliable just where I left it.

After leaving Canada I stopped in Toledo and Cleveland. Downtown parking in Toledo was only \$2.50 to \$4.00 for the whole day; a good example of supply and demand. Cleveland, on the other hand, was bustling with ac-



Ronnie and Ernie in Youngstown

tivity. I particularly enjoyed the area around the Naval Memorial and East 4th street with the guitar combo and outdoor restaurants. I spent an hour talking to a visitor (during happy hour) who was interested in panoramic photographs and, as usual, presented him with a pan print. Passing another diner in Oregon, OH. I stopped to take a pan and while I was setting up, the owners came out and wondered why the photo. After I explained they willingly posed while I took their photo.

I detoured through Warren, OH to rephotograph an early 1900s panoramic image of the town square. Youngstown was, in a way, like Toledo. Kinda quiet, however I did meet Ronnie and Greg with whom I spent a long time discussing recent events. Later I spied peel-

ing paint along the main avenue and was delighted with the results. On the way out of town I stopped at another diner (The Emerald Diner) in Hubbard, OH.

I headed for I-80 which would take me across northern PA and then down along the Susquehanna to Hershey where I would spend the night at my farm before going back to Baltimore.

After leaving the farm the next morning, I had breakfast at – you guessed it – another diner. This time it was in Highspire, PA, which is next to my childhood home in Steelton, PA. After eating and photographing the diner inside and out, I drove to Steelton and visited with a few friends. I then photographed the house I grew up in, talked with one of my former neighbors and headed for Baltimore.

Punch holes here



High Point Diner, interior

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TIPS & TECHNIQUES

USING A MONOPOD TO SHOOT PANOS

Panoramic equipment doesn't have to be big or heavy.

By Jack Harwick

Before I try and defend this slightly outrageous statement, you should know that I'm a 73 year old traveler to 100+ countries. For many years I hauled a fifty pound medium format film kit around the world. Weight is now very important to me. I was also an aerospace engineer, but not the mathematical/theoretical type of engineer. Most of my designs have the "build something, test it till fails, and then build a better one" style of engineering, otherwise known as trial and error. I have spent the last two years perfecting my pano kit, and I now feel that it works quite well and I would like to share what I did and how it functions.

While I'm a comparative new comer to panoramas, I have been an active amateur photographer for sixty years. In Jr. High School I was the staff photographer for the school paper and taught darkroom technique in the graphic arts class, as a teacher's aide. During most of

those sixty years I have owned one or more tripods, but I must confess that they spent most of the time in a closet, because I felt that they were more trouble than they were worth. My interest in Panoramic and HDR photos started less than three years ago when I got the latest thing in tripods. While I can marvel at the engineering that went into it, I still hate to carry it.

Similarly I looked at the pano heads that were on the market, and to me they mostly looked like something that a Hollywood prop man would come up with for a Sci-Fi movie. If point and shoot cameras could capture panoramas hand held, there had to be a simpler way. Being familiar with the physics of parallax error, it wasn't that I didn't understand the problem, but I was challenging the assumptions of the existing "experts". As to just



4 OZ PanoFix Pano

how much error does it take to ruin a given photo? At this point I started to build what I call the 98% solution and set up a test program to see if it were good enough. That first head weighed only 3.5 ounces! You have some of the results on the accompanying pages. What do you think?

With another year of building and testing the current unit now weighs 4 ounces, but that includes an Arca Swiss Compatible quick disconnect, so the total system weight has come down, and the head now fits all bridge and SLR cameras from 3.5 to 8 inches long, if they don't have a vertical battery pack. I call my creation the PanoFix.

While I was working on the PanoFix design, I started experimenting with shooting on a monopod and tried several different designs and interfaces.

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Some worked better than others, and while it was totally possible to take good photos with nothing more than the Panofix mounted directly onto the monopod the technique was a bit clumsy. I had to rotate the entire Monopod, while trying to keep it level and hold it steady. It is possible, but not very practical. I finally found a Benro quick disconnect unit that fits directly on top of my Velbon carbon fiber monopod. The Benro unit has a silky smooth (fluid type) bearing and a locking knob so that now I can hold the pod with one hand and rotate the camera with the other. The camera and mounted Panofix just slips into the Arca style jaws and locks in a second.

My Olympus E 30 camera has two level indicators on the LCD panel that tilts and swivels



4 pound complete Pano Kit

so I'm watching that as I'm shooting. My kit wouldn't be practical for taking giga pixel photos, or for using on a very large pro camera with vertical battery pack. However, it is my

hope that this new approach will open the world of panoramic photos to a new and much larger group who might have been scared off by yesterday's panorama equipment.

My ex wife was a real estate broker, and I was appalled at the quality of photos that were being used to sell expensive homes. Most real estate persons aren't trained photographers. They are oriented toward people, not machines. However my system is so simple that I have had success teaching non photographers to take architectural interior shots that pass as professional. I'm sure most of you would agree that architectural interiors are one of the very most difficult panoramas





Iron Horse Pano

we have to deal with because of the variable lighting, straight lines, and close objects. So, hopefully I have proved that a simple four pound kit can take reasonably good panoramas with a total kit costing under \$1000.

I have come to believe that there is such a thing as the psychology of photographs. When we look at a normal photo, on some level, we feel that something is missing. Most photos have a horizontal field of view of less than ninety degrees, while our eyes naturally see a field of view more like 180 degrees with 120 being useful and the re-

mainder for motion detection. A pano of more the 180 can produce a vaguely uncomfortable feeling that “something isn’t right”. I have also heard of people watching virtual reality video of homes and getting nauseous and sick. As a result, I try to keep my photos in the 120-180 degree range, and one pass of 3 to 5 bracketed exposures with a wide angle lens seems to cover just about everything I need or want.

While I own pt Gui and Auto-pano, and other stitching software, most of my work is for web sites so I often use Serif Panorama Plus, which is the

free software that comes with the PanoFix, and I prefer its natural intuitive operation. Again, it is not suitable for gigapixel photos, but there is something to be said for keeping things simple and free is always good.

I’m currently redesigning the monopod interface and next year my kit will be well under 4 pounds. If this was a presentation to my local camera club, this is the point where I would call for questions. So here is my email address, if anyone would like to discuss this.

Jharwick@panofix.com

TIPS & TECHNIQUES

Cold Weather Shooting

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Cue the crickets...

This was the article that had been planned since October. I asked the IAPP membership to take a few minutes to send a couple of sentences or a paragraph describing their own cold-weather tips for inclusion in the December Issue. I requested this information in the October Issue and again in the November Issue but not a single tip came in. So, as promised, I am including all the tips that I received. - Editor

IAPP/IMAGING USA IN SAN ANTONIO

January 16-18, 2011 are the dates to mark on your calendar. The Professional Photographers of America's **Imaging USA** takes place on those dates. The location this year is in one of the most picturesque cities in America, and one of the most comfortable in January - San Antonio, Texas.

Along with the PPA's conference there will also be the Society of Sport and Event Photographers, the Evidence Photographers International Council, and the Stock Artists Alliance to offer something for everyone who is into Photography.

Of course, the International Association of Panoramic Photographers will not be having their conference there at that time but we will be represented by many IAPP members manning our organization's booth for the duration of the conference. We will be showing the photographers of the world what Panoramic Photography is all about.

If you were planning on coming to **Imaging USA** please stop by our booth and say "hello". You can find more information by going to:

<http://imagingusa.org/>

IAPP e-MONITOR

The monitor on the rear of a digital camera is a device we use to quickly examine information about our photos. The IAPP e-Monitor was designed to give our membership a quick look at what is going on with the IAPP and with panoramic photography in general. It was originated to give our membership quicker information while they await the release of the PANORAMA.

We welcome any and all articles and photos from IAPP members for inclusion into the IAPP e-Monitor. This is a publication for the IAPP, by the IAPP, and about the IAPP.

IAPP

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Coming Next Month!

Feature:

Out-of-this-World Panoramas

Interview:

Widelimages.com Photographer -
David Lawrence

Tips & Techniques:

A \$3,000 Camera Stand

How to Submit Articles to the e-Monitor

This is your organization. And your newsletter. If the subject matter isn't what you want to read about, then send in the perfect (to you) article. If the organization is making a turn that you do not agree with, step in. We welcome all volunteers.

Email (to bryan@snowprophoto.com) your article as a document, with notations within your article where you want your photographs to appear. Please do not place your photographs within your document as this will compress the images too much. Please send them as separate files: tifs or jpegs; 300 dpi and not larger than 7 inches on the long side.