Digital Choices

Most choices we make in life are trade-offs. The field of optical engineering is fundamentally the practice of taking information received from training and experience in optics and using it to decide which set of trade-offs will produce the best system. The process has been encapsulated by the slogan tacked on an engineer's wall that says: "Fast, cheap, or good. Pick two." Anyone who decides to buy a new digital camera faces a similar dilemma.

After I took some pictures of some plant blight outside in the garden, I stuffed my Casio camera in a pocket and continued to work. When I went in the house to change out of my gardening clothes I found that the LCD screen on the camera was broken. Its picture-taking capability was intact. I just couldn't set the camera or view the results. I continued to use it while I searched the Web for my next great camera.

One of the items at the top of my wish list was an increased zoom. During our trip to Australia and New Zealand there were times when I wished I had the Nikon that our tour director used. The 10X zoom lens permitted him to take some close-ups of animals in an ecological park that my camera could not record in much detail. When it came time to assemble images for that part of the tour, I asked for permission to use his work. They were that much better.

My other problem, even with a 3X zoom camera, was that at maximum zoom the images could be slightly blurred due to hand motion. Still, they were not as bad as pictures that I've seen others take using the LCD screen on the back of camera to determine the shot. It drives me crazy! Taking pictures while holding a camera at arm's length is a sure way of collecting a series of blurred pictures in anything less that full sunlight. To my mind there is a place in Engineering Hades for camera designers that do not put an eyepiece on the camera so the user can rest it against a stable platform, his head. The only thing more diabolical is the digital zoom—truly an instrument of the devil. It takes a marketing expert to describe the elimination of useful information as a feature of a camera.

As I continued to shoot blind with my cracked camera I searched the Web looking for a 10X zoom camera that would meet my needs. There are a number of sites that provide side-by-side comparisons with other cameras. They usually feature uncorrected images taken by the cameras so that you can judge for yourself. One of the features I had not been aware of until I began to search is that many of the high-zoom cameras have image stabilization. The camera contains a single moveable element within the lens train that adjusts to maintain a sharp image on the CCD. This feature is an outgrowth of the stabilization systems that have been developed for video cameras.

After much searching and comparison I chose, not a Canon or Olympus, but a 5 MP Panasonic camera with a 12X zoom and image stabilization. This decision was arrived at through reading reviews of cameras on the Web and looking at the images. One of the trade-offs that I had to make was that the increase in zoom capability gave me an instrument with reduced portability. There is no way that I can put this camera in my pocket. It is much heavier and a nuisance to lug around. However, except for a quality control problem (loose solder joint that required a return for factory repair) it performs admirably.

When I travel I tend to take more than a hundred shots a day, then offload the images to a laptop so I can clear the memory. This practice is driven by an instinct for reporting and my need to capture interesting images that comes from a love of graphic design. Once I have sorted and selected the best images, I run them all through Photoshop. I do this because the reporter part of me doesn't like to miss details. So I shoot one whole f-stop higher intentionally underexposing all the shots. This is done because instead of bracketing my shots, I reset the correct levels within Photoshop. If there are strong highlights in the image, the details would be lost in a "correctly" exposed image because of CCD saturation. Using this technique I can hold or retrieve more image detail. By far the most useful image adjustment available to the digital photographer in Photoshop is the Shadow/Highlight feature. I also use the program to remove distracting details such as TV antennas and power lines from shots and to combine several photos in a panorama that can't be captured in a single shot.

Once the images have been "Photoshopped," I post them on my Web page (http:homepage.mac.com/donoshea). Then I select a subset of these and upload them to Apple to generate a permanent photo album of our explorations. In the end my trade-offs have resulted in a digital camera that allows me to capture the sights in our travels and play with the images to produce a satisfying composition. I am sure that you have your own set of trade-offs to be made and will end up with a different choice.

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