Start your images spinning with QuickTime VR Object photography.

My last article on panoramic photography published in the May issue of this magazine talked about Apple's QTVR technology that was introduced in 1994 and which defined two new kinds of computer images: QTVR Panoramas and QTVR Objects. As promised in that article, this article will talk about QTVR Objects.

The QTVR panoramas that were covered in my last article are easy to understand because they have a traditional photography equivalent. We can view hard-copy prints made of flattened versions of QTVR panoramas without a computer because they are really just super-wide angle images.

On the other hand QTVR objects don't really have a traditional photography equivalent. They consist of different views of an object shot at even steps around the object's center point and are like frames in a movie which let you view a three-dimensional object, such as a statue or an antique vase, from a variety of angles.

Such QTVR Objects can be very useful if you are trying to sell items you own on one of the Internet's many auction sites. Because you can rotate, pan, zoom and create linked hotspots on these QTVR objects they are also idea for creating interactive advertising or entertainment presentations. You can also capture animated sequences of the moving parts of your products making them also ideal for virtual manuals and training applications.

Object images can be simple, single row objects that simply let you rotate an object as if you were walking around it or can be multi-row objects that let you "pick up" an item and then rotate it to view all sides and top and bottom.

Creating multi-row objects require expensive computer software like Apple' QTVR Authoring Studio. You also need fairly complicated hardware, called an object rig, that holds the item being photographed as the camera moves to all the possible viewpoints you want captured - all while keeping everything properly aligned.

Single row objects can be made with less expensive software and an inexpensive lazy-susan turntable.

After Apple released the QTVR object format, several software developers introduced low-cost applications for creating QTVR

objects. Sadly, as a result of mergers and corporate acquisitions, none of those software developers or their excellent object creation programs still exist. Apple's QTVR Authoring Studio is still available, but it's limited to Macintosh computers that can run pre-OS X operating systems. Happily, long time QTVR technology supplier Kaidan has introduced a new, low-cost application for creating QTVR objects – PiXiMation.

PiXiMation easily creates rotational object movies. You can use your hand to manually spin objects on any free-spinning turntable such as a lazy-susan or use inexpensive motor-driven or even wind-up turntables. It works with the Apple iSight camera as well as other video cameras and camcorders and uses advanced image processing techniques to automatically extract the required equally spaced frames. It saves the frames as sequenced image stills or QuickTime VR object movies in minutes.

Presently PiXiMation requires a FireWire-equipped Macintosh computer with OS X 10.2 or later, but a Windows version is promised shortly. PiXiMation is $99.95US and can be purchased by download at http://www.kaidan.com/piximation/index.html. You can view sample objects at http://www.kaidan.com/products/

PiXiMation-gallery.htm

If you have an Apple iSight Video Camera, Kaidan also offers an accessory kit that will help you work with PiXiMation. The kit includes a 37mm threaded lens adapter ring/lens shade, a tripod 1/4-20" mounting adapter and a small desktop tripod with extendable legs.

If you decide you want to get involved in QTVR object photography, once you decide on your tools – in this case digital camera, turntable and computer software – you'll have plenty of chances to exercise you photographic composition and lighting skills.

Although it's not necessary, it is best to use a backdrop when photographing objects. Dark colors are great for light subjects and light color should be used with dark subjects. If you really want your finished object to appear to float in space, you might want to consider a uniform color background so you can use a "green-screen" technique to remove the background entirely.

Don't neglect the importance of lighting. Typically, use two lights in front (one on either side) and a third light for the backdrop. Good backdrop lighting is especially important if you intend to use a green-screen approach. Be sure to

rotate the object you are photographing to evaluate the lighting in all the positions of the item. Sometimes an objectionable shadow will sneak up on you.

Figure 1 is the starting image in a sequence of shots of an elephant carving and was taken with an Olympus C-2020Z digital camera. I made 18 pencil marks, each 20 degrees apart, on a circle of paper covering a lazy-susan. The marks are very light so they don't show in the photos. I rotated the lazy-susan by hand using the marks as guides and shot 18 images of the carving as shown in Figure 2. I then used Apple's QTVR Authoring Studio to create a quick VR Object from these images. After looking at the trial object movie, I decided I wanted the final QTVR object of the carving to appear to float on the background. I used the Color Range command in Adobe's Photoshop to select and remove the background and ended with the 18 photos shown in Figure 3. At this point, I could have inserted a new background had I wanted.

Figure 4 shows the Apple QTVR Authoring Studio object maker user interface. I don't have the equipment to shoot multiple rows of images to create full three-dimensional views of an object so the source image setting just shows 1 Row and 18 Columns. Figure 5

shows the final QTVR Object in the Apple QuickTime player window. As I've mentioned before, there are free Apple QuickTime Players for both Macintosh and Windows operating system computers. Clicking and moving the hand rotates the object in the window.

The QTVR approach is required to display full three-dimensional objects that you can "pick-up" and rotate. If you want to use single row VR objects on the web, a simpler approach that doesn't require the QuickTime player is to use animated GIFs. An animated GIF image combines the same multiple images used to create a QTVR object into a single GIF file. GIF animation doesn't offer the same level of control and flexibility as the QTVR object formats but it has become extremely popular because nearly all Web browsers support it. Animated GIFs simply automatically rotate.

Most commercial digital imaging applications like Adobe's Photoshop Elements and Photoshop include the ability to creating animated GIFs.

I imported the 18 images shown in Figure 3 into Adobe's ImageReady that comes with Photoshop. ImageReady is designed to work with images that are to be used on the web and includes full support

for animated GIFs. Figure 6 shows the 18 individual frames that make up the animated GIF in ImageReady's user interface. Like other applications for working with animated GIFs, ImageReady lets you set the individual display time for each frame, measured in fractions of a second. In addition, an animated GIF can be set to loop through the image sequence once, infinitely, or somewhere in between.

A traditional disadvantage of using GIF files is that the GIF file format was developed in the days when most computer monitors could only display 256 colors (8-bit color) and so GIF files can contain a maximum of 256 colors instead of the 16.8 million colors we have come to expect with today's 24-bit color systems. (As you will see, we really don't need 16.8 million colors and many times just the right 256 will do a pretty good job of representing the subject.)

Rather than just use the old fixed 8-bit 256 color pallet, ImageReady will select a custom pallet of the most representative 256 colors in the image. Figure 7 shows the optimized ImageReady created animated GIF.

If you have a Macintosh computer, GifBuilder by Yves Piguet is a freeware utility for creating ani-

mated GIF files. It can input an existing animated GIF or a sequence of image files and can be found at http://mac.org/graphics/gifbuilder/. GifBuilder has a very simple user interface shown in Figure 8. As with ImageReady, you can set the time per frame and loop parameters you want. GifBuilder is an old application and creates animated GIFs with the fixed 8-bit 256 color pallet. You can easily see that Figure 9, the animated GIF created by GifBuilder, doesn't have the smooth color rendition of Figure 7 made with ImageReady's adaptive color pallet.

A good, low-cost commercial program for the Windows platform is Ulead's GIF Animator 5. It can be purchased at http://www.ulead.com/ga/runme.htm.

Once you start working with animated GIFs, you will discover they have many other web uses for things like banners and titles.

Figure 10 shows the Kaidan PiXiMation user interface. You select your camera, set the resolution and compression, press the record button and then slowly rotate the object being photographed. PiXiMation does the rest. It's an easy way to create QTVR objects. Although PiXiMation

doesn't create animated GIFs directly, it will export the image sequence needed to create animated GIFS in another application. Be sure to check Kaidan's web site (www.kaidan.com) for more information about QTVR object photography.

VR Toolbox offers programs for creating both QTVR panoramas and objects with both Macintosh and Windows XP operating systems. Their website at http://www.vrtoolbox.com offers program demos that have all the features of the full-working versions, except the capability to save the project file and export a QTVR movie.

Have fun and start your images spinning!

Figures:

Figure 1. Set up – elephant carving on turntable.
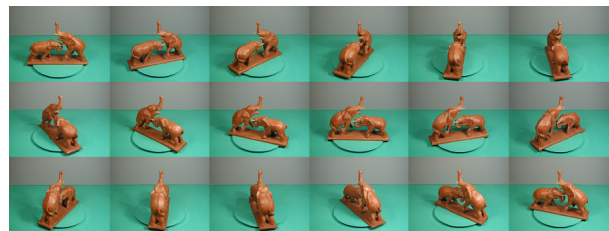
Figure 2. Sequence of 18 images taken with Olympus C-2020Z.

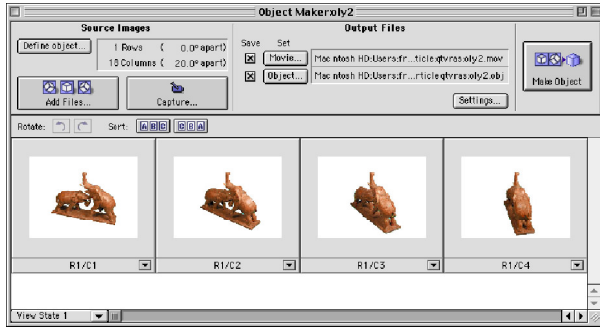Figure 3. 18 images with background dropped out with Photoshop.

Figure 4. Apple QTVR Authoring Studio Object Maker user interface.

Figure 5. QTVR object in QuickTime Player.

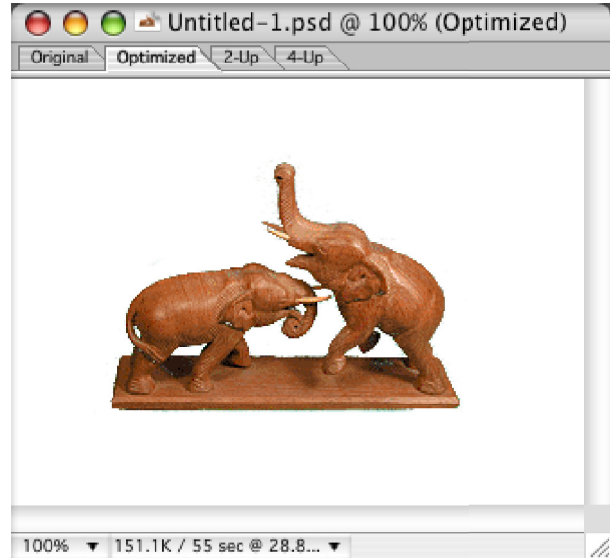Figure 6. 18 images in Adobe's ImageReady user interface.

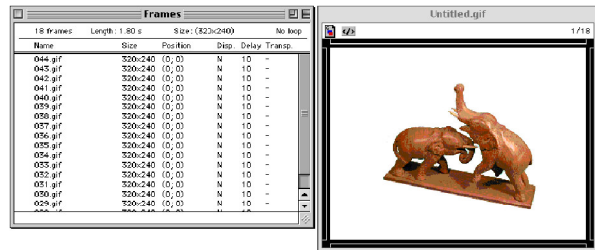Figure 7. Optimized animated GIF in ImageMaker.

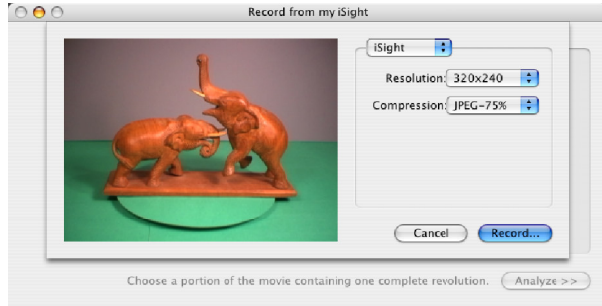
Figure 8. GifBuilder user interface.

Figure 9. Animated GIF created by GifBuilder.

Figure 10. Kaidan PiXiMation user interface.