



Shooting for 3D Production

The 3D tools in Roxio 3D Photo Creator make it simple to produce 3D photos and movies, but your 3D content will look best if you follow a few simple rules during the shoot. This tutorial presents the highlights, with tips on shooting for 3D with 2D and 3D cameras, converting 2D photos to 3D, and shooting and editing 3D movies.

Tips on all 3D Projects:

1. **Plan your depth cues.** The appearance of 3D is produced when multiple objects in an image or movie are located varying distances from the camera. These provide “depth cues” that help your brain perceive the scene in 3D. In this photo of the Washington Monument, water is the only foreground depth cue, so the appearance of 3D is muted.



Compare that effect to solemn scene from the Korean War Veterans Memorial, below, where the bushes, fence, sidewalk, wall and trees in the background all provide depth cues that create a powerful 3D effect.

Compose your shots so that your depth cues are well spaced between the closest foreground and farthest background objects. If you're shooting the Grand Canyon, a bush a foot away from the camera is a blurry distraction. If shooting a close-up of a flower, objects a foot in front of and behind the flower enhance the 3D effect.



2. **Mind the screen borders** – 3D is an illusion, and you should avoid clues that ruin this illusion. In this statue of John Paul Jones, the 3D effect is powerful at the top of the image, but muted where the background and statue meet at the bottom edge of the photo, which tells your brain that the statue, background and edge are all at the same depth.



Plan your shots so that the critical 3D-related components don't touch the borders. In the John Paul Jones shot, this would mean framing more loosely, so a larger portion of the body appears in 3D. In a video shoot, this means that all critical action occurs within the frame, and doesn't touch or extend beyond the borders.

3. **Don't blur the background.** When shooting traditional photos and videos, a popular technique is to blur the background, which focuses the viewer's attention on the subject of the shot. With 3D, you need the background objects to be as clear as possible to provide depth cues to the viewer. This means setting aperture at the highest possible value, creating the widest possible depth of field.
4. **Shoot with plenty of light.** Most 3D viewing systems – whether \$2.00 anaglyph red/cyan glasses, or \$200 active shutter glasses -- darken the 3D photo or movie to some degree. This means that you should shoot your 3D shots with plenty of light. If you're following tip 3 (don't blur the background), you're also shooting with a high aperture setting, which reduces the light that reaches the lens. You'll get the best results shooting outdoors on sunny days, and if you shoot indoors, add as much light as you can before shooting.
5. **Minimize grain.** Simulated film grain reduces the sharpness of shot, and can reduce the associated 3D affect. Shoot at the lowest possible ISO setting.
6. **Learning your camera's manual controls.** You've probably already realized this, but tips 3, 4 and 5 probably mean that you'll have to abandon auto mode on your camera or camcorder and learn how to configure your camera manually.
7. **When producing for anaglyph (red/cyan) distribution, mind the colors.** Red/Cyan anaglyph viewing isn't friendly to reddish colors, converting them to yellows or blacks. You can see this in the image below; the original orange color turned to mauve by the anaglyph process.



If you can control what your subjects are wearing, stay away from reds, oranges and similar colors, favoring grays and blues. For serious shoots, however, you should check your colors out beforehand to make sure they look good in anaglyph. If you're out shooting casually, keep in mind that anaglyph red/cyan may not be the best technique to capture the beauty of a red rose.

8. **Shoot in the target viewing orientation.** Few 3D editing programs let you rotate your images. Though there may be workarounds, depth cues and the associated 3D effect seems most effective when viewed at the original orientation. So don't shoot in portrait mode if you plan to rotate into landscape, or vice versa.

Tips on Taking 3D Pictures with a 2D Camera:

- 1. Choose your subjects wisely.** If you're shooting 3D with a 2D camera, this means that you intend to shoot two shots in sequence, one each for each eye, and then combine them in a program like Roxio 3D Photo Creator. You'll get best results when the subject isn't moving, which means buildings, monuments and other totally fixed objects. People, plants and flowers move, as do pets, insects, fish and other living things.

Again, 3D is an illusion, and if the left and right images don't precisely match up, you'll confuse the brain and lose the effect. You can correct positioning errors in Roxio 3D Photo Creator, but if the subject has moved, you can't fix this in post. So choose your subjects wisely.

- 2. Plan your technique.** Articles and books have been written on producing 3D images and movies, and director James Cameron famously planned for over four years to produce Avatar (nice to have Titanic-like money, eh?). We're not asking you to devote that type of attention to this task, but think about what you're trying to accomplish before you start shooting. Some issues to consider:

- *Max distance between left and right shots.* More specifically, how far should you move the camera between the two shots? Our eyes are about 2.5" apart (5.5 – 7 cm), so for most shots, that's a good distance to shoot for as a default. If you're willing to experiment (and do some simple math), one rule of thumb is that the distance between two shots should be about 1/30th of the distance to the closest object in the frame. So, if the closest object is 30 feet away, you can shift up to a foot. Keep in mind, however, that if the distance between the left and right images exceeds 2.5" on the target-viewing device, it can cause eyestrain. Fortunately, you can adjust this distance in Roxio 3D Photo Creator; more on this below.
- *Where to point the camera.* Should you point the camera straight ahead for both shots, creating two parallel shots, or try to angle the camera towards the object from each angle? This is a huge issue in 3D film production, with advocates on both sides. The key point is to think about what you're trying to do, do it consistently, and see how it works when you're editing your photos in Roxio 3D Photo Creator.
- *Framing your subject.* This refers to the content in the frame, which obviously should be as similar as possible. This takes at least a moment or two of planning. Enable screen guides if you have them in your camera, and find something in the image that you want to appear consistent in both the left and right shots. When you execute the "cha-cha" described below, keep that guidepost in mind.
- *Keep the camera as still as possible.* In addition to maintaining consistent framing, you want to avoid rotation and other motion as much as possible.
- *Timing.* Obviously, you want to take the two pictures as quickly as possible to avoid changes in background, lighting and the like.

3. **When you're ready, do the Cha-Cha.** Fortunately, once you've planned your technique, executing the double shot is pretty easy. Simply:

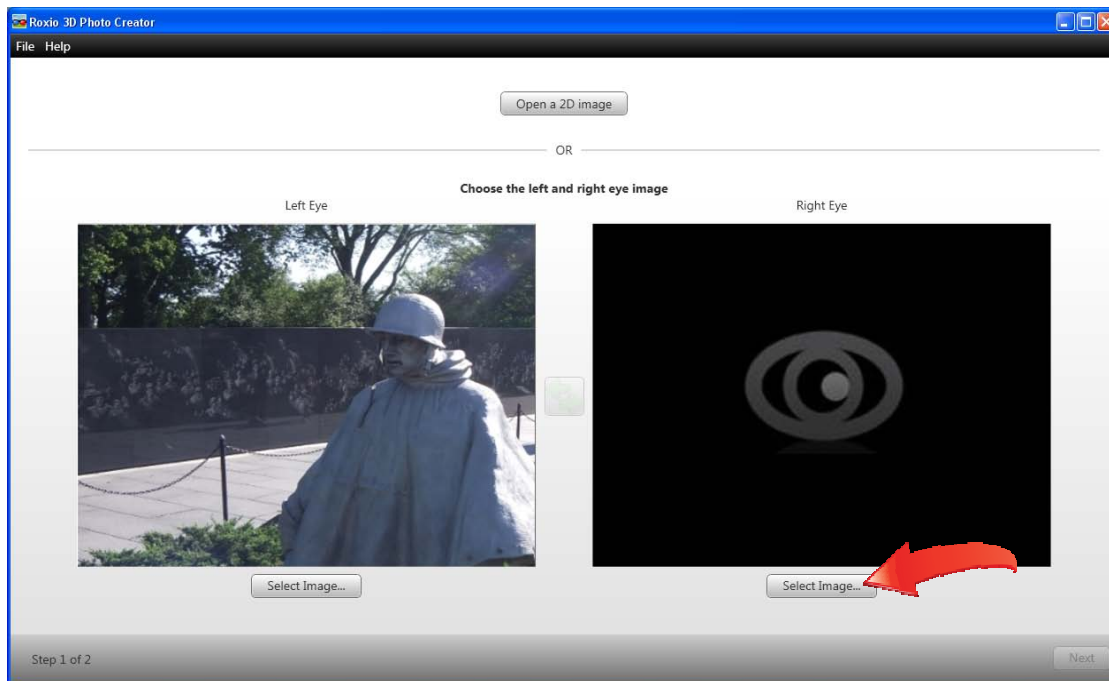
- Stand squarely on both feet and frame the shot.
- Place your weight on the left foot, and shoot the first shot.
- Shift your weight to the right foot, shifting the desired distance, and take your second shot.

One final thought - be consistent in your approach. You're going to return to your computer with dozens of photograph pairs, and it really helps to know that you shot all of them left shot first (or vice versa). Pick an approach and stick with it.

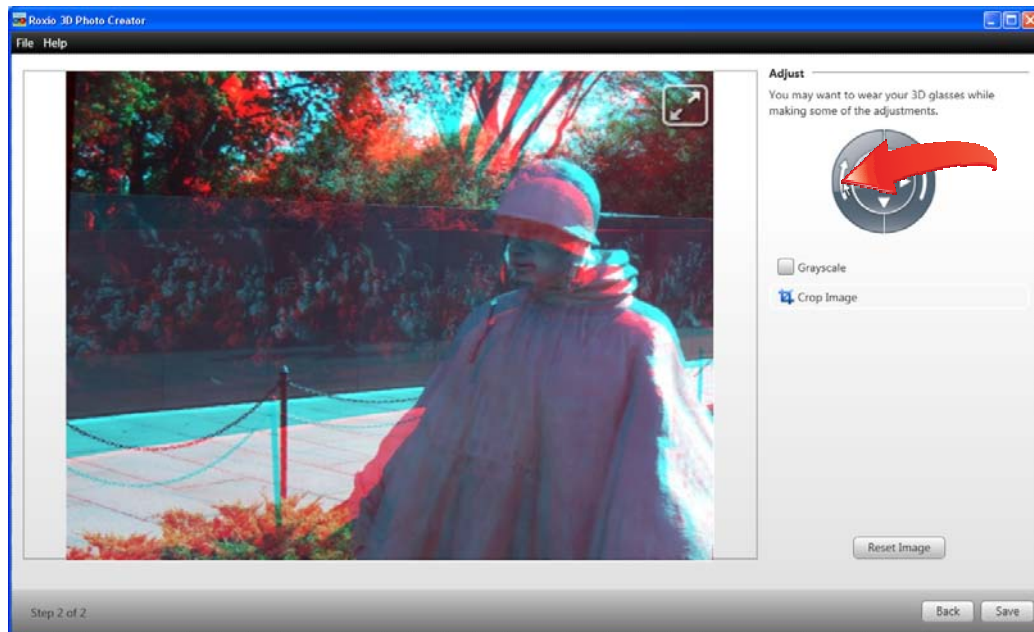
Tips on Turning 2D photos into 3D photos in Roxio 3D Photo Creator

There's a separate tutorial detailing how to use Roxio 3D Photo Creator to combine two 2D images into a 3D photo. This section will discuss some of the considerations raised in the previous discussion taking 3D pictures with a 2D camera.

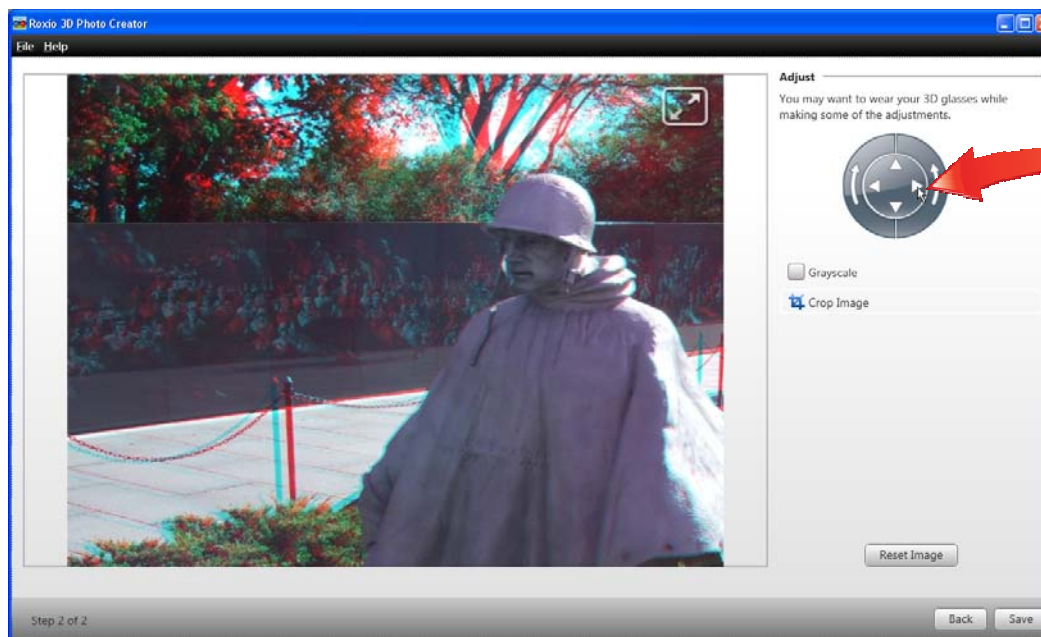
1. **Import the images.** Load the left and right photos individually by clicking the "Select Image" buttons beneath the Left Eye and Right Eye preview windows, navigating to and selecting the respective files, and then clicking "Open."



2. **Correct height and rotation issues.** For example, you can see by the helmet that the right (cyan) image is higher, and by the back wall and fence post that there's a rotation issue. Correct these issues first, getting the images at the same height and alignment without worrying about where the two left and right images converge (Red/Cyan anaglyph glasses really help).



3. **Choose your convergence point.** Once the images are aligned, you can start addressing the separation of the left and right images to create the desired 3D effect. One consideration is the point of convergence between the left and right image. In the figure below, the right and left images converge on the soldier, which you can see because there is no cyan or red image at that point; just one combined image. In contrast, you can see obvious red and cyan images of the fence post and back wall.



There's no, absolute, one size fits all approach to adjusting how the left and right images fit together, but here are some considerations.

- *The point of convergence may be best at the focal point of the shot.* In this particular shot, the focus is on the soldier, which is where the left and right image converge.
- *Which arrangement creates the most striking 3D?* You can experiment here and see which distance and convergence point looks best from the 3D perspective.
- *Which arrangement feels the best?* Looking at the image should feel comfortable, without any noticeable strain on the eyes.
- *The left and right images shouldn't be more than 2.5" apart on your viewing device.* Otherwise, this causes eyestrain.

4. Save the photo. Once you've made these adjustments, click Save to save the photo in the desired format.

Tips on Taking 3D Pictures with a 3D Camera

- 1. The world is your oyster.** When shooting 3D images with a 2D camera, you're stuck with subjects that don't move. With a 3D camera, you can shoot any subject, moving or otherwise.
- 2. Experiment with alternative shooting settings.** We've already discussed that you'll have to learn how to set aperture, exposure and ISO settings manually to produce the best results with your 2D camera, and the same obviously holds true with 3D cameras.

If you have a 3D camera, keep in mind that your camera may have alternative shooting modes that enhance its 3D capabilities. For example, the Fujifilm FinePix REAL 3D W1 camcorder has an Individual 3D Shutter mode that lets you combine two shots from a different angle into a single 3D image, which is useful when creating 3D images from longer distance shots. In this mode, the camera displays the first image in the viewfinder while you're framing the second, which obviously assists the precision of the framing. So beyond learning how to go manual with exposure and ISO related adjustments, explore any alternative shooting settings.

Thoughts on Shooting/Editing 3D Movies

- 1. Limit DOF, maximize light, disable.** All of the rules for shooting 3D photos apply when shooting 3D videos, whether with a 3D video camera or with a 2D camera that you intend to convert to 3D in Roxio VideoWave. In particular, keep in mind that video cameras need much more light than still image cameras, and light accordingly. If your video is dark and grainy, it will be almost impossible to perceive any 3D effect.

2. Frame more loosely to maintain good screen borders. Video can produce very powerful 3D effects, but they're almost totally muted if the subject in motion intersects with a screen border. Frame loosely to avoid this contact.

3. 3D takes time so pace your videos more slowly. It takes a few moments for the brain to perceive 3D, so fast paced cutting from one 3D scene to another will limit the perception of 3D. Slow down pans and other camera motion as well.

4. Be conservative when editing. When editing your videos, keep these thoughts in mind.

- *Limit the use of effects.* Any effect that blurs edges in a video, like blurring or film grain, or otherwise distorts the content, like ripple or relief, may lessen the perception of depth in the 3D video.
- *Careful with color correction.* Color adjustments on video to be distributed in anaglyph format may interfere with the Red/Cyan coloring used to produce this output.
- *Be conservative.* In general, be conservative in your first few 3D projects until you learn how to maximize your 3D videos. Then start spreading your creative wings.