

Digital ...

A monthly column by Harry

This month is for intermediate photographers. Send questions for future columns to harry.iris@usa.net.

How can I make the background sharp or fuzzy?

Some images, for example many portraits, benefit from a blurred background that can de-emphasize distractions or, more positively, provide a gentle colour wash that enhances the image. In other cases, such as many landscapes, the background should be reasonably sharp. Sometimes a little softness in the distance in a landscape can help with a sense of depth but it should not be obviously blurred.

The zone of sharpness in a photographic image is called the “depth of field”. Control of depth of field is an important creative tool. Depth of field is determined in the camera at the time of exposure and is very difficult, if not impossible, to change afterwards.

Control over depth of field is usually achieved by changing the aperture of the lens. A wide aperture, such as $f/2$, gives a narrow depth of field while a narrow aperture, such as $f/22$, gives a wide depth of field. Some advanced photographers calculate depth of field and some lenses have depth of field tables available. At the intermediate level, though, we more often use trial, error and experience.

Fortunately, a digital camera allows us to check the image immediately and zoom in on areas that should be either sharp or blurred, in order to check them. We can then adjust the aperture and try again if necessary.

The point at which the camera focuses will always be sharp if everything stays still during the exposure. The sharpness falls off with distance in front or behind the focal point. When the loss of sharpness becomes noticeable, we have reached the depth of field. As a rule of thumb, the depth of field extends about twice as far behind the focal point as it extends in front. This knowledge is very useful when you want to get as much in focus as possible.

Three other factors are very important in determining depth of field: distance from the camera to the focal point, focal length of the lens, and sensor size.

The depth of field increases as the focal point gets further away. That is, if you are close to your subject, you get a narrow depth of field while if you are far from your subject you get a wide depth of field. In macro photography the short distance to the subject gives very narrow depth of field.

As the focal length of the lens increases, depth of field decreases. Thus, a telephoto lens will have a narrower depth of field than a wide-angle lens at the same aperture and distance. This is one reason why:

- wide-angle lenses are popular for landscapes (wide depth of field);
- short telephoto lenses are popular for portraits (medium depth of field);
- wildlife pictures are usually very blurred around the subject (long telephoto = narrow depth of field).

The small sensors on “point & shoot” cameras give a wide depth of field, working well for general snapshots and landscapes but not for creative blurring. Professional full frame cameras have relatively narrow depth of field, good for creative blurring but more difficult for a landscape. Popular dSLR cameras lie between these extremes.

To achieve extreme depth of field with larger cameras, Photoshop CS4 can merge images with different focal points so that the sharp parts of each image are kept and the blurred parts discarded.

In practice, we usually choose the distance to the subject, the lens focal length and the sensor size based on other factors. Then, we use the aperture to control depth of field to get the background either blurred (large aperture) or sharp (small aperture).