

Definitions

Cropping refers to the removal of the outer parts of an image to improve framing, accentuate subject matter or change aspect ratio.

In computer graphics, **image scaling** is the process of resizing a digital image.

Unsharp masking is an image manipulation technique now familiar to many users of digital image processing software, but it seems to have been first used in Germany in the 1930s as a way of increasing the acutance, or apparent sharpness, of photographic images. The "unsharp" of the name derives from the fact that the technique uses a blurred, or "unsharp", positive to create a "mask" of the original image.

Opacity is the measure of impenetrability to electromagnetic or other kinds of radiation, especially visible light. Both mirrors and carbon black are opaque.

Blend modes in digital image editing are used to determine how two Layers are blended into each other.

A **color cast** is a tint of a particular color, usually unwanted, which affects the whole of a photographic image evenly.

Fluorescent is type of lighting. Common fluorescent lights have a distinct color spectrum and color spikes that will affect the color of your target. Fluorescent lights also flicker.

Daylight or **the light of day** is the combination of all direct and indirect sunlight outdoors during the daytime (and perhaps twilight).

Direct sunlight gives about 93 lumens of illumination per watt of electromagnetic power, including infrared, visible, and ultra-violet.

The **color temperature** of a light source is determined by comparing its chromaticity with a theoretical, heated black-body radiator.

The **Kelvin scale** is a thermodynamic (absolute) temperature scale where absolute zero, the theoretical absence of all thermal energy, is zero (0 K).

In optics, the **f-number** (sometimes called **focal ratio**, **f-ratio**, or **relative aperture**) of an optical system expresses the diameter of the entrance pupil in terms of the effective focal length of the lens; in simpler terms, the f-number is the focal length divided by the aperture diameter. The longer the lens or focal length, the larger the F-stop or aperture.

A **histogram** is a graphical display of tabulated frequencies. It shows what proportion of cases fall into each of several categories.

Pixels are the individual imaging element of a CCD or CMOS sensor, or the individual output point of a display device.

White Balance refers to the adjustment of the brightness of the red, green and blue components, so that the brightest object in the image appears white.

Telephoto is the focal length that gives you the narrowest angle of coverage, good for bringing distant objects closer.

Soft light refers to light that tends to "wrap" around object, casting shadows with soft edges.

The softness of the light depends mostly on the following two factors:

~Distance. The closer the light source, the softer it becomes.

~Size of light source. The larger the source, the softer it becomes.

Hard light sources cast shadows whose appearance of the shadow depends on the lighting instrument. For example, fresnel lights can be focused such that their shadows can be "cut" with crisp shadows. That is, the shadows produced will have 'harder' edges with less transition between illumination and shadow. The focused light will produce harder-edged shadows.

In photography and cinematography, a **reflector** is an improvised or specialized reflective surface used to redirect light towards a given subject or scene.

In physics, chemistry and biology, diffusion denotes the mixing of two or more substances or the net motion of a substance from an area of high concentration to an area of low concentration.

A **Soft box** is a type of photographic lighting device, one of a number of photographic soft light devices. All the various soft light types create soft diffused light by directing light through some diffusing material, or by "bouncing" light off a second surface to diffuse the light. The best known form of bouncing source is the umbrella light where the light from the bulb is bounced off the inside of a metalized umbrella to create a soft indirect light. A "soft box" is an enclosure around a bulb comprised of reflective side and back walls and a diffusing material at the front of the light.

The **Fresnel lens** reduces the amount of material required compared to a conventional spherical lens by breaking the lens into a set of concentric annular sections known as *Fresnel zones*

Light/ Reflector Disk. A reflector which is a solid Circle with a mounted Flash Canister. Disk can be positioned to reflect forward or reversed.

Rim Light. The *back light* (a.k.a. the *rim*, *hair*, or *shoulder light*) shines on the subject from behind, often (but not necessarily) to one side or the other. It gives the subject a rim of light, serving to separate the subject from the background and highlighting contours.

Noise. Relates to pixels in your image that were misinterpreted. Normally occurs when you shoot a long exposure (beyond 1/2-second) or when you use the higher ISO values from 400 or above. It appears as random groups of red, green or blue pixels. Programs such as Neat Image can remove most noise from an image.

Film grain or granularity is the random optical texture of processed photographic film due to the presence of small grains of a metallic silver developed from silver halide that have received enough photons.

Fill flash is a photographic technique used to brighten deep shadow areas, typically outdoors on sunny days, though the technique is useful any time the background is significantly brighter than the subject of the photograph. To use fill flash, the aperture and shutter speed are adjusted to correctly expose the background, and the flash is fired to lighten the foreground.

In image editing, a **curve** is a remapping of image tonality, specified as a function from input level to output level, used as a way to emphasize colors or other elements in a picture.

Bit Depth. Refers to the color or grey scale of each individual pixel.

Resolution. The quality of any digital image, whether printed or displayed on a screen, depends on its resolution, or the number of pixels used to create the image. More, smaller pixels add detail and sharpen the edges.

Exceptions:

~ Optical Resolution is an absolute number that the camera's image sensor can physically record.

~ Interpolated Resolution adds pixels to the image using complex software algorithms to determine what color they should be.

~ It is important to note that interpolation doesn't add any new information to the image - it just makes it bigger!

Color Balance. The accuracy with which the colors captured in the image, match the original scene.

Brightness. The value of a pixel in a digital image giving its value of lightness from black to white, with 0 being black and 255 being white.

Darkness. A process by which the colors are adjusted either by the Sharpen Mode or by the Opacity of the Colors used.

Contrast is the difference in visual properties that makes an object (or its representation in an image) distinguishable from other objects and the background. In visual perception of the real world, contrast is determined by the difference in the color and brightness of the object and other objects within the same field of view.

Compression. To enable image files to become smaller and more manageable cameras employ some form of compression such as JPEG. RAW and TIFF files have no compression and take up more space.

Decompression. Process by which the full data content of a compressed file is restored.

Hue. A term used to describe the complete range of colors of the spectrum. Hue is the component that determines just what color you are using.

Saturation. The degree to which a color is undiluted by white light. If a color is 100 percent saturated, it contains no white light. If a color has no saturation, it is a shade of grey.

Primary colors are sets of colors that can be combined to make a useful range (gamut) of colors. For subtractive combination of colors, as in mixing of pigments or dyes, such as in printing, the primaries normally used are magenta, cyan, and yellow.

Secondary Color is a color made by mixing two primary colors

Tertiary color is a color made by mixing one primary color with one secondary color. Unlike primary and secondary colors, these are not represented by one firmly established name.

Grey Level is the brightness of a pixel.

Grey Scale is shades of grey, such as in a black and white photograph. Only 20 shades of Grey are perceived.

Interlaced. a technique of improving the picture quality on CRT devices by using two fields to create a frame. One field contains odd lines, other field contains even lines.

Exposure total amount of light allowed to fall on the photographic medium. Measured in lux seconds.

Vector graphics are based on mathematical equations. They are complementary to raster graphics, which are the representations of images as an array of pixels.

Lens Hood. The end of a lens to block the sun

Raster graphics/ Bitmap. A bitmap corresponds bit-for-bit. The printing and prepress industries know raster graphics as **contones** (from "continuous tones") and refer to vector graphics as "line work".

Bloom (sometimes referred to as **light bloom** or **glow**) is a computer graphics effect used in computer games, demos and high dynamic range rendering (HDR) to reproduce an imaging artifact of real-world cameras.

An **additive color** model involves light emitted directly from a source or illuminant of some sort. The additive reproduction process usually uses red, green and blue light to produce the other colors. Combining one of these additive primary colors with another in equal amounts produces the additive secondary colors cyan, magenta, and yellow. Combining all three primary lights (colors) in equal intensities produces white.

A **subtractive color** model explains the mixing of paints, dyes, inks, and natural colorants to create a range of colors, where each such color is caused by the mixture absorbing some wavelengths of light and reflecting others. Subtractive color systems start with white light. Conversely, additive color systems start with no light (black). Light sources add wavelengths to make a color.

In offset printing, a **spot color** is any color generated by an ink (pure or mixed) that is printed using a *single run*. The widely-spread offset printing process is composed of four spot colors: Cyan, Magenta, Yellow and Key (black) commonly referred to as CMYK. More advanced processes involve the use of six spot colors (hexachromatic process), which add Orange and Green to the process (termed CMYKOG). It can also mean any color generated by a non-standard offset ink.

Pantone Colors. The Pantone Color Matching System is largely a standardized color reproduction system. By standardizing the colors different manufactures in different locations can all refer to a the Pantone system to make sure colors match without direct contact with one another. One such use is standardizing colors in the CMYK process. There are 1,114 spot colors.

Concentric objects share the same center, axis or origin with one inside the other.

In optics, a **diaphragm** is a thin opaque structure with an opening (aperture) at its centre. The diaphragm is placed in the light path of a lens or objective, and the size of the aperture regulates the amount of light that passes through the lens. An iris diaphragm is a common type of diaphragm.

Dither. a technique used in computer graphics to create the illusion of color depth in images with a limited color palette (color quantization). Dithered images, particularly those with relatively few colors, can often be distinguished by a characteristic graininess, or speckled appearance

Truecolor is a method of representing and storing graphical image information in high quality photographic images. Usually, truecolor is defined to mean at least 256 shades of red, green, and blue, for a total of at least 16,777,216 color variations. Equivalently, truecolor can refer to an RGB display mode that does not need a color look-up table (CLUT).

EXIF is a specification for the image file format used by digital cameras.

Color Burn darkens the base color by increasing the contrast. Blending with white produces no change.

Linear Burn decreases brightness

Color Dodge will always result in a lighter image, except the contrast will be turned way up!

The **Graphics Interchange Format (GIF)** is an 8-bit-per-pixel bitmap image format that was introduced by CompuServe in 1987 and has since come into widespread usage on the World Wide Web due to its wide support and portability.

Controversy over the licensing agreement between the patent holder, Unisys, and CompuServe in 1994 inspired the development of the **Portable Network Graphics (PNG)** standard; since then all the relevant patents have expired.