

High Dynamic Range Photography (HDR)

by Bruce Henderson

“Time Expired”

Two stops over exposed



Normal exposure



Two stops under exposed



Composite



High Dynamic Range photography attempts to record images in a way that more closely mirrors the range of light/dark that the human eye can perceive. The result can be a strikingly hyperreal image.

In digital camera terms, the human eye can see a range of light to dark that covers the equivalent of about 20 f-stops. Digital cameras, however, can only record a lighting range of about eight f-stops. What this means is that a digital camera image cannot capture the subtle details in the darkest part of the image, and very bright areas become washed out.

In the mid-1990s, researchers proposed ways of increasing the dynamic range of light displayed in video graphics and games. Since then, several software companies have developed ways of combining digital photos taken at various exposures into one photo that shows detail in both shadows and highlights.

Using the technique of High Dynamic Range photography, a photographer takes from 3-5 images of a scene at various exposures. Software such as Adobe Photoshop CS5 or Photomatix can combine the images into a single HDR photograph with stunning detail.

This photo exhibit, entitled “**Time Expired**,” contains photos all taken at an abandoned gold mining town in the Eldorado Canyon area of Nevada, about a two-hour drive south of Las Vegas. The rusted-out antique cars, old road and gas station signs and old buildings all are on property owned by Tony and Bobbie Werly. The Werly family runs a tourism and recreational vehicle business exploring the old mines in the area.

The canyon scenery and rusty textures offer a perfect opportunity for exploring High Dynamic Range photography.

All photos were taken with a full-frame 35mm Sony Alpha 850 24-megapixel camera and either a 16-35mm Carl Zeiss lens or an old 16mm fisheye Minolta lens that was built in the heydays of 35mm film photography.

Three exposures were taken of each scene, one at normal exposure, one at two stops under and one at two stops over. The three photos then were combined and further modified using both Photomatix and Photoshop.

Bruce Henderson, who is director of communications for the ATLAS Institute at the University of Colorado, is an award-winning photographer who has taught digital photo editing at CU as an associate professor of journalism. He also has worked as a photographer, reporter, designer and editor for numerous newspapers.

Each photo in this exhibit is \$100; the entire 12-photo exhibit is \$1,000.

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