

By Dave Montizambert

Painting with Pixels

The Digital Version of Light Painting

Last year I discovered a new lighting technique. Well, really it's an old technique, but with a digital twist. Called painting with pixels, this technique is the digital equivalent to painting with light.

Several photographers wanted to know if painting with pixels can be used to mimic photographer Aaron Jones' surreal "painting with light" style of the late 1980s and early '90s. To see if it could, I created the stamp book image (*Figure 1*). Here's how I did it.



Figure 1

Refresher on Light Painting

In relative darkness with the camera shutter open, the photographer directs an intense beam from a small handheld lamp away from the camera and onto the surface of the subject. With the lamp inches from the subject, the photographer makes a timed exposure, typically for four to 16 seconds at $f/16$ - $f/32$. The light is kept in motion for the duration of the exposure, painting its energy onto the subject. The process is repeated many times over the surfaces of the set.

As simple as this sounds, painting with light is not so easy to master. Jones had an advantage over most of us—he was an airbrush artist as well as a photographer. He applied many airbrush techniques to the movement of the light painting tool over the subject, a skill that takes practice to develop. Most of us will need time to develop the coordination and manual dexterity required, which will consume considerable film.

Even after your technique is perfected, light painting is a somewhat hit-and-miss art, because you cannot view the results of your work until you see the processed film. You can shoot Polaroid instant prints to see an approximation of what you're doing, but you cannot light paint over the same area the same way each time you do it.

Because of this inconsistency, painting with light remains unacceptable to many art directors and clients. Along with my business partner and brother, Mark, I began a search for a more accurate and user-friendly method of creating the painting-with-light look. We developed a technique we call painting with pixels. In this digital process, we make two or more nearly identical images that differ only in lighting and paint them together using Adobe Photoshop layer masks.

Painting with pixels offers several advantages over the studio technique: the effect is visible as you create it; you can modify it at any time; it does not require special handheld lighting devices; and you do not have to work in darkness.

This technique relies on perfect registration between the image variations. Digital capture is the perfect solution. So long as you do not bump the camera or the subject, it will create perfect alignment.

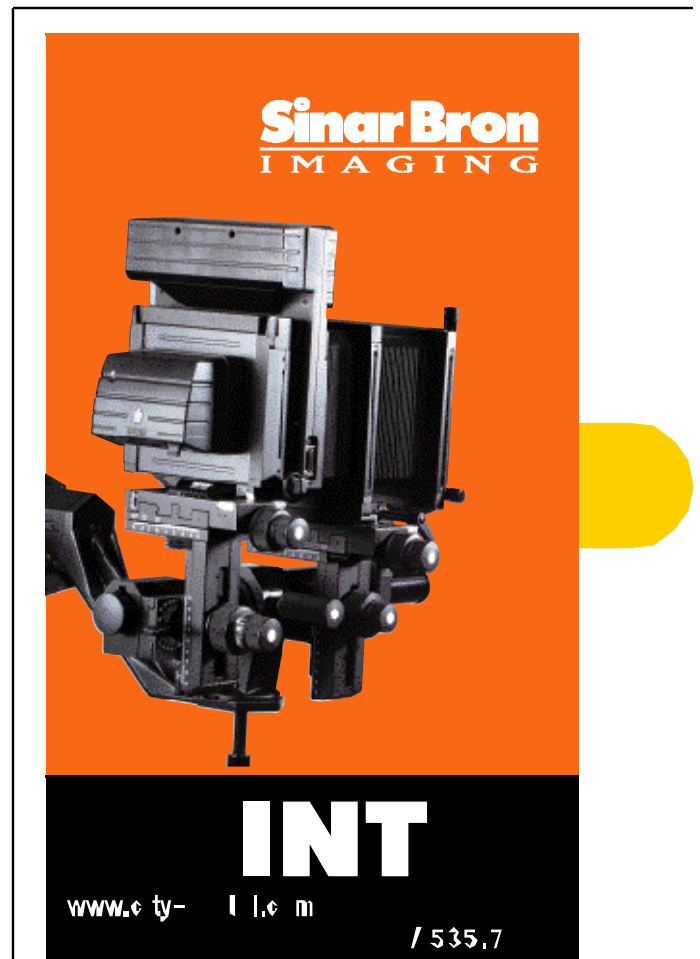
Lighting

We flat lit the book and dominos with a 48x48-inch translucent white nylon Chimera panel placed 2.5 feet directly overhead. The light energy came from a White Lightning X1600 strobe head above the panel. We underexposed the panel two to three f /stops to create a base illumination (see Figure 2). We made one exposure of this dark scene.



Figure 2

Next, we moved the panel out of the way and lowered the White Lightning to about 12 inches above



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and in front of the table at camera left. We adjusted the power of the light to create an overexposure of approximately one f/stop (see Figure 3).



Figure 3

We combined the two versions of the image (Figures 2 & 3) into one image file with the underexposed version as the bottom layer and the overexposed version as the top layer. The easiest way to do this is to hold down the shift key as you drag the background layer from the overexposed image layer palette onto the open window of the underexposed image. It is critical to hold down the shift key; otherwise the layer you drag over will not lie in perfect registration with the layer below (to check registration, try clicking the top layer's eye ball on and off in the Layer palette).

Next, we used a Hide All Layer Mask and the Airbrush tool to reveal selected parts of the normal exposure layer: Select Layer>Add Layer Mask>Hide All. Even though the eye icon of the top image layer was turned on, the image was no longer visible. On the top layer, the black square thumbnail (see Figure 4) represents a Hide All Layer Mask that makes the image invisible. A white square thumbnail represents a Reveal All Layer Mask. Had we selected the Reveal All Layer Mask, the entire top layer would be visible.

We set the foreground color in the tool bar to white. Now we could brush over the image, painting white onto the black layer mask and selectively revealing



Figure 4

parts of the overexposed top layer. If you reveal too much, you can switch the paint color to black and paint over the area to gradually re-hide it.

In painting with light, the transition of fully lit areas into shadow is a soft-edged effect. To mimic this effect, I used the Photoshop Airbrush tool with a very soft-edged brush. I double-clicked on the desired brush in the Brushes palette and set Hardness=0, the softest



Figure 5



Figure 6

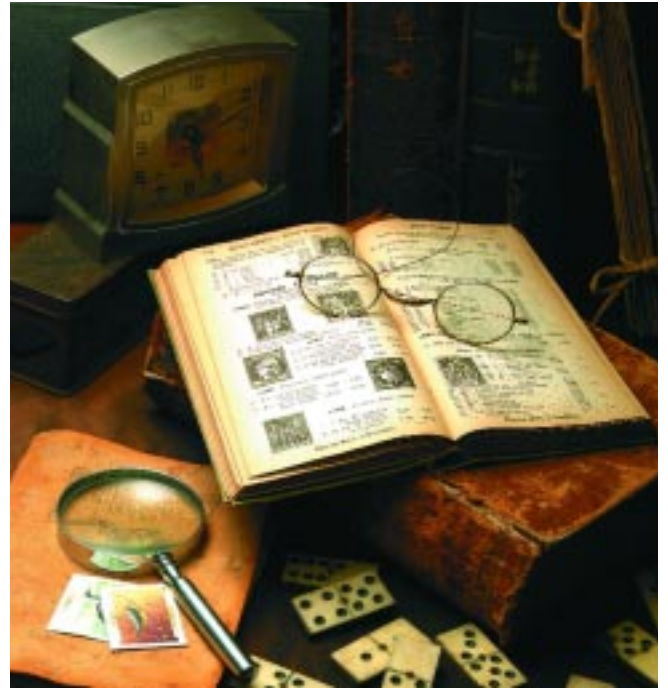


Figure 7

setting, and Pressure=10% or less. At these settings, you have to paint many strokes to reach the desired brightness, which gives you precise control over the amount of brightness you apply and creates soft edges.

In Figure 5, notice the effect of the first brush stroke. “Painting light” onto the image is an amazing technique, and probably the closest you will ever come to playing God. In Figure 6, the pixel painting is complete. It took me all of 10 minutes to do it.

After my 10 minutes of omnipotence, I wanted to add big, bright, specular highlights to the magnifying glass. Painting in the bright top layer wouldn’t achieve this (I’m only mortal after all). The specular highlights had to physically exist on the magnifying glass.

We made another exposure of the set with the speculars in place (Figure 7), again positioning the White Lightning strobe head and the Chimera panel over the set. We overexposed the image by one-and-a-half to two f/stops. Only a small portion of this third image was used—the reflection of the overhead panel light source on the magnifying glass handle and lens as well as a little more brightness on the top of the clock and on the small book under the magnifying glass (Figure 8).

Selective Softening

Part of the Aaron Jones look is on selective softening. In light painting, the subject is selectively exposed in many different areas on top of a base fill exposure.

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Layer Mask Tips

At some point when using layer masks, you'll run into a slight complication. Instead of your brushstrokes revealing or hiding the image layer, white or black paint will appear on the image. This tells you that you're editing the image layer, not the layer mask.

Look at the layer you are working on in the Layers palette. If you click on the layer mask icon (a white or black square), a square with a dotted circle will appear, signifying that the layer mask is active and that your brushstrokes are affecting only the visibility of the layer. If you click on the layer's image thumbnail, a paintbrush icon will appear, which means you are affecting the actual image. When you're painting with pixels, the square with the dotted circle is the icon you want to be visible.

- You cannot create a layer mask on the background layer. To create a layer mask on this layer, double-click the background layer. Rename the layer if you like, and click OK. Now you can create a layer mask.

- If you want to view the actual layer mask instead of the image in the image window, opt/alt-click on the layer mask thumbnail. The layer mask replaces the image. Opt/alt-click again to return to the image.

- To turn off the layer mask, shift-click on its thumbnail. To turn the layer mask on again, shift-click once more.

- When you are pixel painting on really large image files, you can save time and frustration by transferring your layer mask from one file to another. Create a smaller copy of the file (Image>Image Size; Width and Height=50% to as low as 25%). After your pixel painting, turn the paint strokes on the layer mask into a selection by cmd/ctrl-clicking on the layer mask thumbnail. Click on the Save Selection As Channel icon on the Channels palette. Up-size the image to the exact size of the really large image file (Image>Image Size; Width and Height=200% or 400%). Shift-drag the channel in question from the Channels palette into the open image window of the original large file. Cmd/ctrl-click on the channel in the Channels palette to activate the selection. In the Layers palette, select the layer that corresponds to the layer you pixel painted in the smaller file. Now create a layer mask (Layer>Add Layer Mask>Reveal Selection or Hide Selection). The layer mask will conform to the selection and show only your pixel painting.

—Dave Montizambert

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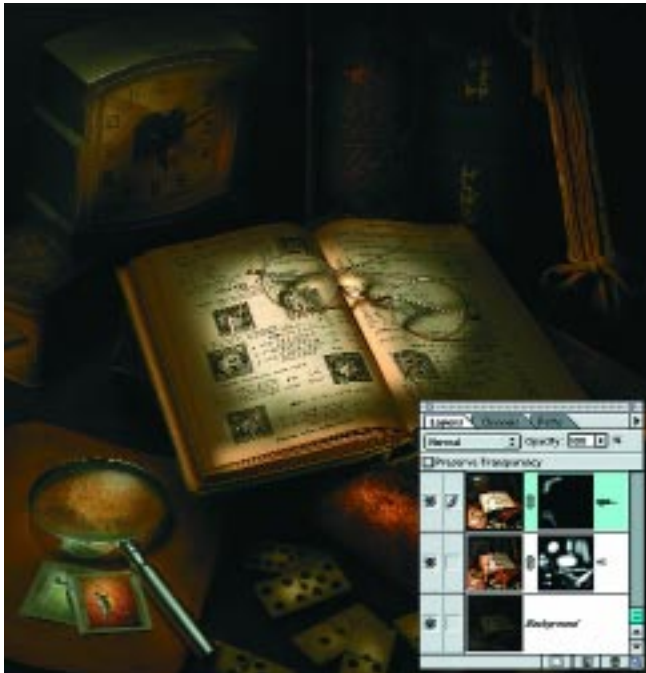


Figure 8

Placing a softening filter over the camera lens during some of these exposures selectively softens the image. With digital capture, there's no such thing as making multiple exposures onto one frame, so we do the softening in Photoshop after image capture, using much the same technique that we use in painting with pixels.

First, we made a copy of the file in case we wanted to change something later on. Then we flattened the image (Layer>Flatten Image). Next, we dragged the background layer onto the Create New Layer icon at the bottom of the Layer palette and blurred the new copy layer (Filter>Blur>Guassian Blur; Radius=12 pixels).

Unfortunately, the Blur filter made the image look out of focus, not soft. To simulate the look of a softening filter, I dragged the opacity slider of the blurred layer to 72% (left) so that the sharp background layer showed through. The effect looked just like a Hasselblad Softlar filter.

To create selectively soft areas in the image, we used a Layer Mask. Because we wanted the majority of the image to remain soft, I used a Reveal All white Layer Mask then selectively airbrushed black over key areas (Pressure=5-10%) to hide the softness and reveal sharpness. Figure 1 shows the results.

Beat Banding

When you create gradations, as with the Blur filter, banding will occur, especially if the image is converted to the CMYK color space. Photoshop for the most part

works at 8 bits per color channel, which does not generate enough information to create smooth tonal gradations. The easiest solution is to apply the Add Noise filter. Before adding noise, save a copy of the image as a PSD file, then flatten the file. From the Filter menu select Noise>Add Noise; Amount=2-4; Distribution=Guassian or Uniform; Monochromatic. This amount of noise is innocuous, yet the banding is broken up enough to be unnoticeable.

Can painting with pixels create the look of Aaron Jones' painting with light effect? The answer is a big, fat yes. And as we've demonstrated, painting with pixels is a faster, easier technique that offers much more control with much less stress. ◀



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