CADE Study Group – August 2011 Exchange

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"Photoshop for Dévoré Design"

I have been working with dévoré (burnout) for the last several months, using a mix of tencel and polyester threads. When the dévoré paste is applied and heated, the tencel (cellulose) burns away, leaving only the polyester thread.

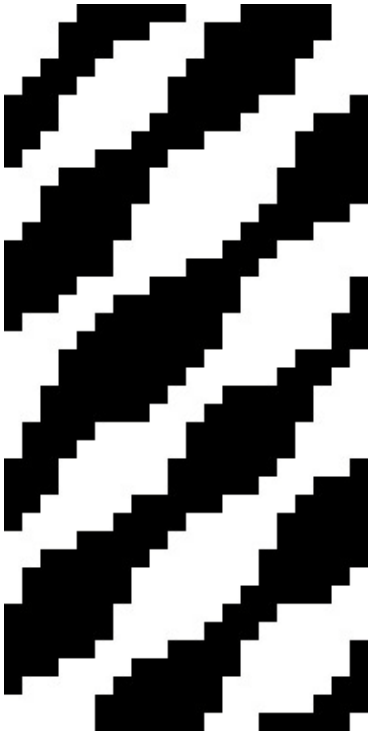
For this particular piece, I wanted to burn out one structure to another, as documented in Anne Field's book *Dévoré for Weavers and Knitters.* In this method, a structure is constructed so that the fabric as woven has one structure, and when the cellulose fibers are burned away, the remaining yarn produces another structure. I met with Holly Brackmann, who has done extensive work in dévoré, and got some advice on how to proceed. I decided, for efficiency, to design my drawdown in Photoshop.

First I needed to decide the post-burnout structure of the fabric. Because I was envisioning a fine gold mesh after burnout, and was therefore using only one metallic gold embroidery thread for every 4 threads of 20/2 tencel, I needed a very stable fabric post-burnout. I also wanted to reserve as many shafts as possible for the pre-burnout pattern, so that was easy: I chose plain weave.

I needed a minimum of 2 shafts for the interlacement of the gold threads (because the gold warp and gold weft need to interlace in plain weave). I was going to use 2 shafts, to conserve shafts for the main pattern, but then realized that would leave me with 22 shafts, which is a difficult number to use with a regular pattern because it doesn't divide evenly into much of anything (22 = 2 x 11, both rather extreme numbers for weaving). I mulled over using two shafts to improve my selvages, then realized that the selvages in this piece didn't matter since was going to be cut up for clothing. So I decided to spread out the gold threads over four shafts, and use 20 shafts for the tencel warp. 20 shafts = 4*5, which would allow me to do either a four-end broken twill overlay or a 5-end satin. I debated awhile, but finally opted for a 5-end satin, with a gold warp thread between every four tencel threads.

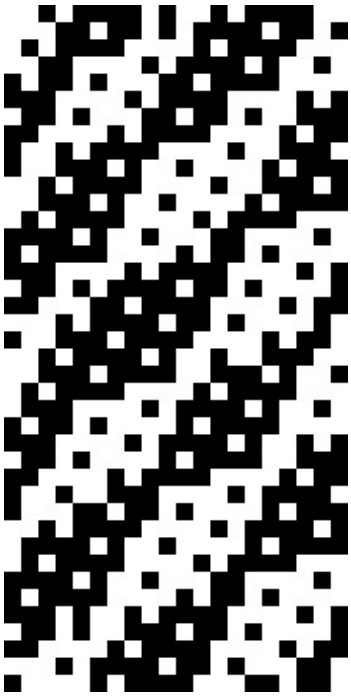
Then I created the pattern in Photoshop. The one I had originally was 24 pixels wide by 56 pixels long, based on a draft from Eugenio Poma's *2500 Armature - Intreccio Per Tessuti Di Lana, Cotone, Rayon, Seta* (Handwoven.net draft #43936). I needed something that would intersperse neatly with a five-end repeat and a four-end repeat (keeping my options open between a 4-end twill and a 5-end satin for the overlay). I resized the image to 20 pixels wide (since I was using 20 shafts for the tencel pattern) by 40 pixels long, then fiddled with it until I arrived at a result I liked.

Here is the 20x40 pattern I started with:



Base for liftplan

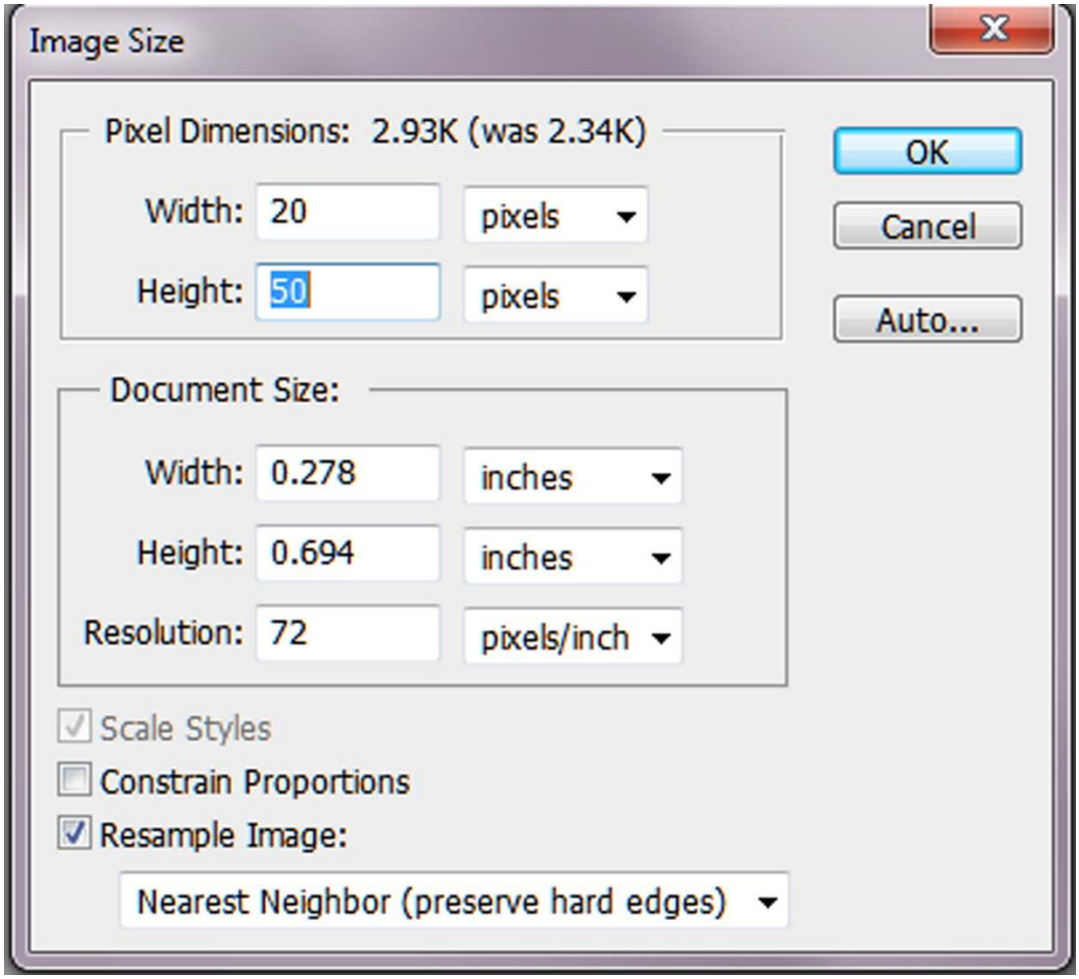
Next, I added a 5-shaft satin “risers and sinkers” overlay, as documented by Alice Schlein in her March 30, 2009 blog entry (http://weaverly.typepad.com/weaverly/2009/03/inspiration-from-damask-weavers.html).



The purpose of this overlay is to ensure that no floats are longer than 4 shafts. The black portions are 4/1 satin, the white portions 1/4 satin.

So far, so good. But these were the tencel threads only; I needed to add the gold warp and weft. How to do this in Photoshop?

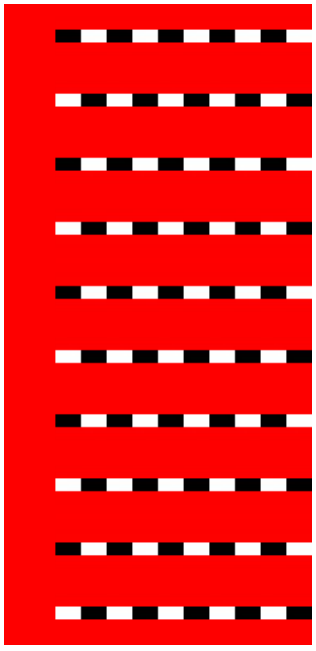
Well, first I stretched the image from 40 pixels to 50 pixels, using Image-->Image Size, unchecking "Constrain Proportions" and selecting the “nearest neighbor” option under the "Resample Image" check box:



This duplicated every 4th pixel, producing this:

Stretched version of basic liftplan. Notice how every fourth pixel of the original is duplicated, starting with the third pixel from the top.

Having made space for the gold weft, I now needed to add the correct interlacements. I decided I wanted the gold wefts to interlace with the tencel threads in an over-2, under-2 pattern – this would show the gold in short floats, but keep it relatively subtle. (It would also provide a good structure of interlacements to tie down the burned-out ends post-dévoré.) So I created an over-2, under-2 pattern for the gold weft threads on the 20 tencel-warp shafts:

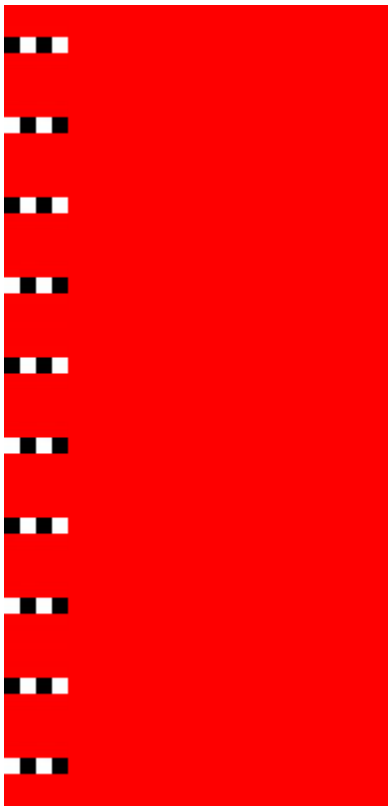


gold weft interlacement with tencel threads

This was done using the paint bucket with pattern fill, something Alice Schlein and Bhakti Ziek covered in their book *The Woven Pixel*, and which is also covered in Alice Schlein's *The Liftplan Connection*.

(The gray is just a background so you can see the black and white pixels clearly. In the real file they are transparent pixels.)

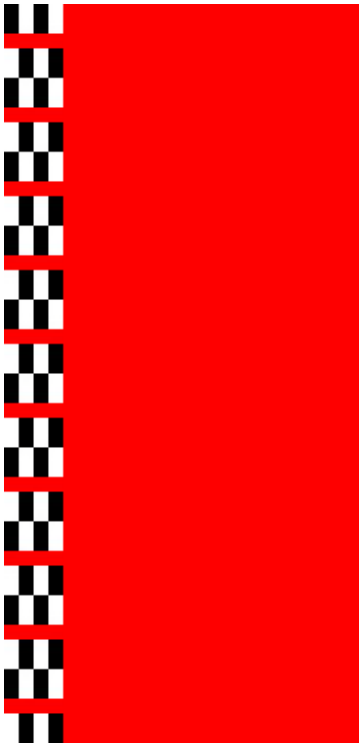
Next, I had to create the interlacement of gold warp with gold weft. This would be plain weave:



gold warp (threaded 1-2-3-4) interlacing with gold weft, in plain weave

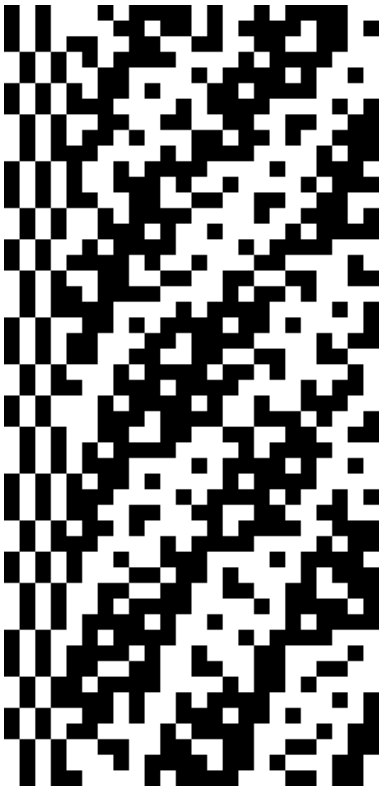
I could only have used two shafts for this, but since I had four shafts available, I decided to spread them over four shafts.

Finally, I created the interlacement of gold warp with tencel weft:

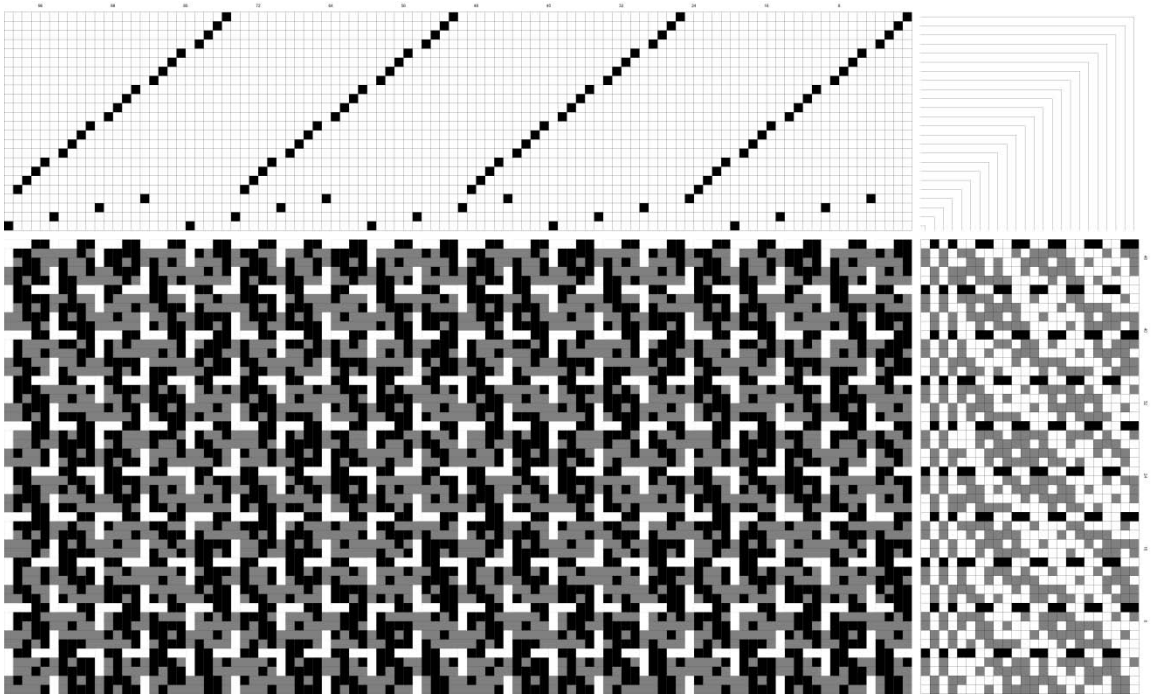


gold warp interlacing with tencel weft, over 2 - under 2

And put it all together:



I then cut and pasted the resulting liftplan into WeavePoint, and applied colors to show me the dévoré pattern. Here is the draft in black and white - in the drawdown,
black and dark gray represent the tencel threads, white represents the metallic gold polyester machine embroidery thread:



And here is a photo of the finished sample, post-dévoré:

All in all, this was a fascinating mental exercise, and I look forward to doing more dévoré design in the future!