

Project 1: Image Color Transfer

CS510, Winter 2017, Due Jan 30, 2017

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Example $l\alpha\beta$ Color Space Conversions: There isn't much in the way of algorithm settings for these color transfers. There is simply the image that contains the color to be transferred and the image to transfer the color to. The images in Figure 1 are pulled from the Reinhard, *et al* paper:



(a) Source Image



(b) Target Image



(c) Resulting Image

Figure 1: $l\alpha\beta$ example from Reinhard, *et al*

My results aren't quite as nice as the same versions in the Reinhard paper. I wonder if it has to do with the way that Reinhard does the color space conversion to $l\alpha\beta$ and/or back to RGB. I'm simply using the built-in method in OpenCV so I don't know the details of its conversion methodology.

Here is one example from my own images:



(a) Source image



(b) Target image



(c) Resulting image

Figure 2: $l\alpha\beta$ example of my own images

I think this does a reasonably good job of making the mid-day picture of the 12th street bridge in Tacoma have a bit of the look and feel of dusk. Though, with the shadows how they are, it looks a little like a "night" scene in a 1950's era B movie.

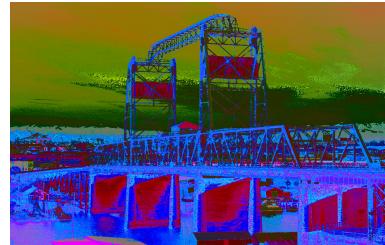
Example Color Transfer in HSV Color Space: Wow! Obviously, this result in figure 3 isn't anything approximating natural; however, the color transfer algorithm in the HSV color space is quite fascinating.



(a) Source image



(b) Target image



(c) HSV resulting image

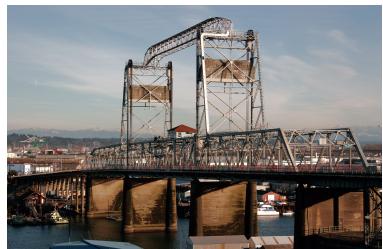
Figure 3: Color transfer algorithm on the HSV color space using my own images

What intrigues me is just how easy it might be to isolate the various components of the bridge or the sky in the resulting image. In photoshop, you could select the greens and oranges, and then transfer that selection to the target image and then use that selection to manipulate the sky.

Example Color Transfer in YCrCb Color Space: Figure 4 shows the color transfer algorithm done on the YCrCb color space.



(a) Source image



(b) Target image



(c) YCrCb resulting image

Figure 4: Color transfer algorithm on the YCrCb color space using my own images

The result is not outrageous like the HSV colorspace example. Indeed, I find the result to be quite pleasant. There is an old-timey feel about the resulting picture. That said, this doesn't look like a color transfer. It's more like the opposite colors got transferred into the image, or perhaps the main colors of the source image were subdued in the target image.