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Subject: Re: color value interpolation from colorbar  
Posted by [j.coenia@gmail.com](mailto:j.coenia@gmail.com) on Thu, 04 Dec 2008 19:15:36 GMT  
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The images are digitized, unfortunately, from analog recordings of medical scanning sessions. This is the reason the colors are not true. There is no way to retrieve the \*exact\* colors as they presumably appeared on the original equipment screen.

Still, the recorded image quality on the tapes is considered good enough for review and even diagnosis. When radiologists look at these images, no one objects that the colorbars are incorrect, and that their reds and yellows don't exactly match the images' reds and yellows. No one can even tell, in fact. It is however clear to the human eye which areas are more yellow and which are more red. A computer should also be able to both find the image colors and assign interpolated colorbar values for more quantitative analysis.

Even without the errors introduced by analog recording onto tape and digitization, I can imagine a color-coded image with gradations from red to yellow too fine to discern with the human eye. A colorbar could be created with a smaller sampling of discrete representative hues from most yellow to most red, say 25 hues. A human observer could interpret such a colorbar. Isn't it possible to write a computer program to interpolate values to the unknown colors from the colorspace traversed by a partial colorbar?

Even in the very simple case of a two-hue colorbar, with yellow at 0 and red at 100, we would still interpolate a value for an orange somewhere between 0 and 100, probably 50, based on certain assumptions we hold about color gradients. With more intermediate hues and more gradient values, shouldn't it be possible assign a reasonable value for that orange?

It's clear that I do not know that much about color theory, but the motivation for this is that if a human observer can perform rough color interpolation on corrupted color-coded images, then a computer should be able to perform finer interpolation.

Thanks

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