Subject: Re: correlation between images
Posted by Wout De Nolf on Mon, 06 Apr 2009 15:13:26 GMT
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On Mon, 6 Apr 2009 07:35:46 -0700 (PDT), Mike
<Michael.Miller5@gmail.com> wrote:

> What about just using the RMS difference between the two images?

Whenever I use cross-correlation, RMS difference, mutual information, Kullback-Leibler distance,...(there seem to be thousands) it always comes down to this: you have a measure for image difference (i.e. a number) which should be ideally close to 1 (or some other value, dependent on what you used). When it's "close enough", the images match.

But what is "close enough"? I guess nobody knows. Therefor I tried Brian's approach of dividing in subimages and not only put a threshold on the correlation coeff (or RMS or whatever) but also check whether the subimages are located (+/- x pixels) at their original position after the cross-correlation loop. (This can go wrong when parts of the images a just noise.)

Another way to solve the "close enough" problem is statistical hypothesis testing of the Pearson correlation coeff.
(http://davidmlane.com/hyperstat/B62955.html)
However this would only allow me to say that R is significantly different from zero (if p-value <= 0.05 that is) so there is some correlation. Fisher's z' transformation of R should allow testing H0: R=x but this doesn't work for x=1 because z=Inf and p-value=0 (i.e. R always significantly different from 1). So this approach doesn't work (or I'm missing something).

I'm just trying to find out whether there is a more robust/objective image comparison method.