Subject: Re: help IDL with some equations implementation and optimized coding
Posted by Jeremy Bailin on Tue, 01 Jun 2010 12:56:40 GMT
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On Jun 1, 1:30 am, lila hadji <lhad...@gmail.com> wrote:
> Dear everybody,
>
> I tried to implement the dictionary update step in the Method of
> Optimal Directions, as explained in the paper (basically equations 8,
> 9, 17, 18 and 25)
>
> % "Method of optimal directions for frame design",
> % K. Engan, S. O. Aase, and J. H. Husøy,
> % in Proc. ICASSP, Phoenix, AZ, Mar. 1999, pp. 2443Ð2446.
>
> First link of the page:
>
> http://scholar.google.com/scholar?hl=fr&q=%22Method+of+o ptimal+direct...
>
> The problem is that I didn't obtain good results - as it is expected
> within the paper - with my implementation and I was wondering of
> anyone can check out the code and the equations in the paper and help
> me out why my code does not give the expected results and if there is
> any improvements I can do on the code to get rid of the for-loop,
> please?
>
> Here is the version with the loop.
>
> ;;#IDL Code#
> $Main$
>
> ;N=16 : size of each sample
> ;m=64: number of samples
> ;k=32:number of atoms in the dictionary to be learned
>
> ;Y=randomn(seed,m,n) : samples
> ;D=randomn(seed, k,n): dictionary to be learned
> ;X=randomn(seed,m,k): sparse codes to construct in the domain D
>
> B=dblarr(N,k,/nozero)
> ones=dblarr(N,/nozero)
> ones(*)=1
>
> A=invert(transpose(x)#X,/double)
> R=Y-D##X
>
> for i=0,k-1 do begin
> xi=X(*,i)

> B(*,i)=total((ones##xi)*R,1)
> end
>
> delta=A##B
> D=D+transpose(delta)
> end
>
> ;; #IDL Code#
>
> Thank you very much for your help in advance.
> Cheers
> Lila

I don't know about the first question, but as for the second you can replace lots of that code including the for loop with:

B = matrix_multiply(R, X, /atranspose)

-Jeremy.
