Subject: Re: Euclidean distance
Posted by Caesar E. Ordonez on Thu, 21 May 1998 07:00:00 GMT
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<HTML>
Imanol Echave wrote:
<BLOCKQUOTE TYPE=CITE>Hi:

<P>   I'd like to program the following routine: giving two set of vectors with n and

m vectors respectively (a matrix of size pxn and another of size pxm), I want to

obtain a matrix of size nxm where the element (i,j) is the euclidean distance

from first set's vector i to second set's vector j. I know the solution using

loops, but exists it a different way without loops?</BLOCKQUOTE>
Here's my (quick and dirty) solution for two vectors.

<P>   function edist, a, b

    na = n_elements(a)

    nb = n_elements(b)

    ; print, na, nb

    aa = a

    bb = b

    aa[*] = 1

    bb[*] = 1

    c1 = a^2#bb

    c2 = aa#b^2

    c = c1+c2

    c = sqrt(c)

    ;Check with loops

    ;d=dblarr(na,nb)

    ;for k=0,nb-1 do begin

    ;for j=0,na-1 do begin

    ; d[j,k]=sqrt(a[j]^2 + b[k]^2)

    ;endfor

    ;endfor

    ;print,' '

    ;print,c-d

    return, c

    end

<P>You can easily generalize to matrices by inserting code, before

the second line, that checks dimensions of a and b, and transforming

a and/or b to one-dimensional array via reform function.
<PRE>--
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