Subject: Re: Help with MNF in ENVI
Posted by jnettle1 on Wed, 21 Apr 2004 15:55:00 GMT
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You were apparently looking for a way to programatically apply an MNF
to a set of spectra, but just in case you're willing to do it by and
and missed it, ENVI has an "Apply forward MNF to spectra" routine that
I believe will do just what you want. But I don't know if there's a
"doit" procedure that goes along with it. I haven't played with
these kinds of operations that much. Anyway, just thought I'd mention
this, just in case :)

Jeff

Zhihong Pan <zpan@malibu.eecs.uci.edu> wrote in message
news:<Pine.GSO.4.58.0404201803450.22467@malibu.eecs.uci.edu>...
> You are the man, Peter.
>
> You got it all correct (it's ## if you want to know). I was messing with
> evec but no luck. Thanks again.
>
> Pan
>
> PS, just read your reply again. Found a minor bug, for AVG, it's only
> computed for the selected bands but stored in original order. So the
> non-selected bands have zero in the array.
>
> On Wed, 21 Apr 2004, Peter Mason wrote:
>
>> Zhihong Pan wrote:
>>> Hi, All
>>>
>>> First post here, need help for MNF transformation in ENVI program.
>>>
>>> I can use MNF_DOIT for transformation of an image. But now I want to
>>> apply the existing MNF transformation to a few spectra but ENVI
>>> doesn't support it. I assume the transformation matrix is saved in the
>>> M

NF statistics file but not sure about the details. Any comments
>>> appreciated.
>>>
>>> BTW, this might not be the correct forum for ENVI question. Any
>>> recommends of forums for ENVI program?
>>>
>>> Thanks

>>
>>
>> It seems to be okay to post ENVI questions here. <cringes>
>> Anyway... I was also faced with this issue a few years ago. I did some
>> experiments and, IIRC, in an MNF stats file the forward transformation
>> matrix is saved in the spot where the *covariance* matrix is usually saved.
>> The MNF eigenvalues are saved in the eigenvalue spot. Not sure about the
>> eigenvectors spot - possibly the reverse transformation matrix.
>> It has been some time since I checked this and things might have changed,
>> but assuming they haven't, this is how you'd get the goodies to do your own
>> MNF transform:
>> envi_get_statistics, stats_file_name, cpos=cpos, mean=avg, cov=fmnf,
>> eval=mnfeval
>> (You don't actually need MNFEVAL for the transform but it's handy for a
>> plot.)
>> More detail:
>> The image mean (AVG) is always computed for all bands while the MNF stats
>> can be computed for a subset. CPOS is an index array showing which bands
>> were used. Last I checked, an ENVI stats file doesn't contain band
>> wavelengths so the only check that you can do to see if the stats file
>> *might* be spectrally compatible with your spectra is along these lines:
>> Compare your full number of bands against N_ELEMENTS(AVG) and the size and
>> contents of your selected-bands index array against CPOS.
>> In order to do the transform you will have to extract the MNF's input
>> channel subset from AVG:
>> AVG_SUB=AVG[CPOS]
>> The transform for a spectrum SPEC then goes something like this:
>> (SPEC-AVG_SUB) ## FMNF
>> (# or ##? You ask too much of me :-) FMNF or TRANSPOSE(FMNF)? Again,
>> you ask too much :-) A couple of experiments with an image and you'll be
>> there.)
>>
>> BTW, if you are thinking of transforming, say, resampled spectral-library
>> spectra using MNF stats calculated for an image, remember that it'll only
>> work if the spectra are of the same kind as what's in the image (e.g., both
>> reflectance) and are scaled the same (e.g., both 0 to 10000). (This in
>> addition to having the same #bands and wavelengths.)
>>
>>
>> HTH
>> Cheers
>> Peter Mason
>>
>>
>>