
Subject: Minimum Noise Fraction Doubts...

Posted by on Fri, 26 Oct 2007 10:39:02 GMT

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Dear all,

I am going to use artificial neural networks (anns) to classify different urban land-uses in belgium's flemish region. The other land uses that not urban will be classified in braoder classes such as agriculture, forest, water, others, etc etc. For this i will use modis imagery covering 2001 to 2006.

I have made area fraction images (afis) from land use raster datasets covering flanders. These datasets were provided by specialised belgium agencies. From these datasets i calculated the percentage of each land use occupation in a pixel size of $250 * 250 \text{ m}^2$ (same pixel size as the modis imagery resolution that i 'll use). This operation gives me at the end the so called afis.

These afis only cover brussels region, but they will work as reference imagery to train the anns. After training the anns for the brussels area, i can extrapolate these anns for the entire flemish region.

As i said before, i will use modis imagery with $250 * 250 \text{ m}^2$ resolution, so the red and nir bands and also cleaned ndvi images, i.e. without clouds, snow, etc etc... i now have an image in the red, nir and ndvi for each month of 2005. This is the methodology how the images were obtained:

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Out of the red and Nir S30 image, I calculated the NDVI

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i think that my methodology is not correct because: mnf should be

between bands and not images, right? So, i should pick band red, nir and ndvi for january and see which one has less correlation with the others, and perform each month separately? Because i am doing an mnf to 12 images * 3 bands (red, nir and ndvi) i don't know if this is correct... envi gives me an mnf graph where the first 5 images have the highest eigenvalues. And supposing it's correct and looking at the output graph from envi, i should use the eigenvalues of the first 5 images, because after these the correlation between images is strong? But still, the xx axis of this graph shows the number of images and not the bands, so , how correct can this be (i used 33 images for 2005)? Anyway, if i look at the 5 first images given by the mnf results, they look ok, and i can see that they not coincide with the images composing the stack layer (there is no alphabetical match as i took the images to form the stack layer by alphabetical order). I can also see that it seems that no flags exist (absence of data due to snow, ocean, etc etc). The values of the images can be lower than 0 but also around 75 (ocean), i do not know if you can tell something from this.

thank you for your help!

nuno

Subject: Re: Minimum Noise Fraction Doubts...

Posted by [Jeff N.](#) on Fri, 26 Oct 2007 14:45:43 GMT

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On Oct 26, 6:39 am, Nuno Vilaça <nuno.avs...@gmail.com> wrote:

- > Dear all,
- >
- > I am going to use artificial neural networks (anns) to classify
- > different urban land-uses in belgium's flemish region. The other land
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I'm not familiar with your datasets, nor am i completely sure what your exact problem is, so forgive me if i've completely mistaken your question. But my read on this is that you've compiled one huge image cube that is the combination of several multiband image cubes taken at different times. So you have all the bands for all the times compiled into one big dataset. If that's true, i would agree that this isn't the best way - it just doesn't sound like that image cube has any physical meaning anymore. Now, it's actually a fairly common practice to build image cubes such that every band in the image cube is, instead of being a measure of all wavelengths at a given time (the normal case), in fact a measure of a single wavelength at different times - a multitemporal cube vs. a multispectral cube. I suggest you consider doing it this way. In your case you'd build a "red band" cube for each point in the time series, a "nir band" cube for each time point, and an "ndvi cube." You'd have to do three different mnf's, then perhaps combine the results, but that makes more sense to me.

Jeff

Subject: Re: Minimum Noise Fraction Doubts...

Posted by on Sun, 28 Oct 2007 18:43:06 GMT

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On 26 Oct, 15:45, "Jeff N." <jnett...@utk.edu> wrote:

> On Oct 26, 6:39 am, Nuno Vilaça <nuno.avs...@gmail.com> wrote:

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> - Mostrar texto citado -

Dear Jeff,

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images of belgium in nir and 12 images of belgium in red, so, one
image per month for each band and ndvi.

maybe you are right about your approach where i should separate the
bands and ndvi and perform a single mnf for each of these bands. but
in the end - if combining the three mnfs - wouldn't the result be more
or less the same as if i just join all the 36 images in a single
mnf??? i mean, i do understand your point of view and it's probably
less biased then mine, but it seems to me that at the end it'll turn
up the same...

anyway, i think you are correct with ur multitemporal approach for the
single bands, about the combination mnf i think i'll give it a try!!!
thank you!!!

Subject: Re: Minimum Noise Fraction Doubts...

Posted by on Mon, 29 Oct 2007 09:41:54 GMT

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> thank you!!!- Hide quoted text -
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> - Show quoted text -

Jeff,

i used your procedure sugestion and it seems that it works ok when
doing mnf separately for each band, but when combining the mnfs of the
3bands into a single mnf, the outputs are quite bad as envi suggests
that i only use 2images. one has simply no data at all, and the other
one does have data, but still some parts are flaged (so, no data)...
i'm still wondering which approach is better...
regards,
nuno
