
Subject: Avoiding For Loops

Posted by [sudipta](#) on Mon, 01 Aug 2005 19:15:58 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hello Everybody,

My IDL problem is simple but is very crucial. I have a small program that calculates the RMSE difference between each pixel spectral signature for a landsat scene and corresponding spectral signatures from a Look up Table database that came from experiments. In order to do the RMSE calculations I am having to run three for loops as the variable that has all the database spectral signatures is a 4 dimensional variable where the last dimension has the 6 simulated values for the 6 bands of landsat. So the portion for RMSE calculation in my program looks like the following:

```
for i = 0,9 do begin ;number of AI
  for j = 0, 14013 do begin ;number of spectral combinations
    for k = 0, 9 do begin ;number of fractions
      tdata = reform(data(i,j,k,*),numbands,1)
      rms(i,j,k) = total((tdata - lfddata)^2)
    end
  end
end
end
```

where 'data' is the 4 dimensional variable containing all possible database signature combinations, lfddata has the landsat reflectance from each pixel. I have a landsat 6 band file in BIP format so I do a 'While ~eof(file)' loop and read in each 6 band spectral profile for each pixel and compute its RMS with all possible database spectral combinations with the aim being to choose the database signature that has the closest match.

But the first three dimensions of the database are respectively 10,14014 and 10 so giving a total of 1410400 combinations for each pixel. This is slowing things down terribly. So I was wondering if there was a way to avoid the for loops and do the RMS computation in one single step? Please let me know as any feedback from you will be welcome.

Thanks

Sudipta
