
Subject: Maximum Likelihood processing time
Posted by [lbusett](#) on Tue, 09 Mar 2004 11:59:54 GMT
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Hi all,

I need to evaluate the variation in the processing time required to perform a maximum likelihood classification with a variable number of input bands, so I'm using the ENVI built-in functions "envi stats doit" (in order to compute ROI statistics) and "class_doit" (in order to classify the image).

My problem is that when I perform the classification for the first time I have a high processing time (i.e. 60 seconds), but if I perform the same classification a second time, the time required for the process is much lower (i.e. 10 seconds). I tried to reset the idl session (with the `.FULL_RESET_SESSION` command), and also to quit and restart idl and perform again the classification, but after the first classification the time required for the process remains low. The only way to have a comparable processing time is to restart my pc. This also happens if I increase the number of input bands used: If I make a classification with 10 bands, I have a high processing time, but if I first make a classification with 5 bands and then a classification with 10 bands, the time required for the 10 bands classification is lower.

Does anybody know why it happens ? Is IDL (or ENVI) "storing" somewhere the informations on previous calculations ?

I don't want to have to restart my computer every time I change the number of bands in order to get comparable processing times....

Thanks for the help,

Lorenzo Busetto

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Subject: Re: Maximum Likelihood processing time
Posted by [Pepijn Kenter](#) on Wed, 10 Mar 2004 08:46:05 GMT
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Lorenzo Busetto wrote:

> Does anybody know why it happens ? Is IDL (or ENVI) "storing"
> somewhere the informations on previous calculations ?

>

Not IDL but your system does. Data that is recently used is stored in the cache for faster processing. This can be data from your harddisk that is temporarily stored in the main memory. Likewise, data in your main memory can be stored in the CPU memory cache, which is faster than the main memory. This last cache is managed by the hardware, your OS is responsible for the former.

So the second time you run your software, the data is already residing in a faster type of memory, hence the shorter execution time.

> I don't want to have to restart my computer every time I change the
> number of bands in order to get comparable processing times....

>

I vaguely recall reading that it's customary to run software twice when measuring execution times; one time to get the data in the cache, the second time to measure the performance.

I never did an actual benchmark, but I know it's not a trivial task. There are many other things to consider, for example: swapping, other running processes, scalability, etc. If I were you I'd google for software metrics or measuring software performance.

You might also want to take a look at the PROFILER procedure in IDL. With this tool you can examine the execution times of the individual procedures and functions.

HTH, Pepijn Kenter.

Subject: Re: Maximum Likelihood processing time
Posted by [lbusett](#) on Fri, 12 Mar 2004 14:04:44 GMT

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At last, thanks to some suggestions, I seem to have solved the problem: if I clean the RAM of my PC (i.e. with CLEANRAM software) after every classification, I have comparable processing times, independently from previous elaborations.

Maybe this isn't the correct way to make benchmarking, but since a classification is typically a process which is executed only once, I think that the processing times that I calculate in this way can be considered representative of a "real" application.

Thanks to all for the help,

Lorenzo
