Subject: Matlab Translations -- Was: filtering images in the fourier domain
Posted by David Fanning on Tue, 18 Nov 2003 00:47:12 GMT
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M. Katz writes:

> I know this is a topic for a separate thread, but I'm interested to
> know more about the Matlab vs. IDL differences. I always figured their
> similarities made things a toss-up for small projects--but objects,
> and pointers, and object graphics give IDL a big advantage in
> important ways for more complex projects.
>
> I'm in an IDL minority among colleagues who are all trained on free
> Matlab academic licenses. David, as someone actually making
> translations, what can you say about concrete differeces and ease of
> solution between the two systems.

This is the first day of my first Matlab translation. My general impression is that I wish I had paid WAY more attention in those linear algebra classes! :-)

What I am working on is a small application that comes with it's own GUI for importing values into some equations that need to be solved in an iterative way. I have about 30-40 m files, I guess. About 10 of them concern the algorithm, and the rest appear to be programs that set up the GUI.

The most obvious difference is that Matlab array indexing starts at 1. This causes a lot of errors in my loops. And I see LOTS of loops in the Matlab code. I usually start by doing a direct (you might say "loopy") translation to be sure I'm getting the code correct. Then I usually say "Wait a minute. Can't those 10 lines be replaced with this one?". The answer is inevitably "yes".

I run into lots of Matlab "functions" that I don't know. Matlab has a *wonderful* web site that explains what these things do. That is very helpful.

In this application I'm seeing a lot of matrix algebra that I have mostly forgotten. There are a lot of diagonals being calculated, then a matrix being multiplied with something else. I guess I don't do much math in IDL, or something, but it has been a long time since I thought much about kind of thing. The Matlab folks like to shift a power spectrum by multiplying every other row and column by -1. I think a simple SHIFT does the job very nicely, thank you!

My main problem at the moment is that I have a hard time seeing how these m files are put together. I don't really see the "thread" of the application yet. There are a lot of "global" variables that are important to me, but I have not been able to see where these get their default or starting values. I see the main m module that gets everything started, but I don't see how initial variable values are assigned. I don't see any "optional" parameters in the function definitions. (This could all be a function of the person writing the code. Lord knows I've seen strange IDL programs in my day!)

I guess my general impression is that Matlab looks WAY more mathematically sophisticated than IDL, but IDL looks WAY easier to program. I guess it was ever thus. :-)

Cheers,

David

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