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Subject: IDL/Wave alternatives

Posted by [&lt;aaron](#) on Tue, 10 Oct 2000 07:00:00 GMT

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I am looking for an IDL, PV-Wave, MatLab, -like product, free and open source.

Does anybody know of any suggestions?

I have run into scilab, which seems to be the front-runner to me. I once saw a graphing package mentioned in LINUX journal, from one of the USA National labs... but it seemed too minimal.

I'm looking for something to do image processing. Writing new algorithms. If it has a nice interpreted command language, and open architecture, I'm willing to add c-modules to do things like import/export of various file formats.

I just want to get images into data arrays that I can then play with.

Thanks for any help.... including pointers to FAQ's.

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Subject: Re: IDL/Wave alternatives

Posted by [Jarle Brinchmann](#) on Wed, 25 Oct 2000 07:00:00 GMT

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hcp@newsread.ed.ac.uk (H C Pumphrey) writes:

> |> Re: Graphics  
> |> - A package to do geographical maps was just created for PDL.  
>  
> Ooooh, I'm glad to stand corrected here! Is that going to be distributed  
> with PDL iteself or does it come from elsewhere?

It is on CPAN, but looking at it again it is somewhat limited, here is Doug Hunt's announcement:

> Oliver, Jim: I have just uploaded to CPAN the module  
> PDL::Graphics::PGPLOT::Map (painful name, I know) which is a  
> self-contained PDL interface to the GMT coastline/river/boundary  
> database.

- > The function 'fetch' will give you PDLs with lon/lats. This does not
- > require PGPLOT. Other functions draw world maps with labeled lon/lat
- > lines using PGPLOT and (currently) either a Linear or Azimuthal
- > Equidistant projection. New projections should be easy to add.

There has also been done some work on fully 3D projections using OpenGL in PDL which is complementary.

- > .. Which brings me to another question -- Jarle, Is the HDF interface you
- > are working on support for HDF4.1rX or HDF5 ? These appear to be
- > humongously different. And that puts me right back on topic for
- > this newsgroup: The HDF support in IDL looks like it is for HDF4.1rX.
- > Does anyone know if and when RSI plan to support HDF5 in IDL? The project
- > I work on is threatening to go over to HDF5 on some unspecified timescale.

In 5.3 IDL supports HDF4.1rX where X>=2 I believe (at least for compression) what the minor version number is for the DLM I am not sure.

My support for HDF in PDL is also based on HDF4.1(r3) to be compatible with IDL (I primarily use IDL for this). I really wish I was interfacing to HDF5 though as the programming interface is sooooo much nicer.. (My PDL interface is intended to be much more high-level than the IDL interface and writing that with HDF4.1 s\*cks.)

I don't think you should lose sleep yet though as HDF5 is still in flux and there is certainly major efforts under way to enable mappings from HDF4 objects to HDF5. And looking at NCSA's page this might be of interest: (from <http://hdf.ncsa.uiuc.edu/tools5.html>)

#### IDL-HDF5 Interface

In support of EarthScan, Luke Bishop at Photon Research Associates, Inc. has developed an IDL-HDF5 Interface. An IDL-HDF5 Reference Manual is available in PDF format. Contact Luke for more details regarding the interface.

Jarle.

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Subject: Re: IDL/Wave alternatives  
Posted by [hcp](#) on Wed, 25 Oct 2000 07:00:00 GMT  
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Hi Jarle and everyone,

Firstly, thanks to Jarle for some comments about PerlIDL -- it is good to have

these from closer to the horses mouth than I am!

In article <woblmvdrpqn.fsf@opsay.physics.ox.ac.uk>, Jarle Brinchmann <jarle@astro.ox.ac.uk> writes:

|> hcp@newsread.ed.ac.uk (H C Pumphrey) writes:

|> >

|> > (5) PerlDL

|> > -----

|> > PROS: It `_is_ perl`, with add-ons.

|> > CONS: It `_is_ perl`, with add-ons. 2-D graphics done via `pgplot`, which is

|> > not true free software. No geographical maps.

|> [snip]

|> Re: Graphics

|> - A package to do geographical maps was just created for PDL.

Ooooh, I'm glad to stand corrected here! Is that going to be distributed with PDL iteself or does it come from elsewhere?

|> In addition for many IDL users it might be of interest that there is  
|> no interface to HDF (although I am writing one), but there is one for  
|> netCDF.

That puts PerlDL in the same boat as Yorick, more or less. Yorick has some NetCDF support, but no HDF support. (David Munro had a good go at this a while back and I have spent a few hours trying to get his code to work before deciding that I don't know enough about HDF.)

.. Which brings me to another question -- Jarle, Is the HDF interface you are working on support for HDF4.1rX or HDF5 ? These appear to be humongously different. And `_that_ puts me right back on topic for this newsgroup: The HDF support in IDL looks like it is for HDF4.1rX. Does anyone know if and when RSI plan to support HDF5 in IDL? The project I work on is threatening to go over to HDF5 on some unspecified timescale.`

All the best

Hugh

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Subject: Re: IDL/Wave alternatives  
Posted by [Jarle Brinchmann](#) on Wed, 25 Oct 2000 07:00:00 GMT  
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hcp@newsread.ed.ac.uk (H C Pumphrey) writes:

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> (5) PerlIDL  
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> PROS: It \_is\_ perl, with add-ons.  
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> not true free software. No geographical maps.

Since I do some development for PDL (as well as being a regular IDL user) I thought I'd pitch in here with a couple of extra points.

Re: Graphics

- A package to do geographical maps was just created for PDL.
- There is also a (constantly developing) interface to OpenGL which at least as long as you use Mesa is free.

I use PDL a lot because it is free, which is nice for my home machine. It also has some distinct advantages of IDL in particular for multi-dimensional array manipulations, as PDL has a concept of 'threading' over extra dimensions so that most functions that can deal with a 2D array knows what to do when presented with a 7D hypercube etc. In comparison with IDL this has allowed me to cut down on loops significantly.

It is also (IMHO) much easier to interface external libraries/C/Fortran code to PDL than to IDL. Of course it all depends on how used you are to doing this in IDL but hey .. :)

On the negative side there are two points that stand out:

- First of course the point about it being Perl. If you love Perl, you are likely to like PDL. If you hate Perl, you probably will lose your hair very fast with PDL... I love the flexibility and elegance of PDL which is why I use it extensively despite being a long-term IDL user, but sometimes Perl just makes your programs unreadable. It is possible to counter that with OO programming for instance, but it requires some constraints on the programmer.

- The second is the small code-base. At the moment the code is actively developed by people that have spent time on the core of the language and very few packages of "useful" code have been made publicly available. If your main interest is image analysis, esp. astronomical, we have a reasonable set of code ready but for many other applications we are not comparable with IDL.

In addition for many IDL users it might be of interest that there is no interface to HDF (although I am writing one), but there is one for netCDF.

I would advise any Perl friends to have a look, there is also a real chance that the PDL code-base will end up in perl6 when (if? :) this surfaces, and it is at the moment a reasonably stable data language.

Anyway, let me close with the warning that unless you are prepared to a lot of coding do not expect PerlIDL to be a replacement for IDL - it certainly isn't yet for me.

Jarle.

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