Subject: look, no loops!
Posted by Robert Cannon on Wed, 12 Jun 1996 07:00:00 GMT

View Forum Message <> Reply to Message

These postings about loops seem to show that the basic array
manipulation routines in IDL are not quite as clear as they could be.

If you want to make a 2d array with a(i,j) = j you cna do it with

```
      a = lindgen(nx, ny) mod nx
OR    a = lindgen(nx) # (intarr(ny) + 1)
OR    a = rebin (lindgen(nx), nx, ny)
OR  ...others?
```

But why should you have to? - You dont see many Yorick plugs on
this group, but almost everything I do in IDL (with the
crucial esception of widget applications) could be done better in
Yorick - and it is free.

```
eg,   the above would be
        a = span(1,nx,nx)(,-:1:ny)
```

Yorick indices start at one. The "-:1:ny" adds an index to the 1-D
array and copies the first row ny times.
You can add as many diomensions as you like; a(,,-,-) is a 4-D array
with the last two dimesnsions equal to one.

Or, if you want the maximum along a particular dimension, you have:

```
   maxx = a(max,)      a vector where each elementt is the max of a row
   maxy = a(,max)          ...                             column
```

etc, etc for arbitrary arrays.

Likewise, you can do a generalised matrix multiplication of a pair of
arrays along any dimensions by marking the dimensions you want to
contract with a + sign:

```
       a (+,) * b(,+)   for an ordinary matrix multiplication.
```

Well, I'm very impressed by Yorick, and thought maybe
someone else who was fed up with writing messy idl loops might be
interested. It was written by David H. Munro at Lawrence Livermore
National Laboratory. I dont know if there is a home page, but some info
is at:

http://netlib.org/env/yorick.readme
and
http://hpux.ee.ualberta.ca/hpux/Physics/yorick-1.0.html

Regards, Robert Cannon

Neuroscience Research Group
Southampton UK,   SO16 7PX

tel: (0)1703 594286
Fax: (0)1703 594319
rcc@hera.neuro.soton.ac.uk