Subject: drizzle function (?)
Posted by Helder Marchetto on Fri, 02 Dec 2016 14:23:23 GMT
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Hi,
I must make first a short intro: I'm not an astronomer and I found recently out that the Hubble telescope used a drizzle algorithm to achieve an imaging resolution higher then the pixel accuracy. As I would say, they have gone below the Nyquist frequency (1/2l with l being the pixel spacing).
This is useful when the imaging system delivers an image with higher resolution than what the detector can resolve *and* when the image can shifted arbitrarily on the detector with subpixel resolution.

Ok, so I would like to try that. If anybody has some code that does that, it would be super-cool, but assuming that I'm not that lucky:

- Anybody have a good reference where the math/physics of the image reconstruction process is described?
- Anybody have "practical" experience: how accurate does the subpixel shift have to be? Signal-to-Noise ratios?

I came across an article on David's page, but apparently David's article deals with array decimation and Wayne Landsman mentions:
- that there aren't any "drizzle or other flux conserving algorithms available in IDL.
- there is some C-code that can be linked to IDL. Anybody tried this???

Half way down I thought that this is an astronomy or math question rather than IDL, but at the end of the day I want to implement this in IDL, not C or something else.

Also, I don't use satellite images. I would be dealing with a set of n-images of (nx,ny) pixels and relative n-shifts (dx,dy). I can freely choose (dx,dy), but generally blow 1 pixel, if necessary higher.

Thanks for any help and have a nice weekend,
Helder