Subject: Re: realizing the formula in idl
Posted by Craig Markwardt on Fri, 09 Sep 2005 07:57:25 GMT
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pravesh.subramanian@gmail.com writes:
> Hello,
> How do I realize this formula in IDL?
>
> matrix(x, y) = 1/(s^2 * 2 * pi) * Exp (-(x^2 + y^2)/2 * s^2)
>
> let's say x = y = 300

Greetings, your question is not quite complete. Are X and Y indices,
or are they the independent variables of the function?

Assuming you have a 2D function, and you have the grid positions that
you want to sample as 1D arrays in X and Y, then first I typically
make a 2D array of grid positions,

```
XX = X # (Y*0+1)
YY = (X*0+1) # Y
```

Then it's a simple matter to compute the function almost exactly as
you wrote it,

```
MATRIX = 1/(s^2 * 2 * !dpi) * Exp (-(xx^2 + yy^2)/2 * s^2)
```

If you want to avoid underflow errors, then there are two extra steps
to mask them out,

```
U = -(xx^2 + yy^2)/2 * s^2
MASK = ABS(U) LT 60  ;; May need to tweak this number
MATRIX = MASK/(s^2 * 2 * !dpi) * Exp (-(xx^2 + yy^2)/2 * s^2 * MASK)
```

Good luck,
Craig

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