Subject: Re: Random Numbers
Posted by David on Thu, 25 Oct 2012 14:37:59 GMT
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Yngvar Larsen writes:

>
> On Wednesday, 24 October 2012 23:38:34 UTC+2, John O'Neill wrote:
>> Hello Everyone,
>>
>> I am trying to create a set of random numbers using an Inverse Gaussian Distribution (Wald distribution) but randomu doesn't seem able to do this. Is there anything more general then randomu, or something where I can define what function I want to use to create random numbers?
>
>
> Google and Wikipedia are your friends.
>
> http://en.wikipedia.org/wiki/Inverse_Gaussian_distribution#G
enerating_random_variates_from_an_inverse-Gaussian_distribut ion
>
> IDL> N = 100
> IDL> mu = 1d0 & lambda = 1d0
> IDL> nu = randomn(seed, N)
> IDL> z = randomu(seed, N)
> IDL> igvariates = dblarr(N)
> IDL> y = nu^2
> IDL> x = mu + mu^2*y/(2*lambda) - mu/2/lambda*sqrt(4*mu*lambda*y + mu^2*y^2)
> IDL> ind = where(z le mu/(mu+x), complement=cind)
> IDL> igvariates[ind] = x[ind]
> IDL> igvariates[cind] = mu^2/x[cind]
>
> Include checking for empty index arrays IND and/or CIND if you use IDL version < 8.0.

This code is easy enough to implement that I just wrote
a function, cgRandomWald to do it this morning. You can
find it here:

http://www.idlcoyote.com/programs/cgrandomwald.pro

It works very much like the other RandomX functions in IDL.

Cheers,

David

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