Subject: Generation of another Gaussian random variable from a given one...
Posted by d.poreh on Sat, 28 Jan 2017 04:15:36 GMT
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Folks,
I have a Gaussian random variable with zero mean, and variance (f_x). I need to generate another Gaussian random variable with zero mean, and another variance, that would be correlated with the first one (f_x) with the correlation coefficient of say *r*.
I need some suggestions...
Thanks for any kind of helps in advances,
Cheers,
Dave

Subject: Re: Generation of another Gaussian random variable from a given one...
Posted by d.poreh on Sat, 28 Jan 2017 04:29:46 GMT
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On Saturday, January 28, 2017 at 7:45:38 AM UTC+3:30, dave poreh wrote:
> Folks,
> I have a Gaussian random variable with zero mean, and variance (f_x). I need to generate another Gaussian random variable with zero mean, and another variance, that would be correlated with the first one (f_x) with the correlation coefficient of say *r*.
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> Cheers,
> Dave

... I mean at the end we should have:
corr(f_x, f_y) = r
The correlation between two Gaussian random variable with zero mean, and variance should be = r

Subject: Re: Generation of another Gaussian random variable from a given one...
Posted by Jim Pendleton on Sat, 28 Jan 2017 04:54:49 GMT
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On Friday, January 27, 2017 at 9:29:50 PM UTC-7, dave poreh wrote:
> On Saturday, January 28, 2017 at 7:45:38 AM UTC+3:30, dave poreh wrote:
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If no IDL solution is quickly forthcoming, there's a similar discussion on stackexchange.com, with an algorithmic description. http://stats.stackexchange.com/questions/15011

An implementation is provided in R. I'm no expert on R syntax, but it looks like the code could be translated from R to IDL.

For validation of an IDL implementation against this reference, you could call R directly via python and the rpy2 bridge.

http://www.harrisgeospatial.com/Company/PressRoom/Blogs/IDLDataPointDetail/TabId/902/ArtMID/2926/ArticleID/14718/Calling-the-R-Statistical-Package-from-IDL-via-Python.aspx

Jim P.

Subject: Re: Generation of another Gaussian random variable from a given one...
Posted by Markus Schmassmann on Mon, 30 Jan 2017 10:54:32 GMT
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On 01/28/2017 05:54 AM, Jim P wrote:
> On Friday, January 27, 2017 at 9:29:50 PM UTC-7, dave poreh wrote:
>> On Saturday, January 28, 2017 at 7:45:38 AM UTC+3:30, dave poreh wrote:
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Hi Dave,

is this what you are looking for?

https://harrisgeospatial.com/docs/generate_correlated_data.h tml

http://www.cis.rit.edu/~cnspci/media/software/generate_corre lated_data.pro

If not, a while back I wrote a function to get 3d random variables given
mean, stdDev and correlations that can process multiple such triplets in
parallel and doesn't break down on impossible inputs.

If you want that I can send it to you, but you'd have to modify it
yourself to make it work in 2d.

Good Luck, Markus

Subject: Re: Generation of another Gaussian random variable from a given one...
Posted by d.poreh on Tue, 31 Jan 2017 15:57:40 GMT
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On Monday, January 30, 2017 at 11:54:36 AM UTC+1, Markus Schmassmann wrote:
> On 01/28/2017 05:54 AM, Jim P wrote:
>> On Friday, January 27, 2017 at 9:29:50 PM UTC-7, dave poreh wrote:
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> parallel and doesn't break down on impossible inputs.
>
> If you want that I can send it to you, but you'd have to modify it
> yourself to make it work in 2d.
>
> Good Luck, Markus

Thanks Markus, the one that u gave me is sufficient for me and works perfect :).
@ Jim> I do not know R, so I have to work with the IDL one, anyhow, thanks a lot for sharing :),
Cheers Guys
Dave
