Random number generator concept



Figure Real number approximation of unsigned integer uniform distribution

Considering a uniform distribution directly mapped from integer uniform distribution RNG to real number space as shown in Figure 1, the probability density is 1/N. minimum of distribution is -0.5, and maximum of N-0.5, N is the range of integer random number.

Average is equal to N/2 – 0.5. Standard deviation is equal to .

In the case of signed integer, average is -0.5.

Mapping;

Mapped distribution: ,

Original signed integer distribution: ,

Mapping coefficients definition: ,

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