ALGORITHM 488: A GAUSSIAN PSEUDO-RANDOM NUMBER GENERATOR [G5]

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Abstract

We present an algorithm GRAND for generating normally distributed pseudo-random numbers, assuming the existence of a source of uniform random numbers. The method is exact, apart from the effect of rounding errors. The idea of using a rejection technique to avoid any elementary function evaluations is due to Von Neumann [4] and Forsythe [3], but our implementation requires less uniform samples per result than previous implementations. In fact, only about 1.38 uniform samples are required per normal variate.

Comments

Only the Abstract is given here. The algorithm appeared as [1]. It is still considered one of the fastest algorithms for generating normal random variates on sequential computers. Other methods are preferable on vector processors [2].

References

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