

Title:

Local Antithetic Sampling with Scrambled Nets

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Abstract:

This paper introduces a hybrid of antithetic sampling and scrambled digital nets. Antithetic sampling typically affects the constant in the error rate, not always for the better. A form of local antithetic sampling, in conjunction with scrambled net sampling reduces the root mean squared error rate of scrambled net sampling from $O(n^{-3/2+\epsilon})$ to $O(n^{-3/2-1/d+\epsilon})$ in d dimensions. The method can also be viewed as a hybrid of scrambled nets with monomial cubature.