

Some New Perspectives on the Method of Control Variates

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MonteCarlo and Quasi-Monte Carlo Methods 2000, [K.T. Fang, F.J. Hickernell, H. Niederreiter, eds.] Springer-Verlag, Berlin, 27-49 (2002)

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The method of control variates is one of the most widely used variance reduction techniques associated with Monte Carlo simulation. This paper studies the method of control variates from several different viewpoints, and establishes new connections between the method of control variates and: conditional Monte Carlo, antithetics, rotation sampling, stratification, and nonparametric maximum likelihood. We also develop limit theory for the method of control variates under weak assumptions on the estimator of the optimal control coefficient.