

Siham Kebaili

University Bejaia, Algeria
siham.kebaili@univ-bejaia.dz

This paper deals with Monte Carlo simulation in case of dependent input random variables. We propose an algorithm to generate refined descriptive samples from dependent random variables for estimation of expectations of functions of output variables using the Iman and Conover algorithm to transform the dependent variables to independent ones. Therefore, such estimates obtained through a chosen mathematical model are compared with those obtained using the simple random sampling method, which proved that the former are the most efficient. Besides, using already published work on independent input variables, we can deduce in case of dependent input random variables, that asymptotically the variance of the RDS estimator is less than that of SRS estimator for any simulation function having finite second moment.

Key Words: Simulation; Monte Carlo Methods; Variance reduction; Iman and Conover