

Abstract Submitted
for the TSF19 Meeting of
The American Physical Society

On the accuracy and performance of the methods for computing the Integrated Autocorrelation of stochastic processes WEISHU DENG, AMIR SHAHMORADI, University of Texas at Arlington — This study aims to test the accuracy and runtime efficiency of the existing methodologies for the computation of Integrated Autocorrelation (IAC) of stochastic time series data. These include the autoregression (AR), batch means (BM), and overlapping batch means (OBM). To perform an unbiased comparison of these methods' efficiency and accuracy, we generate several time series with theoretically-known integrated IAC. Then we test the performance and accuracy of each of methodologies by comparing the computed IAC with the theoretically-known values under a wide range of varying assumptions, for example, the length of the time series, the degree of the autoregressive processes, and the batch sizes in the BM and OBM methods. We also measure the computational complexities of each one of these methods by measuring the required time to compute IAC. Our observation is that the overlapping batch means method can generally provide the best tradeoff between accuracy and efficiency among all methods considered.

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Date submitted: 23 Oct 2019

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