

ON SIMULATION OF A BIVARIATE UNIFORM BINOMIAL PROCESS TO BE USED FOR ANALYZING SCAN STATISTICS*

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Abstract

In analogy to the Poisson process, the concept of the bivariate uniform binomial process is introduced. Then, an algorithm for simulating a bivariate uniform binomial process with parameters (n, p, λ) , $n \in \mathcal{N}$, $\lambda \in \mathcal{R}^+$, $p \in (0, 1)$ is presented. Subsequently, a simulation algorithm for determining a bivariate scan statistic and its empirical distribution is given. Test results from the implementation of these algorithms are reported and comparisons with some other results are presented.

Keywords: Simulation, Monte Carlo Methods, Scan Statistics, Discrete Stochastic Processes.

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