

Bayes Estimation of Parameters of Binomial Type Rayleigh Class Software Reliability Growth Model using Non-informative Priors

Authors : Rajesh Singh, Kailash Kale

Abstract : In this paper, the Binomial process type occurrence of software failures is considered and failure intensity has been characterized by one parameter Rayleigh class Software Reliability Growth Model (SRGM). The proposed SRGM is mathematical function of parameters namely; total number of failures i.e. η_0 and scale parameter i.e. η_1 . It is assumed that very little or no information is available about both these parameters and then considering non-informative priors for both these parameters, the Bayes estimators for the parameters η_0 and η_1 have been obtained under square error loss function. The proposed Bayes estimators are compared with their corresponding maximum likelihood estimators on the basis of risk efficiencies obtained by Monte Carlo simulation technique. It is concluded that both the proposed Bayes estimators of total number of failures and scale parameter perform well for proper choice of execution time.

Keywords : binomial process, non-informative prior, maximum likelihood estimator (MLE), rayleigh class, software reliability growth model (SRGM)

Conference Title : ICBB 2015 : International Conference on Bioinformatics and Biomedicine

Conference Location : Istanbul, Türkiye

Conference Dates : May 21-22, 2015