Random Censoring with Correlated Failure and Censoring times

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Abstract—*Random censoring scheme has been extensively discussed in literature for several statistical distribution models. They assume that failure time and censoring times are independent. But there are several situations in which it is observed that as the failure time increases, the censoring rate increases due to impatience. For example in clinical trials and other medical studies. In view of above, in this article it is assumed that failure time and censoring time both are negatively correlated and follow the Gumbel's type-I bivariate exponential (BVE) distribution.*

The model is developed for this situation with correlated failure and censoring times. We obtain the maximum likelihood estimators (MLE's) of the unknown parameters along with their confidence intervals. The expected time on test is also calculated. To evaluate the impact of prior information, the parameters are estimated in Bayesian frame-work using informative priors under generalized entropy loss function. A numerical study is conducted for comparing the performance of the estimators. In last, a real data set is given for illustrative purpose.