A SYSTEM RELIABILITY ESTIMATOR FOR IMPERFECT DEBUGGING MODELS AND ITS LARGE-SAMPLE PROPERTIES

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SUMMARY

We consider a system of m software connected in series. The distribution of the failure time of each software is based on a generalized Jelinski-Moranda model. The software that is the source of a system failure is debugged under the assumption that the responsible bug is completely removed with a probability that is a function of time. At the end of a fixed time debugging process, the reliability of the system is examined by observing if the system completes a randomly selected task before system failure. Relevant estimators are obtained and their large-sample properties are established.

Keywords and phrases: Counting process, maximum likelihood estimation, software reliability.

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