Assessing Reliable Software using SPRT based on LPETM

Abstract

Software reliability assessment is increasingly important in developing and testing new software products. Logarithmic Poisson Execution Time Model (LPETM) is a software reliability model which predicts the expected failures and hence related reliability quantities better than existing software reliability models. It uses Non-Homogeneous Poisson Process (NHPP) with a mean value function that is dependent on exponentially falling fault detection rate. The well known sequential Probability Ratio Test (SPRT) procedure of statistical science is adopted for this model in order to decide upon the reliability / unreliability of developed software. The model is evaluated by using 6 Data Sets.

References

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Index Terms

Computer Science

Information Technology

Keywords

LPETM  Maximum Likelihood Estimation  Unreliable Software  Mean Value Function  Intensity Function