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## Abstract

A neural network based software reliability model to predict the cumulative number of failures based on Feed Forward architecture is proposed in this paper. Depending upon the available software failure count data, the execution time is encoded using Exponential and Logarithmic function in order to provide the encoded value as the input to the neural network. The effect of encoding and the effect of different encoding parameter on prediction accuracy have been studied. The effect of architecture of the neural network in terms of hidden nodes has also been studied. The performance of the proposed approach has been tested using eighteen software failure data sets. Numerical results show that the proposed approach is giving acceptable results across different software projects. The performance of the approach has been compared with some statistical models and statistical models with change point considering three datasets. The comparison results show that the proposed model has a good prediction capability.

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Computer Science

**Index Terms**

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**Keywords**

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