Support Vector Machines for Reliability System

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ABSTRACT

The support vector machines (SVMs), as a novel type of learning machine based on statistical learning theory, can be used for regression and time series prediction and have been reported to perform well by some promising results, but it is difficult to determine parameters of SVMs. In this study, we combine SVMs and genetic algorithm (GA), Uses GA search parameters of SVMs. The work presented here examines the feasibility of applying SVMs to predict reliability. The experimental comparison between the SVMs and other models that MLP, GRNN, ARIMA demonstrates that the SVMs is superior to conventional them in predicting reliability with five-type reliability data.

Keywords : support vector machines ; genetic algorithm ; reliability growth models ; time series ; validation data ; Mann-Whitney U test ; Wilcoxon test

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