

عنوان مقاله:

GENETIC PROGRAMMING AND MULTIVARIATE ADAPTIVE REGRESION SPLINES FOR PRIDITION OF BRIDGE RISKS AND COMPARISION OF PERFORMANCES

محل انتشار:

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خلاصه مقاله:

In this paper, two different data driven models, genetic programming (GP) and multivariate adoptive regression splines (MARS), have been adopted to create the models for prediction of bridge risk score. Input parameters of bridge risks consists of safe risk rating (SRR), functional risk rating (FRR), sustainability risk rating (SUR), environmental risk rating (ERR) and target output. The total dataset contains ۶۶ bridges data in which ۷۰% of dataset is taken as training and the remaining ۳۰% is considered for testing dataset. The accuracy of the models are determined from the coefficient of determination (R^2). If the R^2 the testing model is close to the R^2 value of the training model, that particular model is to be consider as robust model. The modeling mechanisms and performance is quite different for both the methods hence comparative study is carried out. Thus concluded robust models performance based on the R^2 value, is checked with mathematical statistical equations. In this study both models were performed, examined and compared the results with mathematical methods successfully. From this work, it is found that both the proposed methods have good capability in predestining the results. Finally, the results reveals that genetic Programming is .marginally outperforms over the MARS technique

کلمات کلیدی:

.bridge risks, genetic programming, multivariate adoptive regression splines, performance criteria

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