

An Optimization Framework Using Adaptive Kriging Method and Restricted Evolution Strategy

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Abstract

The Kriging model has been widely used to facilitate the analysis and optimization of complex systems which require computationally expensive simulation codes. To improve the accuracy of this model, the local minimum and maximum points are selected from the population set obtained by the restricted evolution strategy (RES) routine. The selected points are added to the sample data set and the Kriging model is reconstructed using the updated sample data set. The proposed method was applied to analytical function optimization and practical electromagnetic design optimization and the results are quite satisfactory in terms of accuracy and reduction of function calls.