

Evolutionary, and especially genetic algorithms have become one of the most successful methods for the optimization of empirical objective functions. However, in many engineering applications, evaluation of the empirical fitness function can be very time consuming or cost a considerable amount of money. In this article, we employ a surrogate model of the original fitness function which serves as a fast approximation whenever needed. First, we intended to use finite mixture models, but radial basis function networks was finally used as a particular surrogate model because of implementability. With this method, much larger populations or several generations can be simulated without waiting for expensive objective function evaluation. As a result, faster convergence in terms of the number of the original empirical fitness evaluations is achieved.