Estimating Strength of Concrete Using a Genetic Algorithm Combining Operation Tree (GAOT)

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Abstract

The main purpose of this paper is to propose an incorporating a genetic algorithm (GA) into the Operation Tree (OT), called GAOT, and apply it to estimate the compressive strength of high-performance concrete (HPC). A large number of experimental data were used to compare accuracies of the model building technique. The results show that this novel model, GAOT, can obtain highly nonlinear mathematical equations with low estimating errors for predicting the compressive strength of HPC.

Keyword：High-performance concrete. Nonlinear regression analysis. Back-propagation networks. Genetic Algorithm operation trees.